SFG3185 V1

Public Private Partnership Commission

Digital Malawi Project (DMP)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

FINAL DRAFT REPORT

Public Private Partnership Commission
Livingstone Towers
2nd Floor
P O Box 937
Blantyre
MALAWI

February 2017

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February, 2017

ACKNOWLEDGEMENT

The Consultant wishes to acknowledge with thanks the co-operative contribution of all persons and organizations involved in the preparation of this Draft Environmental and Social Management Framework. The Consultant is very grateful to the Client for the guidance and support rendered during the study.

In particular, the consultant gives thanks to the World Bank Team, Task Team Leader and Safeguard Specialists who provided useful guidance during the preparation of this report. The Consultant is also indebted to the Project Implementation Unit at Public Private Partnership Commission for their untiring support in providing resources and technical support during the study.

Lastly, but not least, the Consultant wishes to thank directors and senior staff at Department of E-government, Environmental Affairs Department and Ministry of Lands, Housing and Urban Development for their valuable input and advice provided during the study. They willingly and timely gave their time to provide information and guidance to prepare this ESMF Report.

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LIST OF ACRONYMS

AIDS	Acquired Immuno deficiency Syndrome
AHCX	Agriculture Holdings Commodity Exchange
CERT	Computer Emergency Readiness Team
DMP	Digital Malawi Project
EDO	Environmental District Officer
ESCOM	Electricity Supply Commission of Malawi
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESSF	Environmental and Social Screening Form
GER	Gross Enrolment Ratio
GoM	Government of Malawi
GRC	Grievance Redress Committee
HIV	Human Immuno Deficiency Virus
ICT	Information and Communication Technology
ITCZ	Inter-Tropical Convergence Zone
LEO	Low Earth Orbits
MACRA	Malawi Communication Regulatory Authority
MDAs	Ministries, Departments and Agencies
MERA	Malawi Energy Regulatory Authority
M & E	Monitoring and Evaluation
MGDS	Malawi Growth Development Strategy
MoICT	Ministry of Information and Communication Technology
MTL	Malawi Telecommunications Limited

NDRM	National Disaster Risk Management
NGO	Non-Governmental Organization
OP	Operational Policy
OVI	Objectively Verifiable Indicators
PAPs	Project Affected Persons
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PKI	Public Key Infrastructure
PPPC	Public Private Partnership Commission
RAP	Resettlement Action Plan
RC	Resettlement Committee
RCIPMW	Regional Communications Infrastructure Program-Malawi Project
RoW	Right of Way
RPF	Resettlement Policy Framework
TA	Traditional Authority
USF	Universal Service Fund
VLP	Virtual Landing Point
WB	World Bank

EXECUTIVE SUMMARY

This Environmental and Social Management Framework (ESMF) and a separate Resettlement Policy Framework (RPF) has been prepared for the Digital Malawi Project (DMP), which the Government of the Republic of Malawi is seeking financing from the World Bank (WB) after successfully implementing Regional Communication Infrastructure Program- Malawi Project (RCIPMW). The total financial support being sought is US$80.00 million. The proposed project will be implemented by the Public Private Partnership Commission (PPPC) with overall oversight from the Ministry of Information and Communication Technology (MoICT). The purpose of this ESMF is to provide a set of procedures and measures aimed at facilitating the integration of environmental and social considerations in the preparation, planning and implementation of the DMP activities.

The DMP will succeed the Regional Communications Infrastructure Program–Malawi Project whose overall objective was to contribute to the availability of low cost broadband communications in Malawi through providing high-speed communications access to the East coast of Africa where international submarine cables were established. The program also provided support to the Government in providing ICT services to public institutions and availing technical assistance to support the development of the sector. In addition, the program facilitated the review of the country's policy and legislative frameworks governing operations in the ICT sector. The proposed new ICT project, DMP, aims at increasing access to affordable, high quality internet services for government and citizens and to improve the government's capacity to deliver efficient and secure digital public services.

The overall aim of the proposed DMP is to extend and improve access to critical ICT infrastructure for the public and private sectors; improve ICT governance; improve access to government services; and reduce infrastructure costs by providing reliable, fast and adaptive government digital systems that will facilitate provision of e-services thereby enhancing public service delivery.

The proposed DMP has four components with each component further divided into subcomponents briefly described below:

Component A – Digital Ecosystem, which aims at creating an enabling for environment through legal and regulatory reform; regulatory capacity building and institutional development; and improved ICT skills development and innovation. Under this component, the project will support MACRA in developing regulatory bylaws, data collection and analysis tools required for effective implementation of the laws and new mandates stipulated in the new act

Component B – Digital Connectivity, which is intended to increase access to connectivity nationwide by addressing connectivity gaps for government, higher education and private consumers. The component will support a long term capacity purchase and services contract to connect all priority public institutions throughout the country such as government offices, hospitals and education institutions. The component will also support deployment and scaling up of innovative broadband access networks to secondary cities and rural areas;

Component C – Digital Platforms and Services, aimed at creating opportunities to transform public service delivery in Malawi using digital technologies. The component will focus on development of a Shared Digital Public Services Platform, with the aim to establish a solid foundation upon which all future digital services and applications will be built and developing human and institutional capacity of the government to deliver. The digital platform and services will provide opportunity to public to transact business through mobile and online platforms. Such services could include processing of passports, drivers license, business registration, birth certificates and payment of utilities and school fees. The component will also focus on development of citizen facing digital applications and services that leverage the shared platform, and

Component D – Project Management designed to support overall project management including support for an overall project manager, a digital government services coordinator and specialists in procurement, financial management and safeguards. The component will also provide funding for strategic communications and partnerships, monitoring and evaluation activities as well as funding for audits, logistics and operational overheads.

A number of policy and legal instruments provide guidance on management of environmental and social issues in Malawi. The Constitution of the Republic and the National Environmental Policy provide the basis for environmental planning and development in the country. The Environmental Management Act (1996) provides the framework for environmental and social impact assessment for prescribed projects whose locations and details are known. The Act empowers the Director for Environment to administer of environmental management and provide policy guidance even for projects whose details are not yet known. Initial evaluation of scope of activities under each component indicates that following project activities would generate potential negative social and environmental impacts: (a) construction of a new national datacenter, (b) refurbishment or retrofitting of an existing facility; and (c) rollout of new network for rural connectivity. Therefore, the proposed activities will also have implications on the following key policy and legal instruments which have been reviewed in the ESMF; Forest Act(1997), Public Roads Act, Local Government Act (1998); Monuments and Relics Act, (1990), Lands Act (1965); Lands Acquisition Act, Physical Planning Act, 2016, Water Resources Act (2013); Public Health Act (1966); Occupational Safety, Health and Welfare Act (1997); National HIV/AIDS Policy (2012); National Gender Policy (2000), and National Parks and Wildlife Act (63:01).

Components of the project which would trigger environmental and social safeguards include development of a national telecom backbone network under Component B; and refurbishment or construction of new national data centre and other ancillary telecommunication infrastructures under Component C. The activities under components B and C have potential to generate adverse environmental and social impacts. Preliminary assessment of project indicates that the (a) construction of a new national datacenter, (b) refurbishment or retrofitting of an existing facility; and (c) rollout of new network for rural connectivity would trigger the following WB operational safeguard operational policies, Environmental Assessment (OP 4:01), Physical Cultural Resources (OP 4.11, Involuntary Resettlement (OP 4:12), Natural Habitats (4.04) and Forests (OP 4.36).

The initial evaluation of potential scale of impacts has rated the impacts moderate and assigned the environmental assessment risk category B. The project will likely finance purchase of communications and data hosting services from private providers rather than directly finance any infrastructure construction. Such service providers may already have existing infrastructure required to supply such services or may put up new infrastructure required to supply such services to the government, either at the time of the initial contract or throughout the life of the service period as needed. Any infrastructure is expected not only to serve as a means for delivery of services to the government, but also the private sector. In case of safeguards for proposed DMP , the ESMF as well as RPF would apply to investments undertaken by private providers specifically and exclusively to provide services under the project. For investments/works that are not specifically and exclusively undertaken in order to serve the project beneficiary (e.g. network or datacenter infrastructure that will serve many clients), the policies would not apply. However, private providers are encouraged to use the ESMF and RPF to guide their own policies and comply with national law in those situations.

Environmental and social considerations will be given prominent attention in the implementation of any civil works directly financed by the project, to ensure that any adverse environmental impacts are minimized and/or adequately mitigated. The ESMF has been prepared as a guide to the screening of the proposed DMP activities, for negative environmental and social impacts, which would require attention prior to project implementation. Appropriate environmental assessment instruments will have to be prepared based on the results of the screening process. The ESMF outlines a number of strategies following preliminary environmental assessment of proposed activities and these include:

- A systematic procedure for participatory screening of project sites and project activities for environmental and social considerations,
- A step by step procedure for predicting the main potential environmental and social impacts of the planned project activities,
- A typical environmental management and monitoring plan for addressing negative impacts in the course of project implementation, operations within environs, and for monitoring and evaluation of implementation of mitigation measures, and
- An outline of recommended capacity building measures for environmental planning and monitoring of the project activities.

It is expected that the proposed DMP project will generate huge socioeconomic and environmental impacts to the nation and such notable beneficial impacts include:

- The proposed DMP will provide employment to unskilled, semiskilled and skilled people to undertake works during design, construction and operation phases of the project. Installation of ICT facilities such as laying of cables, planting of towers and masts will provide employment opportunities to most unskilled and semi-skilled labour whilst operation phase of the project will generate jobs in the ICT sector for semi-skilled and skilled workers,
- The project will generate business opportunities for construction materials. Local material suppliers and traders within the areas where civil works will be implemented,
- Availability of fast and affordable internet services will improve delivery of public services as transactions such as processing of passports, drivers licenses, business registration, birth certificates and remittance of school fees would be done online,

- Implementation of the project will significantly reduce cost of doing business in both public and private institutions as most of business will be doing online. There will be huge savings in funds as video conferencing, teleconference and instant messaging will replace travel by officials to attend meetings,
- Improved productivity in organisations as connectivity will enable these to respond to changes or interact with colleagues from overseas quickly,
- Improved access to healthcare services-fast and affordable internet services will enable local medical practitioners to consult specialist from overseas when executing complex medical procedures,
- The project will promote international trade as farmers and traders will be able to compare market prices of commodities,
- The project will significantly increase mobile money transactions through available affordable and faster internet,
- The project will contribute to reduction of greenhouse gas and other emissions from reduced need for travel by vehicle to access markets, information and services. This will be a significant environmental benefit generated by the proposed project.

Adverse environmental and socioeconomic impacts are expected to be generated from civil works associated with the following project activities; (a) construction of a new national datacenter, (b) refurbishment or retrofitting of an existing facility; and (c) rollout of new network for rural connectivity. The following as some key adverse impacts envisaged to emanate from proposed project:

- Loss of land for community members whose parcels of land will be acquired during planning and design for installation of project equipment and facilities;
- Loss of livelihoods for people whose trees and crops could be affected by clearing of alignment for cable and tower installations
- Disturbance of marginal, steep slopes and hilltops to accommodate installation of towers and opening up of access roads;
- Loss of vegetation as stretches of land may be to be cleared to pave way for installation of project equipment and facilities. Vegetation will also be removed n in areas earmarked for opening access roads
- Generation of dust, solid and liquid wastes during construction phase of the project.
- Increased air pollution and also greenhouse effects from the transportation of labour, materials and equipment during construction phase of the project
- Increased incidences of gender based violence and violence against children, partly because of inappropriate contacts between migrant workers and community members,
- Spread of HIV/AIDS and other sexually transmitted diseases in areas as a result of increased incidents of sexual interaction between workers and local women due to , increased disposal income
- Increased emission of noise from backup power generators powering project facilities and equipment during operation.

The appraisal for category B of Operational Policy 4:01 (Environmental Assessment) indicates that the project activities would generate adverse environmental and social with moderate significance therefore requiring environmental and social management plan to address and manage these impacts. The ESMF has developed generic environmental and

social management and monitoring plans which should guide preparation of site specific environmental and social management plans once the exact locations and details of the project are defined. It is expected that the site specific ESMPs will be part of tender documents and that successfully bidders will be required to implement the measures as the ESMPs will form part of the contract documents. The Environmental and Social Rules for Contractors will be appended to each ESMP to guide contractors during implementation of civil works.

The ESMF also advances that for its implementation to be successful, involvement and participation of local communities is paramount. Specifically, the ESMF recommends:

- Use of this Framework prior to any applicable project activity of the Digital Malawi Project,
- Recruit safeguard specialist to management environmental and social safeguards at the PIU,
- Provide capacity building training to PIU staff, district councils and staff from line ministries on use of ESMF and the implications of not adhering to the provisions made in the ESMF,
- Updating the ESMF when needed, to respond to changing local conditions and to
- adjustments in project implementation plans, and
- Licenses/permits outlined in this ESMF should be acquired for project activities preferably prior to implementation of any civil works unless waived by the granting authority.

CHAPTER 1. INTRODUCTION

1.1 Background Information

This document is the Environmental and Social Management Framework (ESMF) for the Digital Malawi Project (DMP). This ESMF will be used to guide the draft of site specific ESMPs once the locations of the project have been identified. Potential adverse environmental and some social impacts will be addressed in the context of this ESMF, while potential social impacts related to land acquisition, compensation and relocation any loss of livelihood or loss of access to economic assets will be addressed in the Resettlement Policy Framework (RPF).

The proposed ESMF is consistent with the Bank's safeguard policy, OP 4.01. This policy requires that all World Bank-financed investments are screened for potential adverse environmental and social impacts, and that the required environmental and social work be carried out on the basis of the screening results. The proposed screening process bridges the gap in Malawi's environmental impact assessment procedures which do not provide for the environmental screening of proposed project activities whose locations are not known prior to appraisal, and furthermore the potential adverse environmental and social impacts cannot be adequately identified and assessed to determine their significance. The DMP has been categorized as Category B as per the World Bank OP 4.01, and in terms of its potential environmental and social impacts.

1.2 Objectives of the ESMF

The objective of the Environmental and Social Management Framework (ESMF) is, among others to provide an environmental and social management process for the Digital Malawi Project. It also provides guidance to implementing agency, key stakeholders, and communities to ensure project activities are implemented in an environmental friendly and sustainable manner as required by the World Bank operational policies and Malawi's Environment Management Act, 1996 regarding the sustainable environmental and social management of sub project activities.

In general, this ESMF is prepared with the following general objectives:

- Establish clear methodology for screening sub-project activities and determine level of required environmental and social assessment Screen for potential environmental and social impacts DMP sub-projects;
- Identify and assess potential impacts and propose appropriate mitigation measures;
- Identify and review national, regional and international laws, policies and regulations relevant to DMP taking into consideration new laws that have been enacted in Malawi;
- Assess the project implementation unit capacity, training and technical assistance needs to implement the provisions of the ESMF;
- Provide generic Environmental and Social Management Plan (ESMP) and report forms under the projects to ensure that environmental and social issues will be managed effectively;

- Specify appropriate roles and responsibilities of government departments and lead agencies, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to the project subcomponents; and

1.3 Justification for the ESMF

The Environmental and Social Management Framework is being prepared to ensure that investments under the proposed DMP are implemented in accordance with World Bank's operational policies and Malawi's legislation which require that investments should be implemented in an environmentally and socially sustainable manner. Section 24 of Environment Management Act, 1996 requires environmental and social considerations to be integrated in various development activities in Malawi. As part of project preparation, the World Bank requires the borrower to prepare ESMF to provide adequate guidance on establishment of all mitigation plans (Environmental Impact Assessment, Environmental and Social Management Plan, Resettlement Action Plan or Abbreviated Resettlement Action Plan), and respond to the anticipated project impacts, once the specific locations are identified.

The proposed DMP will finance the purchase of connectivity services for government, aimed at meeting its own connectivity needs as well as incentivizing private sector providers to make infrastructure investments to improve their network coverage, improve service offerings and reduce retail cost of services on the private market. The services contracts are expected to incentivize private sector development of a national fiber backbone and access networks (by linking existing infrastructure, building new infrastructure or a combination of both). The project is also expected to provide financial subsidies of other incentives for private sector rollout of services in under-covered rural areas. In some select cases the project may finance direct deployment of new network infrastructure or refurbishment and upgrading of existing network infrastructure and related equipment. The project will also finance data hosting solutions for government from a range of options including purchase of hosting services from the private sector, building a stand-alone national datacenter or undertaking a public-private partnership to establish a national datacenter shared by both government and private sector operators.

Activities involving construction of communications network infrastructure and related equipment or construction of a new national data centre and installation of ancillary telecommunication infrastructures likely to generate adverse environmental and social impacts. Any infrastructure directly financed by the project would trigger environmental and social safeguards in line with World Bank operational policies. However, it is envisaged that most or all infrastructure investment would be taken by the private sector, in part to meet its service obligations to government (as well as to serve private clients) or as a result of subsidies or other government incentives. Such infrastructure would be financed, owned and operated by the private sector service provider.

In case of safeguards, the ESMF would apply to investments undertaken by private providers specifically and exclusively to provide services under the project. For investments/works that are not specifically and exclusively undertaken in order to serve the project beneficiary (e.g.

network or datacenter infrastructure that will serve many clients), the policies would not apply. However, private providers are encouraged to use the ESMF to guide their own policies and comply with national law in those situations.

1.4 Potential Users of the ESMF

This ESMF has been prepared for use by key stakeholders to be involved in the planning, implementation and management of the proposed DMP. As such, the ESMF would be useful to the following stakeholders:

(a) Project financier;
(b) Project Implementation Unit in Public Private Partnership Commission;
(c) Department of e-Government;
(d) Environmental Affairs Department;
(d) District Environment Sub Committees;
(e) Service providers, Contractors and consultants to be engaged under Digital Malawi Project and;
(f) Ministry of Lands, Housing and Urban Development.

1.5 Methodology in Preparing the ESMF

The ESMF has been prepared based on the following: (i) analysis of the existing national legal documents, regulations and guidelines on environmental management; (ii) WB safeguard policies, as well as other WB guiding materials; (iii) existing ESMFs for similar World Bank projects such as RCIPMW and others; iv) review of existing environmental and social baseline for Malawi, v) project concept note and (vi) consultations with the representatives of key stakeholders and the WB technical staff. The rationale of these consultations was to solicit views of a cross section of people, at the national level especially those who have a large bearing on the implementation of the proposed project. Key stakeholders consulted included:

(a) Project Implementation Unit at Public Private Partnership Commission;
(b) Environmental Affairs Department;
(c) Department of E-government in the Ministry of Information and Communication Technology;
(d) Ministry of Lands, Housing and Urban Development;
(e) Department of National Parks and Wildlife;
(f) Department of Forestry;
(d) Malawi Communication Regulatory Agency;
(e) National Roads Authority; and
(f) University of Malawi.

These consultations were carried out to share the views of key stakeholders and to obtain their input in the identification of environmental and social impacts of the DMP and design of mitigation measures. A list of individuals and institutions consulted, findings from consultations and how the findings have been incorporated in the report especially environmental and social management process have been included in Annex 1.

The strategies used and activities performed in the preparation of the ESMF included:

a. Review of existing national biophysical and social conditions. Some of the sources of information included Socio-economic Profiles and Environmental Reports;
b. Review of the Project Concept Note providing description of project activities and implementation approach;
c. Determination of the DMP activities which are likely to have environmental and social impacts on the various environmental and social aspects;
d. Identification and analysis of potential environmental and social impacts of the DMP; literature review, key stakeholder consultations and consultants experience from RCIPMW;
e. Determination of the environmental and social screening process and identification of potential impacts to be project activities;
f. Identification of appropriate mitigation measures for the potential environmental and social impacts including preparation of environmental management and monitoring plans; and
g. Analysis and evaluation of institutional capacity to determine capacity building requirements for effective implementation of Environmental and Social Management Plans (ESMPs) for addressing the impacts during the different project stages and activities.

1.6 Constraints and Limitation of the Study

The major challenge faced during the development of this ESMF report is that a number of consultations with stakeholders were shifted to January 2017 as most of the stakeholders were not available during the initial period of 15-23 December 2016 as planned by the consultant, as such delivery of the report was shifted accordingly to include views obtained from consultations.

1.7 Organization of the Report

This report is organized into seven chapters as follows:

Chapter One provides background information on the DMP and describes its

components, estimated costs, national coordination and implementation arrangements. It further introduces the ESMF, its rationale and objectives, methodology used in undertaking the ESMF and constraints and limitation of the study. This chapter also defines the target audience for the ESMF.

Chapter Two presents a description of project components and sub-components as indicted in the Project Concept Note.

Chapter Three provides overview of the environmental and social setting of the project by describing the biophysical environment including its topography, hydrology, biodiversity of the project areas.

Chapter Four outlines relevant Malawi policies and legislation applicable to the DMP. The chapter also provides relevant World Bank Safeguard Policies that are triggered by the DMP.

Chapter Five describes the screening process for sub projects and the likely environmental and social impacts to be generated by the three project components (i.e. digital ecosystems], digital connectivity, digital platforms and services and project management).

Chapter Six outlines the Environmental and Social Management process for the identified environmental and social impacts. The Generic Management Plans include information on the environmental component likely to be affected, the activity that may cause the impact and the mitigation measures to be put in place. The Chapter also provides environmental and social monitoring plans for project impacts; provides information on the monitoring activities, monitoring indicators, frequency of monitoring and the institutions to carry out the monitoring.

Chapter Seven gives an overview of the proposed institutional arrangement for implementation of ESMF. The chapter highlights key institutions and their roles. It further proposes capacity building and training requirements to be undertaken for the successful implementation of the Environmental ESMF

Chapter Eight makes recommendations for effective and successful implementation of the Environmental and Social Management Framework that contribute towards environmentally sustainable attainment of the DMP goals and objectives.

CHAPTER 2. PROJECT DESCRIPTION

2.1 Project Components

The proposed project has been divided into four components, namely; digital ecosystem, digital connectivity, digital platforms and services, and project management. These components are further subdivided into sub-components described below.

2.1.1 Digital Ecosystem

The aim of the component is to make Malawi a more attractive and competitive place to invest and innovate while ensuring that benefits of digital technology are reaching all citizens. This will be accomplished by strengthening the many inter-related elements that characterize a thriving digital ecosystem – creating and implementing forward looking laws, regulations and policies; building digital skills and capacity of institutions and citizens; and developing a critical mass of innovators and supportive services. These objectives will be supported through three sub-components.

Sub-Component 1.1: Legal and Regulatory Reform and Implementation (Enabling Environment)

The Revised Communications Act and Electronic Transactions Act, approved in July 2016, have modernized Malawi's legislative framework for the telecommunication sector and created a formal legal basis for a wide spectrum of digital transactions that are critical for digital commerce and service delivery. The Acts have also widened MACRA's mandate to encompass new responsibilities in the areas of cyber-security, consumer protection and promoting universal access to telecoms services.

The challenge is now for MACRA to develop the regulatory bylaws, data collection and analysis tools it needs to implement these laws and the new mandates effectively. It is proposed that the project will prioritize support for those elements which most directly contribute to enhancing citizen's access to ICT services, affordability and service quality, as well as enabling efficient, secure and reliable digital transactions and innovation. The proposed activities may include but are not limited to: development of a rollout plan for regulatory bylaws and other instruments; technical assistance to support drafting of regulations including for establishment of a converged licensing framework, interconnection regime, mobile number portability, infrastructure sharing, etc.; technical assistance to develop methodologies related to quality of service monitoring, innovative spectrum management, and cost modelling; support for statistics and data collection programs (ICT usage surveys and data collection from operators) and other needs as they arise.

Sub-component 1.2: Regulatory Capacity Building and Institutional Development

There is a need to strengthen MACRA's institutional and human capacity to deliver on its new mandates, respond to evolving technological and regulatory innovations and to establish a progressive regulatory environment. Likewise, there is a need to strengthen the capacity of key staff at the Ministry of Information, Communications Technology and Higher Education (MoICT) and the wider government to enable them to carry out effective policy development

and regulatory implementation. The project proposes to support this capacity building through a number of activities which may include, but are not limited to: undertaking a comprehensive institutional structure and capacity assessment of MACRA; establishing a comprehensive training program for relevant staff in MACRA and other ministries, departments and agencies (MDAs) in areas of new responsibility and next generation regulatory issues; conducting a needs assessment and developing an implementation plan for establishment of a Computer Emergency Readiness Team (CERT); establishing a public key infrastructure (PKI); support for developing a national Broadband Strategy; technical assistance to design and administer the Universal Service Fund (USF); and undertaking a 'digital leadership' capacity development program for selected government officials.

Sub-component 1.3: Partnerships for ICT Skills Development, job creation and Innovation

Malawi's low basic ICT literacy rates have been identified as one of the key barriers to the greater use of ICTs by citizens and the private sector. This is hindering their participation in the digital economy and constraining their ability to access digital services. The lack of more advanced ICT skills, and an insufficient number of certified computer engineers and IT professionals, is also a constraint to sector growth and innovation. Given the scale of the challenge, the project proposes to leverage partnerships and co-financing as the primary mechanism to help address the ICT skills divide. This may include partnerships with the education ministry and other donors, NGOs and the private sector to establish a new ICT curriculum for schools, launch or scale up ICT awareness and skills programs focused on adult and disadvantaged populations (such as the elderly, disabled persons, women and girls) and to increase access to higher level degree and certification programs for Malawian citizens.

Malawi's tech innovation ecosystem is relatively undeveloped, but offers significant potential for job creation at both the low and high skill levels. The project proposes to support and/or partner with Malawian based tech hubs to help increase their visibility, expand operations including in development of new digitally enabled services, local content and scaling up emerging innovations that have proven to work. Specific interventions may include support for connectivity, rental of incubator space, challenge/innovation funds and competitions and support to strengthen technical expertise and trainings in areas such as business plan development, intellectual property, marketing and financing. Collaboration will also be sought to encourage greater female participation in the tech sector though support to programs such as 'Girls who Code', 'She will Connect', and the Technovation Challenge (Girls in Technology Entrepreneurship Program) among others.

2.1.2 Component 2: Digital Connectivity

There is a strong need for high speed, affordable connectivity for government, citizens and businesses across Malawi. In addition to measures to boost sector competitiveness and network investment through regulatory and other "soft" mechanisms (described under component 1), there is a need for more direct interventions to encourage infrastructure deployment in areas which do not offer sufficient short to medium term returns, or are considered too risky, to attract investment from the private sector alone. There is also a need

to exert competitive pricing pressure, create network redundancy and increase capacity along the most well trafficked routes that are currently dominated by a limited number of providers.

The RCIPMW project has helped lower the price of international connectivity but additional efforts are needed to extend access to connectivity nationwide. Under RCIPMW, the government purchased a large volume of international bandwidth and related services over a 10-year period under a competitive bidding process. To supply these services, the winning bidder – SimbaNet - constructed a new fiber-optic network linking to Zambia and Tanzania, terminating at a virtual landing point (VLP) on Capital Hill in Lilongwe. While MDAs near Capitol Hill and selected MDAs near the eight drop points along the SimbaNet network are now enjoying high speed internet connectivity as a result of the transaction, most MDAs throughout the rest of the country are not. At the time of the RCIPMW program design, it was expected that a national government backbone would be constructed in parallel with financing from other partners, but unfortunately this has not materialized. As a result, the remaining MDAs are forced to continue operating under high cost, low quality bi-lateral contracts with other service providers.

Three sub-components are proposed to address the remaining connectivity gaps for government, higher education and private consumers:

Sub-component 2.1: Connectivity for Public Institutions ("Virtual National Network")

This sub-component proposes to support a long-term capacity purchase and services contract to connect all priority public institutions throughout the country. It would do so through a competitive tendering process for advanced purchase of bandwidth, using a mechanism similar to that used under RCIPMW to create a seamless national backbone network. As with RCIPMW, the winning bidder would be required to operate the network infrastructure on an open access, competitive and non-discriminatory basis and to offer unit pricing per Mbit/s that is equivalent to that offered to the government.

This approach would bring multiple benefits for both government and private consumers, including:

i. Capitalizing on economies of scale to significantly lower the unit connectivity costs of government by aggregating demand under a single, low price contract;
ii. Providing incentivizes for the private sector to invest in new network infrastructure (backbone and access network) in areas throughout the country where it does not yet currently exist;
iii. Leveraging significant private sector financing - lowering the government's up-front capital costs for infrastructure investment;
iv. Eliminating the need for government to retain technical expertise to operate a network and eliminating ongoing operating, maintenance and upgrade costs;
v. Preventing unnecessary duplication or displacement of planned private sector investment (compared with direct government financing and ownership of network infrastructure); and
vi. Significantly lowering the barriers and costs for the private sector to offer services in currently underserved areas by utilizing the same shared infrastructure.

The locations/institutions to be connected will be defined as part of an ongoing national grid mapping process and the feasibility study. These will include priority government offices and may be expanded to include educational establishments (schools and colleges: see below) and hospitals. This component is designed to be able to be scaled up or down relatively easily by adjusting the number of sites to be connected and/or the amount of bandwidth specified.

Sub-Component 2.2: Innovative Broadband Access Solutions

In addition to completing the 'virtual national network,' additional activities will be considered to improve broadband access to target groups, particularly in rural areas, taking advantage of recent and future technological and business model innovation for broadband deployment. The sub-component will explore potential partnerships to introduce innovative new technologies and approaches for broadband deployment, notably in secondary cities and rural areas with low population density. This could potentially include support for scale up of the recently completed TV white spaces pilot program to leverage unutilized spectrum previously reserved for analog TV broadcasting for targeted broadband deployment. Support for innovative broadband access pilot programs, in partnership with the Universal Service Fund (USF), and partnerships with the international companies and foundations seeking to deploy new technologies for broadband service delivery (satellite, drones, balloons, etc.) will also be explored. The internet exchange point (IXP) currently serving Blantyre (MIX-BT) may be expanded to cover Lilongwe and other population centers. Specific activities and modalities will need to be identified as part of ongoing consultations.

Sub-component 2.3: Higher education connectivity

With an eye on the future, the higher education sector will be specifically targeted for enhanced connectivity, improved caching and local content development. Malawi's education sector is one of the key elements in its long-term development, and equipping the next generation of Malawians with the digital skills they need could be one of the best investments. Although this sub-component builds on elements of the other connectivity sub-components, identifying it separately should help in ensuring focus and in monitoring progress. At the macro-level, the mechanism of advance purchase of capacity, described in sub-component 2.1, will be used to secure dedicated bandwidth for universities, research institutes and schools. This will also involve support to MAREN, the Malawi research and education network, and to MALICO, the Malawi Library and Information Consortium. At the micro-level, it will involve investment in Campus WiFi for participating universities and high schools. These hotspots could also serve the wider community through free and unmetered internet access. Finally, bandwidth needs to be complemented by demand stimulation measures, especially for teachers and professors. It is proposed therefore to establish a revolving fund that can be used to provide low or no interest loans to teachers wishing to acquire a laptop, tablet or smartphone, for use in the classroom.

2.1.3 Component 3: Digital Platforms and Services

Increased access to affordable, high quality connectivity as supported under components 1 and 2 opens up opportunities to transform public service delivery in Malawi using digital technologies. Digital transformation is essential for Malawi to deliver an advanced, competitive economy and modern, effective public services for all. Increasing public services

offerings though a variety of mobile and online platforms could bring significant benefits to average citizens who must often travel great distances and spend significant time and resources to access services. This is particularly important for Malawi's rural residents who may lack access to public transport and quality roads but are likely nonetheless to have access to a mobile phone. Likewise, digital platforms can offer opportunities to deliver new categories of services and transactions. As one example, digital platforms can be used to facilitate cash transfers under social protection or payroll schemes by lowering administrative and logistical barriers and reducing scope for bribes and corruption. Digital information and communications systems are also and increasingly important tools for government to efficiently and transparently manage its internal operations.

At present, the government of Malawi (GoM) lacks sufficient human resources, institutions, policies and adequate IT infrastructure to deploy high quality digital services in a secure, reliable and cost effective manner. The limited number of digital services that have been developed are typically isolated and expensive to build, maintain and secure. While these deficits represent a significant challenge, the advantage is that the relative lack of investment in outdated, legacy infrastructure and digital services offerings presents an opportunity to leapfrog to the latest technology and to learn from global experience by adopting best practice institutional structures and policies.

Component three will follow a phased approach to upgrading Malawi's digital service delivery capacity. The first phase will focus on development of a Shared Digital Public Services Platform, with the aim to establish a solid foundation upon which all future digital services and applications will be built and developing human and institutional capacity of the government to deliver. The second phase will focus on development of citizen facing digital applications and services that leverage the shared platform.

Sub-Component 3.1: Strengthening Institutional Capacity to Deliver Digital Services

A significant scale up of digital services offerings will require an equivalent upgrade of the institutions and technical staff responsible for championing and executing this ambitious agenda. Responsibility for the Government's IT needs rests primarily with the e-government department under MoICT, which maintains a cadre of IT common service staff embedded in MDAs throughout the government. The department faces several interrelated problems, namely a lack of authority over purchasing by other line Ministries, reputation, funding and sufficient human resources and technical skills, to effectively fulfill its mandate. This subcomponent will seek to address these challenges through a number of activities, including but not limited to: (i) supporting development of a comprehensive Digital Government Strategy, including an institutional structure and capacity review of the MoICT and development of a corresponding capacity building program and work plan for rollout of shared digital infrastructure and services; (ii) financing an extensive training program for the IT common service staff and other relevant officials; (iii) hiring of a resident digital government advisor to support the strategy and skills development activities at the outset of the project and (iv) supporting a change management and outreach program to sensitize key stakeholders across government.

Sub-Component 3.2: Shared Digital Public Services Delivery Platform

By establishing a Shared Digital Public Service Delivery Platform, the Government can significantly reduce the cost and time taken to develop and maintain new digital services, utilizing a "build once, re-use always" philosophy. Currently, MDAs planning to offer a service digitally spend considerable time and money to develop, implement and operate their own stand-alone IT systems. They could significantly speed up the deployment of digital services and cut costs by leveraging a shared infrastructure and services platform for their data storage, hosting, security, data sharing, citizen authentication, e-payment, professional IT support and other needs. This approach would allow MDAs to focus on the areas of their areas of core competency when developing a new digital service, rather than worry about the issues of IT infrastructure, cybersecurity, etc.

Common Elements of the Shared Public Service Delivery Platform to be supported will include:

- Shared data center infrastructure: financing for a data hosting solution. There are a number of models which will be explored including purchase of hosting services from the private sector, and development or expansion of a national data center, possibly as a PPP, government owned entity, and possibly in conjunction with an IXP.
- Shared digital services: Establishment of common "enablers" needed for nearly all digital services: user authentication, electronic ID integration, mobile delivery platform, electronic payment services, SMS notification services, etc. This may also include financing for Information Security activities as recommended in the National Information Security Strategy that is now being developed in collaboration with Commonwealth Telecommunications Organization (CTO).
- Malawi digital services Portal: Development of a single point of entry ("one stop shop") for citizens, businesses, and Government officials to access information and digital services, regardless of the type of device used.
- Data Integration and Sharing Program: This will support the establishment and management of a whole-of-Government Data Management Program to deliver a seamless and convenient user experience with e-Services, help desk support and access to data across MDAs for real-time analysis and effective, data-informed policymaking.
- Shared IT services: this will finance the development of government email, document management system, and other services, etc.

Sub-Component 3.3: Digital Applications and Services

Once sufficient capacity is built and the Shared Digital Public Services Delivery Platform is in place, the project will support a select number of digital applications and services to demonstrate the use of the shared platform. A limited number of these applications may be financed directly through the project, but the primary mechanism will be to support partnerships with other MDAs and projects to develop digital services utilizing the shared platform and to build the credibility and reputation of the e-government department. It is proposed that mobile survey tools or other methods are leveraged to gather citizen input on priority applications. Hackathons or partnerships with local technology hubs may also be used to incentivize local content creation, development of mobile based apps and services

that address local problems. The project may also support digitization of paper records to enable digital migration of selected services.

2.1.4 Component 4 - Project Management

Component four will support essential project management functions of the project. This will include support for an overall project manager, a digital government services coordinator and specialists in procurement, financial management and safeguards. It will also include funding for strategic communications and partnerships, monitoring and evaluation activities as well as funding for audits, logistics and operational overhead. Project management will continue to be led by the Public-Private Partnership Commission (PPPC) in collaboration with key stakeholders and technical counterparts including MoICT (e-government department) and MACRA.

2.1.5 Implementation arrangements

Project implementation will be led by the Public Private Partnership Commission (PPPC) under the same team that implemented the successful RCIPMW project. Key staff including the project manager, procurement specialist, financial management specialist and other support staff from RCIPMW, have been retained to develop and implement the new project. The latest project management, procurement and FM assessments have all been satisfactorily rated and strong oversight systems are in place. Additional consultants will be recruited to support social and environmental safeguards instrument development and oversight, strategic communications and monitoring and evaluation on a retainer basis.

The PPPC team will be complemented with technical expertise and leadership from the MoICT (e-government department) and MACRA as key stakeholders. An additional digital government services coordinator will be brought on board as part of the PPPC implementation team, but embedded within the e-government department in Lilongwe. A focal point responsible for the regulatory and capacity building elements under component 1 will also be named within MACRA. These technical coordination positions may also be complemented through recruitment of a resident digital government services advisor in the first 1-2 years of the project to provide strategic guidance and knowledge transfer.

Guidance on implementation arrangements, priority setting and decision making will be provided by a project Steering Committee throughout the life of the project. The steering committee will bring in voices from across government and stakeholder groups and will be leveraged to help support change management with regard to use of the shared digital platform and the necessity to partner with the e-government department when developing new digital services and applications.

2.1.6 Project Alternative Considerations

The selection of the No-Action alternative means that the proposed project will not be implemented and there would be no further connectivity to areas without access to faster and affordable internet. All beneficial socioeconomic impacts envisaged to be generated by the proposed project will not be realized if the project is not implemented. The same gaps that were identified in the sector will continue to prevail and connectivity will remain expensive

for a bigger proportion of the population. The opportunities brought by international connectivity for development and investment of the ICT sector in Malawi will be lost. Productivity will be low for the public and private sector and accessibility to modern communications for the rural community will still remain a dream. As such alternatives, must be considered to bring about the anticipated changes.

Activity Alternative

Apart from the proposed activities, the use of existing poles from Electricity Supply Corporation of Malawi (ESCOM) which are already established infrastructure within an existing way leave that is regularly maintained, is recommended. This alternative would require negotiations between the borrower in this case the GoM and ESCOM that happen to be one of the MDAs. If this option is used, loss of livelihood from cutting or trimming of trees will be reduced remarkably. In additions, number of potential PAPs will go down and this means the contractor will do very little compensations.

The second alternative related to the activities is to have the cable on poles. There will be a lot of poles cut from plantations with remarkable contribution towards greenhouse gasses through transporting the poles. However, there will be low impact on the route through cutting of trees from public and customary land. This mode will allow DMP to avoid sensitive areas like wildlife reserves, wetlands, forestry reserves and archaeological sites through crossing the roads without cutting the road. The aerial cable will however require regular and well planned maintenance plan along the way leave or the outgrowth and bushes will destroy the cable. The other alternative will be to trench in areas where aerial cable is expensive thus requires to cut clear trees. Nevertheless, the trenching is labour intensive and is likely creating increased soil erosion, visual intrusion, disturbance to some habitats especially birds.

Technology Alternatives

Satellite Data Transmission

This is a cable free option of broad band connectivity. It has acted as a backbone infrastructure for a wide range of telecommunications in Malawi even before fibre optics was introduced in Malawi. There are some advantages of this mode of data transmission including ease of installation, exclusivity, and wide range of sizes to suit different budgets. The use of communications satellites to provide broadband connectivity has its own limitations including high costs, limited bandwidth, high dependency on terrestrial secondary data transmission to reach more people and scarcity of suppliers and service providers available in the country. Satellite networks, such as direct broadcast satellite, currently offer only one-way Internet access. Upstream access is limited to existing copper telephone lines. Other alternatives like Low Earth Orbit (LEO) Satellite Systems are not scheduled to be completed for years and have not proven capable of providing "carrier-class" voice or data services. The option does not meet the purpose of the project.

Fibre-Optic Cable Data Transmission

Fibre optic cabling is the most convenient modern way of broadband data transmission. It has numerous advantages over other methods including high data rate (gigabits) and wide bandwidth with large carrying capacity, immunity to Electro-Magnetic Interference/Radio Frequency Interference (EMI/RFI) and lightning damage, no ground loops, low attenuation (data loss), Longer distance transmission with multimode fibre optic, no sparks if cut, no shock hazard, low system costs, secure communications, low system cost (costs much less to maintain), longer life expectancy than copper or coaxial cable and it's a cable with possible future application. The successful implementation of international connectivity through RCIPMW provides opportunity for increased bandwidth and reduction in costs for connectivity. Fibre optic cabling to public offices will guarantee unlimited access to broadband connectivity in the public and private sectors including rural areas.

CHAPTER 3. ENVIRONMENTAL AND SOCIAL SETTING OF THE PROJECT

3.1 Location and Size

Malawi is a sub-Saharan African country located south of the equator. It is bordered to the north and northeast by the United Republic of Tanzania; to the east, south, and southwest by the People's Republic of Mozambique; and to the west and northwest by the Republic of Zambia. The country is 901 kilometers long and 80 to 161 kilometres wide. The total area is approximately 118,484 square kilometres of which 94,276 square kilometres are land. The remaining area is mostly composed of Lake Malawi, which is about 475 kilometres long and delineates Malawi's eastern boundary with Mozambique.

The physical configuration of Malawi is divided into five zones and these are: The Rift valley floor, rift valley escarpment, hill zones, plains and plateaus. The Rift valley floors consist of lakeshore plains and Lower Shire Valley. The Rift Valley Floor is among the rich agricultural regions of Malawi due to fertile alluvium soils. Other important agricultural regions are plains such as Lilongwe–Kasungu Plains and Phalombe Plains. These areas contain latosols (red–yellowish soils). These soils support a range of arable crops including maize, tobacco, rice, pigeon peas, groundnuts and beans which are both food and cash crops

The country is divided into three regions; the Northern, Central, and Southern Regions. There are 28 districts in the country. Six districts are in the Northern Region, nine are in the Central Region, and 13 are in the Southern Region. Administratively, the districts are subdivided into traditional authorities (TAs), presided over by chiefs. Each TA is composed of villages, which are the smallest administrative units, and the villages are presided over by village headmen (Malawi Demographic and Health Survey Report, 2010).

Most of the areas in the three regions are not serviced with ICT. Lack of infrastructure and ICT equipment hampers uptake of ICT services in the rural areas. Agriculture is predominant activity in the rural areas and improved rural connectivity could promote growing use of ICT in the agriculture sector particularly for sharing information on inputs and also for markets for various products. Currently, Farm Radio Organization in conjunction with Lilongwe University of Agriculture and Natural Resources, Commodity Exchanges like Auction Holdings Commodity Exchange (AHCX) and Agricultural Commodity Exchange (ACE) have been implementing such which are largely impinged by lack of ICT services . Good and reliable ICT infrastructure under DMP will facilitate trade and marketing in agriculture.

3.2 Malawi's Physical Environment

3.2.1 Climate.

Malawi's climate is influenced by the country's proximity to the huge lake that covers almost two thirds of its length. The climate is tropical continental with two distract season, the rainy season from November to April and the dry season from May to October (Figure 3-2). However, from May to July it is relatively cool and in some high-altitude areas drizzles (Chiperoni rains) are common.

Annual average rainfall varies from 725mm to 2,500mm with Lilongwe having an average of 900mm, Blantyre 1,127mm, Mzuzu 1,289mm and Zomba 1,433mm. Extreme conditions include the drought that occurred in 1991/92 season and floods of 1988/89 and 2014/2015 seasons. The low-lying areas such as Lower Shire Valley and some localities in Salima and Karonga are more vulnerable to floods than higher grounds[1]. The department further reports that "In recent years, the rainfall seasons which were affected by a weak La Nina phenomenon of almost similar strength like 2016-2017 rainfall season are 1983-1984 and 2005-2006 seasons."

Rainfall distribution is influenced by topography (orographic effects) and proximity to the lake just like the whole climate is. Least rainfall is registered in rain shadow areas such as in the Shire valley, west of Shire Highlands and Zomba plateau (e.g. Lake Chirwa area), north – west of both Viphya and Nyika plateau. Highest rainfall is experienced in high altitude areas; for example, Mulanje, Nyika and Viphya plateau (Department of Climate Change and Meteorological Services). See the map in Figure 3-1 for detailed distribution of the rainfall and temperature in Malawi.

The main rain bearing system is the Inter Tropical Convergence Zone (ITCZ). This is the pro-cone in the equatorial low pressure belt towards which tile north – easterly and south – easterly trade winds of the two hemispheres converge. The ITCZ oscillates randomly across the country during the rainy season and produces widespread rainfall. The rains start in the Southern Region and progress northwards. Other rain bearing systems that affect Malawi are:

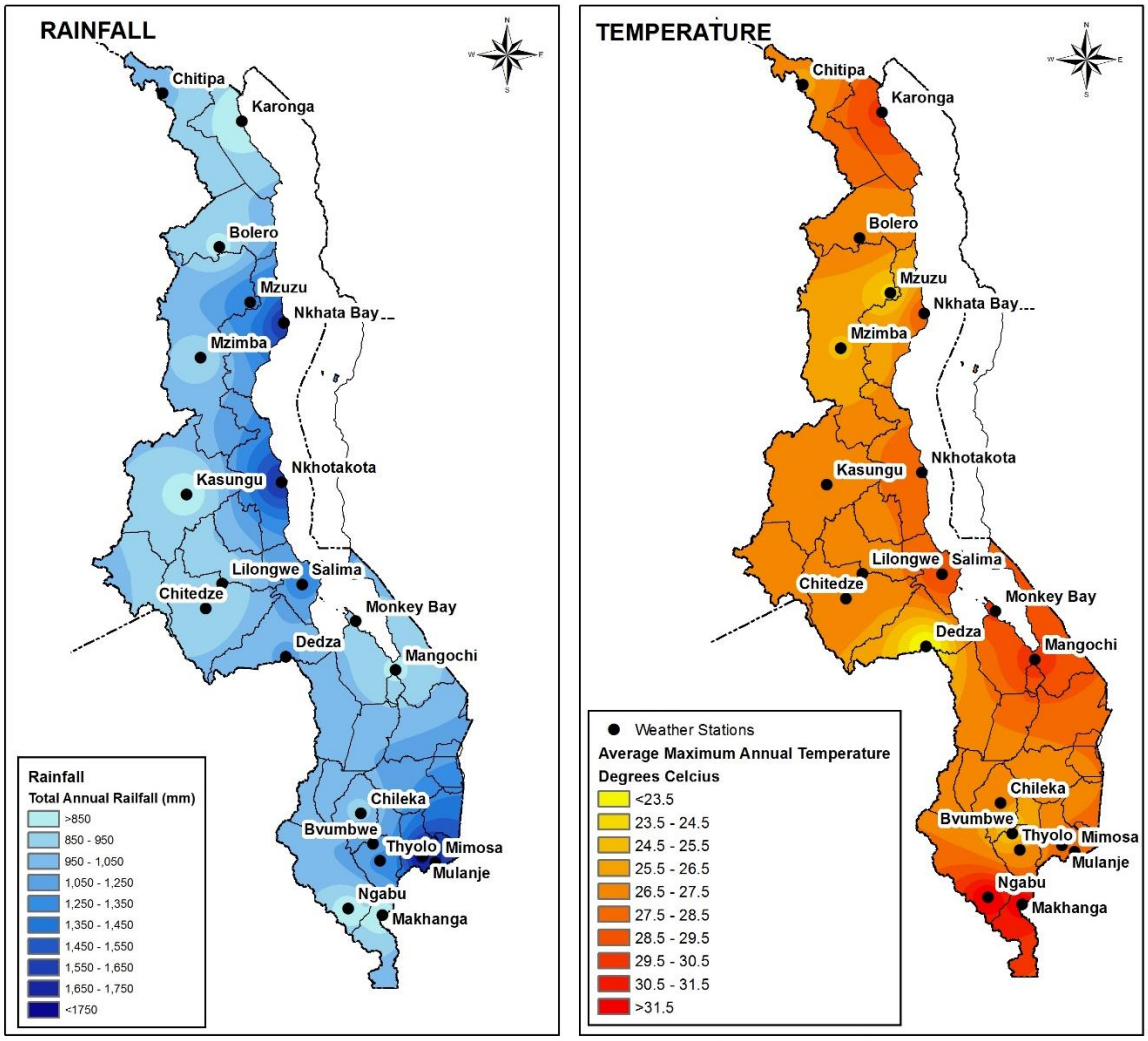
Zaire Air Boundary (ZAB) – a recurred south Atlantic south – east trade winds which after picking moisture over the Atlantic and Congo (Zaire) rain forests arrives in Malawi via Zambia as a moist north – westerly wind bringing widespread rainfall.

Tropical Cyclones – are intense low – pressure cells that originate in the Indian Ocean and move from east to west and can bring widespread heavy, rainfall, mainly in the south, depending on their position in the Mozambique Channel. These rains usually result in flooding.

Convergence ahead of pressure surges – as high pressure cells continue to move over the southern tip of the sub – continent, convergence develops ahead of pressure surges, causing isolated but locally heavy, rains that precede the onset of the rainy season, i.e. before the ITCZ becomes established over the country.

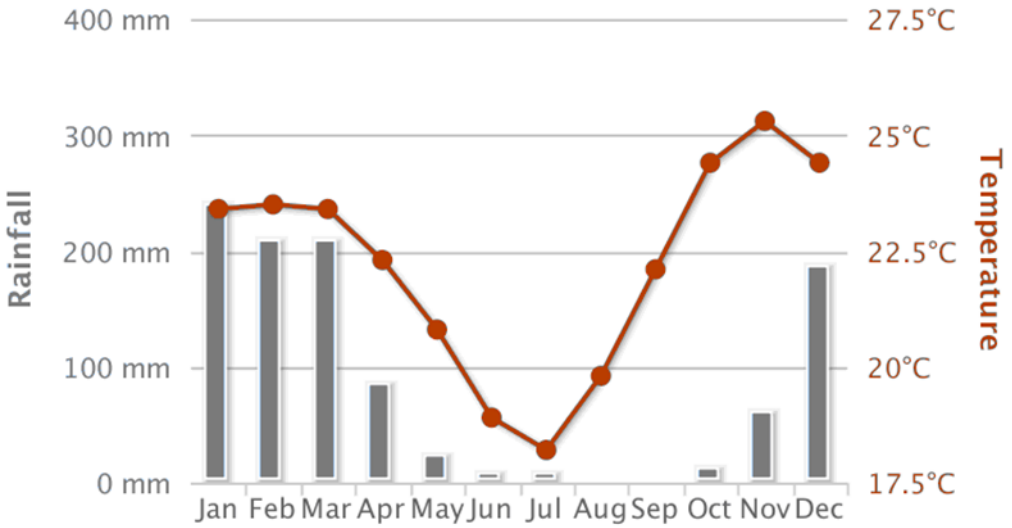
Easterly Waves – towards the end of the rainy season, around March and April, easterly waves exist in the upper levels of the atmosphere, resulting in isolated but locally heavy rains in some parts of the country.

Figure 3-1 Map of Malawi showing rainfall and temperature distribution pattern for various areas



http://www.fao.org/nr/water/infores_databases_cropwat.html

Figure 3-2 Annual average rainfall and temperature



Climatic conditions can influence rain received in a given project area, sunshine hours, flood levels and winds all of which could affect implementation of proposed project activities. For instance, underground installation of fibre cable could be washed by floods. Therefore, during the designing of the DMP infrastructure, it is important to take note of the extreme conditions that mostly take place in the country.

3.2.2 Morphology, Relief and Drainage

a. Morphology and Relief

The landscape is varied and can be divided into four main physiographic units: the Highlands, Plateau, Rift Valley Escarpment and Rift Valley Plains.

b. **Drainage**

The drainage system has been divided into 17 water resources areas which are further subdivided into 78 water resources units.

The country's ground water resources are not yet fully quantified. Nevertheless, two major types of aquifers have been identified, the extensive but low yielding (1-2 litres, per second) weathered basement aquifer of the plateau area, and the high yielding (up to15 litres per second) aquifer of the lakeshore plains and the lower Shire River.

Therefore during implementation of the DMP infrastructure, it is important that due care should be taken to avoid polluting water resources and aquatic life.

c. Geology and Soils

Most of the soils in the rift valley are of; alluvial origin, rich in nutrients and ideal for agricultural production. On the escarpment slopes and plateaux the soils are heavily leached

and of medium fertility. In the hilly places the soils are shallow, and such areas are used as catchment area and for protection of indigenous fauna and flora (The Action Plan; Environment and Development in Malawi).

The country has four main soil classes, namely:

(i) Lactosols: these are red – yellow soils which include the ferruginous soils of Lilongwe plain and some parts Southern Region and are among the best agricultural soils in the country. The weathered ferrallitic (plateau or sand – veld) soils some with a high lateric content, are of low natural fertility and can easily be exhausted. Ferrallitic soils cover large parts of the plains along the western border of the country. In high rainfall areas such as Nkhata Bay, these soils are leached.

(ii) Lithosols: the most wide – spread of the lithosol group are the shallow stony soils that are associated with steep slopes. These occur in all areas of broken relief in the country.

(iii) Hydromorphic soils: these are grey soils of the hydromorphic group which are in found either seasonally or permanently wet areas, as in Lake Chilwa plain and lower Shire Valley, and localized marshy areas known as "dambo".

(iv) Calcimorphic soils: this soil group includes the alluvial soils of the lacustrine and riverine plains; the vertisols of the lower Shire Valley and Phalombe plain; and the mopasonosols in the Liwonde and Balaka areas.

Most of the mining and mineral processing operations in Malawi were privately owned, including the cement plants, the coal mines, the Kayelekera uranium mine, and the Nyala ruby and sapphire mine (2013 Mineral Year Book, Malawi).

Malawi's mineral industry also included numerous artisanal and small-scale mining operations that produced aggregates, brick clay, gemstones, and lime. Partial data on capacity, location, and ownership were available for artisanal and small-scale gemstone and lime operations. In 2010, according to 2013 Mineral Year Book, Malawi, employment in the mineral industry amounted to 21,022 workers. The aggregates subsector employed 12,030 Malawians; lime, 1,640; terrazzo, 1,340; gemstones, 1,260; coal, 907; and uranium, 859 (Ministry of Development, Planning and Cooperation, 2011, p. 41).

Geological Survey Department Malawi (GSM) is a Government department under the Ministry of Mining responsible for the acquisition, dissemination and storage of geo-scientific information used in the mineral sector of Malawi and other sectors which need such information. The department was established in 1922 after having recruited the first geologist in 1918.

3.3 Natural Resources

a. **Vegetation**

In Malawi, vegetation types are diverse. Dry Savannah Woodland dominates within the rift valley region where a large part of DMP will be. In most areas, the common trees of

economic values found in this vegetation type include: *Adansonia digitata*, *Faidherbia albida, Khaya anthotheca*, *Sterculia Africana*; *Acacia nigrescens, Pterocarpus brenanii Comretum ghasalense, Acacia tortilis* to mention but a few. Some of the vegetation in Malawi is composed of predominantly grass species and shrubs. According to IUCN's Red List, the following plant species found in Malawi including the project area, are endangered and therefore protected by international law.

Figure 3-3 Map showing vegetation cover in Malawi

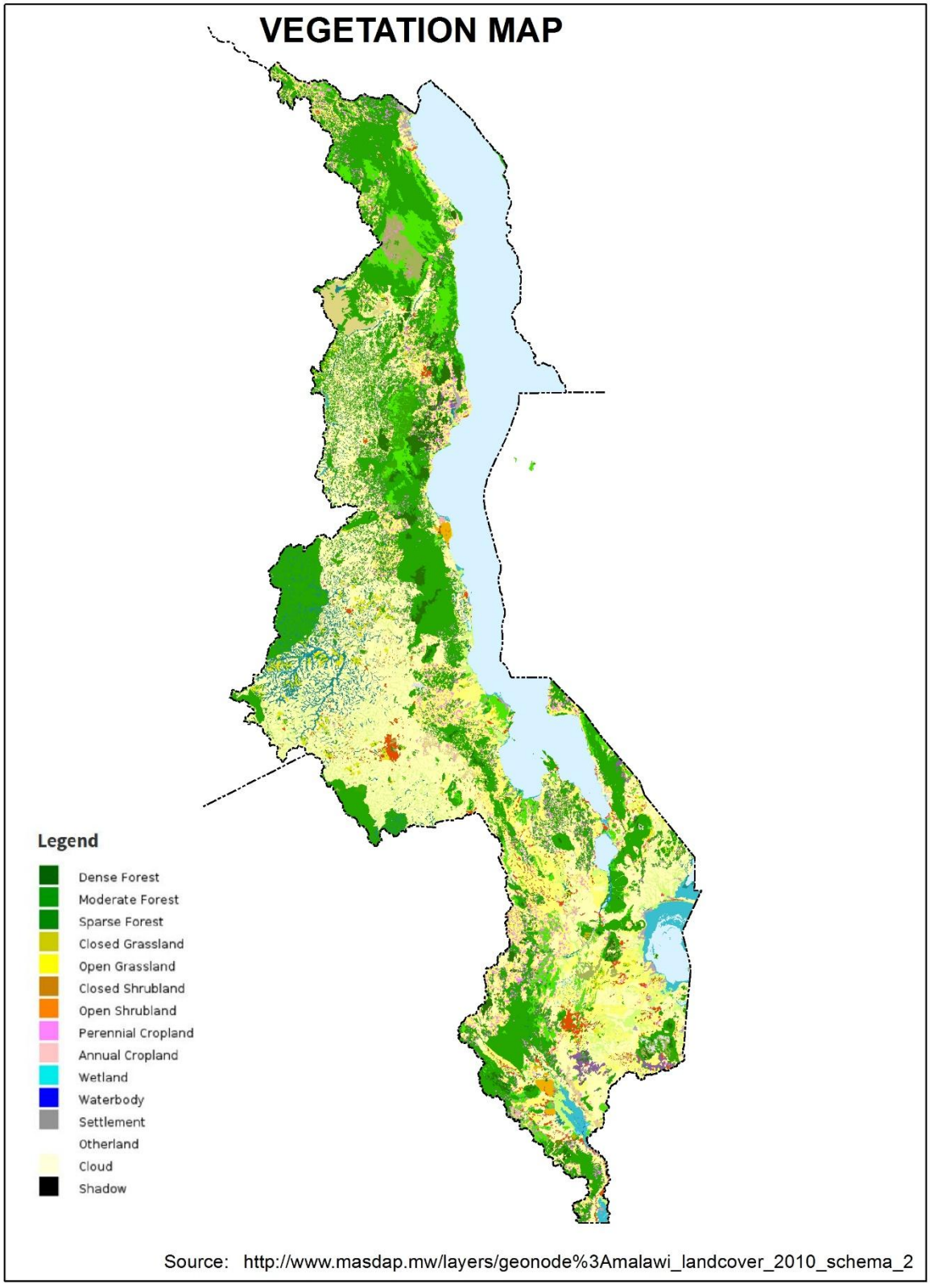


Table 3-1 List of endangered species of trees in Malawi

	Species Name	Scientific Name	Group	Range
1.	African Mahogany	Khaya anthotheca	Plants	Angola, Cameroon, Cote d'Ivoire, Democratic Republic of Congo (Zaire), Ghana, Liberia, Malawi, Mozambique, Nigeria, Republic of Congo, Sierra Leone, Tanzania, Uganda, Zambia, Zimbabwe
2.	Bread Palm	Encephalartos gratus	Plants	Malawi, Mozambique
3.	Buxus nyasica	Buxus nyasica	Plants	Malawi
4.	Deinbollia nyasica	Deinbollia nyasica	Plants	Malawi
5.	Euphorbia lividiflora	Euphorbia lividiflora	Plants	Malawi, Mozambique, Tanzania, Zimbabwe
6.	Kola Nut	Cola mossambicensis	Plants	Malawi, Mozambique
7.	Mlanje Cedar	Widdringtonia whytei	Plants	Malawi
8.	Morinda asteroscepa	Morinda asteroscepa	Plants	Malawi, Tanzania
9.	Ocotea kenyensis	Ocotea kenyensis	Plants	Africa
10.	Philippia nyassana	Philippia nyassana	Plants	Malawi
11.	Rawsonia burtt-davyi	Rawsonia burtt-davyi	Plants	Malawi

	Species Name	Scientific Name	Group	Range
12.	Ternstroemia polypetala	Ternstroemia polypetala	Plants	Cameroon, Malawi, Tanzania
13.	Trichocladus goetzei	Trichocladus goetzei	Plants	Malawi, Tanzania
14.	Zanthoxylum deremense	Zanthoxylum deremense	Plants	Africa

In terms of forest cover, Malawi has about 33.4% as forest area according to WB as at 2015 which is a sharp decline from 41.3 in 1990. There are 85 protected forest reserves covering about 1, 109, 626 hectares. There are also 40 proposed forest reserve which cover about 154,137 hectares. Natural woodlands on customary land cover about 800,000 hectares. Out of these, 16000 hectares constitute plantations and woodlots which are mostly on private land for commercial sector or village forestry areas on customary land. Some of the notable protected Forests along proposed DMP are Kaning'ina Forest Reserve in Mzuzu and Mua-Livulezi Forest Reserve in Dedza.

The DMP has an implication on the forest cover hence it is necessary to develop strategies that minimise the project's contribution to the downward trend. The potential contribution to the high rate of deforestation could come from cutting down of trees for trenching or construction of towers; cutting and clearing of grass from areas where members of staff will have temporary shelter and cutting trees for firewood and buying charcoal from those who cut the trees.

b. Wildlife

In Malawi, there are nine protected wildlife reserves all together. These are Nyika National Park and Vwaza Wildlife Reserve in Rumphi, Kasungu National Park in Kasungu, Nkhotakota Wildlife Reserve in Nkhotakota, Lake Malawi National Park in Mangochi, Liwonde National Park in Machinga, Majete Wildlife Reserve and Lengwe National Park in Chikwawa and Mwabvi Wildlife Reserve in Nsanje. Similar trend to the trees, mammals and birds are also endangered in Malawi largely because they have economic values. In the IUCN's Red List, the following species of mammals followed by one for birds, are endangered and therefore protected by international law.

Figure 3-4 Location of major wildlife reserves in Malawi

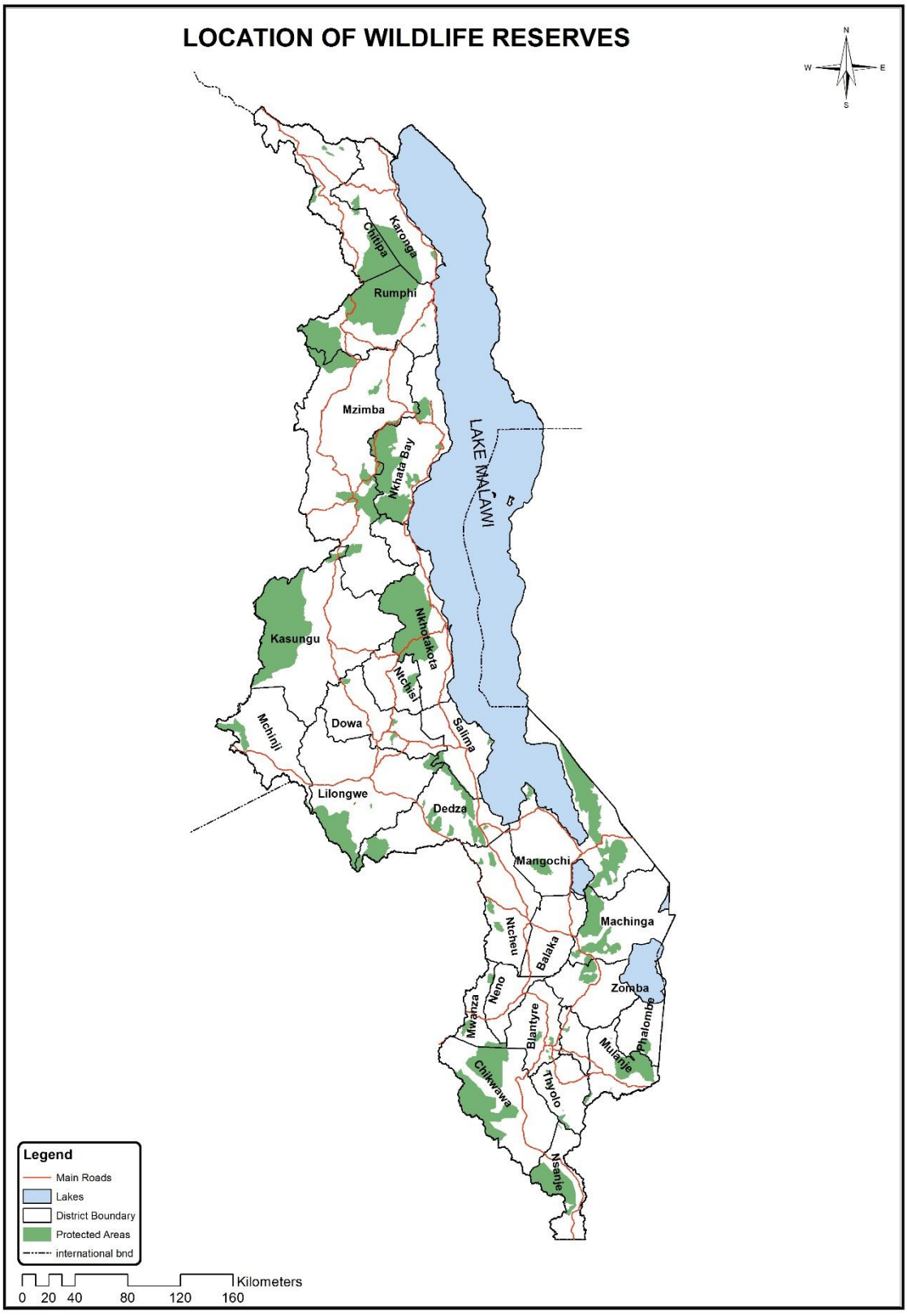


Table 3-2 List of endangered species of mammals in Malawi.

	Species Name	Scientific Name	Group	Range
1.	African Elephant	Loxodonta africana	Mammals	Africa
2.	African Lion	Panthera leo	Mammals	Africa, Asia
3.	African Wild Dog	Lycaon pictus	Mammals	Sub-saharan Africa
4.	Black Rhinoceros	Diceros bicornis	Mammals	Sub-saharan Africa
5.	Checkered Sengi	Rhynchocyon cirnei	Mammals	Democratic Republic of Congo (Zaire), Malawi, Mozambique, Tanzania, Uganda, Zambia
6.	Cheetah	Acinonyx jubatus	Mammals	Africa to India
7.	Common Hippopotamus	Hippopotamus amphibious	Mammals	Africa
8.	Delectable Soft-furred Mouse	Praomys delectorum	Mammals	Kenya, Malawi, Mozambique, Tanzania, Zambia
9.	Large-eared Free-tailed Bat	Otomops martiensseni	Mammals	Africa, Asia, Middle East
10.	Leopard	Panthera pardus	Mammals	Africa, Asia, Middle East
11.	Puku	Kobus vardonii	Mammals	Angola, Botswana, Democratic Republic of Congo (Zaire), Malawi, Tanzania, Zambia
12.	Straw-coloured Fruit Bat	Eidolon helvum	Mammals	Africa, Asia, Middle East
13.	Striped Roundleaf Bat	Hipposideros vittatus	Mammals	Angola, Botswana, Central African Republic, Democratic Republic of Congo (Zaire), Ethiopia, Guinea, Kenya, Malawi, Mozambique, Namibia, Nigeria, Somalia, South Africa, Tanzania, Zambia, Zimbabwe
14.	Tanzanian Vlei Rat	Otomys lacustris	Mammals	Kenya, Malawi, Tanzania, Zambia
15.	Temnick's Ground Pangolin	Manis temminckii	Mammals	Africa

Table 3-3 List of endangered species of birds in Malawi.

	Species Name	Scientific Name	Group	Range
1.	African Skimmer	Rynchops flavirostris	Birds	Africa, Asia, Middle East
2.	Basra Reed Warbler	Acrocephalus griseldis	Birds	Botswana, Egypt, Ethiopia, Iran, Israel, Kenya, Kuwait, Malawi, Mozambique, Saudi Arabia, Somalia, Sudan, Tanzania, Uganda
3.	Black-tailed Godwit	Limosa limosa	Birds	Africa, Asia, Australia, Central America, Europe, Middle East, North America (including United States Territory), Oceanic
4.	Blue Swallow	Hirundo atrocaerulea	Birds	Democratic Republic of Congo (Zaire), Kenya, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe
5.	Corncrake	Crex crex	Birds	Africa to Asia
6.	Denham's Bustard	Neotis denhami	Birds	Africa
7.	East Coast Akalat	Sheppardia gunningi	Birds	Kenya, Malawi, Mozambique, Tanzania
8.	Eurasian Curlew	Numenius arquata	Birds	Africa, Asia, Australia, Central America, Europe, Middle East, North America (United States Territory), Oceanic
9.	Eurasian Peregrine Falcon	Falco peregrinus peregrinus	Birds	Eurasia south to Africa and Mideast
10.	Great Snipe	Gallinago media	Birds	Africa, Asia, Europe
11.	Lappet-faced Vulture	Torgos tracheliotos	Birds	Africa, Asia, Europe, Middle East
12.	Lesser Flamingo	Phoeniconaias minor	Birds	Africa, Asia, Europe, Middle East, Oceanic
13.	Lesser Kestrel	Falco naumanni	Birds	Africa, Asia, Europe, Middle East
14.	Lilian's Lovebird	Agapornis lilianae	Birds	Malawi, Mozambique, Tanzania, Zambia,

	Species Name	Scientific Name	Group	Range
				Zimbabwe
15.	Maccoa Duck	Oxyura maccoa	Birds	Angola, Botswana, Burundi, Democratic Republic of Congo (Zaire), Eritrea, Ethiopia, Kenya, Lesotho, Malawi, Namibia, Rwanda, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zimbabwe
16.	Madagascar Pond-heron	Ardeola idae	Birds	Africa
17.	Olive-headed Weaver	Ploceus olivaceiceps	Birds	Malawi, Mozambique, Tanzania, Zambia
18.	Pallid Harrier	Circus macrourus	Birds	Africa, Asia, Europe, Middle East
19.	Shoebill	Balaeniceps rex	Birds	Burundi, Central African Republic, Democratic Republic of Congo (Zaire), Ethiopia, Kenya, Malawi, Rwanda, Sudan, Tanzania, Uganda, Zambia
20.	Spotted Ground-thrush	Zoothera guttata	Birds	Democratic Republic of Congo (Zaire), Kenya, Malawi, South Africa, Sudan, Tanzania
21.	Stierling's Woodpecker	Dendropicos stierlingi	Birds	Malawi, Mozambique, Tanzania
22.	Taita Falcon	Falco fasciinucha	Birds	Botswana, Ethiopia, Kenya, Malawi, Mozambique, South Africa, Sudan, Tanzania, Uganda, Zambia, Zimbabwe
23.	Thyolo Alethe	Alethe choloensis	Birds	Malawi, Mozambique
24.	Wattled Crane	Grus carunculatus	Birds	Angola, Botswana, Democratic Republic of Congo (Zaire), Ethiopia, Lesotho, Malawi, Mozambique, Namibia, South Africa, Tanzania, Zambia, Zimbabwe

	Species Name	Scientific Name	Group	Range
25.	White-backed Vulture	Gyps africanus	Birds	Africa
26.	White-headed Vulture	Trigonoceps occipitalis	Birds	Africa
27.	White-winged Apalis	Apalis chariessa	Birds	Malawi, Mozambique, Tanzania
28.	Yellow-throated Apalis	Apalis flavigularis	Birds	Malawi

The implication of the DMP on the wildlife is that the presence of a large number of people in a reserve for some time may cause migration of the animals away from the usual area since the clearing of some land and trenching may destroy the habitats of mammals, birds, insects and also reptiles.

a) Wetlands

Malawi contains some of the world's important wetland ecosystems. The most important wetlands include shoreline plains of Lakes Malawi, Chiuta and Chilwa, a diversity of dambo ecosystems and marshes of the Shire river system.

b) Water

Lake Malawi is a prominent physical feature in Malawi and forms part of the East African Rift Valley. The lake is the third largest in Africa with a total surface area of approximately 22,490 km2 , total length of 568 km and a width ranging between 16 and 80 km. This represents about 20% of the country. Other surface water systems include Lakes Chilwa, Malombe and Chiuta and a network of perennial rivers. The major rivers include the Shire, Bua, South Rukuru, Linthipe, Songwe and Dwangwa. Groundwater resources are also widespread (EAD 2001i).

Degradation of water resources is largely related to the pollution of surface water and groundwater by untreated municipal, industrial and hazardous waste, agrochemical runoff from cultivated land and siltation of rivers.

The increase in unplanned settlements and rapid growth in both rural and urban areas results in poor sanitary conditions and inadequate domestic and industrial waste disposal.

3.4 Social-Economic Environment

3.4.1 People and population dynamics in Malawi

a. The people

Malawi is a multicultural nation with several ethnic groups that include the Chewa, Nyanja, Yao, Tumbuka, Lomwe, Sena, Tonga, Ngoni, and Ngonde. There are also sizable populations of Europeans and Asians in its urban areas.

In terms of languages, Malawi has several ethnic groups including the Chewa, Nyanja, Yao, Tumbuka, Lomwe, Sena, Tonga, Ngoni, and Ngonde. The official language is English and most spoken vernacular is Chichewa (spoken by 57%). Other common languages include Chiyao and Chitumbuka. There are also several native languages, such as Malawian Lomwe, Kokola, Lambya, Ndali, and Nyakyusa-Ngonde (Malawi Population 2016). Most the ICT channels use English, Chichewa, Tumbuka in their mass communication channels.

The main religions are Christianity and Islam. There are no accurate estimates on the religious affiliation of Malawi's population, but it is estimated that 68% of the country is Christian while 25% is Muslim. Modernization has also pushed religious processes to be exercised and grown using ICT gadgets and means both in churches and mosques.

These people are distributed differently across the country. Most people (14.4 million) are in rural areas according to World Bank Estimates of 2015. This means that most of these people live on customary land where DMP will mostly go through such that any land acquisition could result in loss of livelihood. The remainder lives in urban areas as in various areas of Malawi with the following being cities and areas with highest densities according to World Bank.

This increase in population in both (in rural and urban setting) also means increased pressure on resource-base income including land. In the end, this leads to poor access to basic resources and services including: health facilities. The implication on the project is that where resettlement will be needed, it is likely that each action will affect significantly large number of people especially in the urban setting. In the cities, roads that pass through high density areas meet problems of illegal structures along the roads.

b. The population dynamics

The population of Malawi is estimated to be around 17 and 18 million (UN Data, 2016; World Bank, 2015; National Statistics' country meters, 2017). As of 1 January 2016, according to National Statistics' country meters, the population of Malawi was estimated to be 17 473 734 people. This is an increase of 3.06 % (518 491 people) compared to population of 16 955 243 the year before. Population density is 147.5 people per square kilometer as of November 2016.

The growth rate of the population between 2010 and 2015 is 3.1 percent with fertility rate (total live births per woman) of 5.3 percent for the same period. Life expectancy has grown from 46.95% in 2004 to 62.7% in 2014, this is due improved HIV/AIDS treatment by

Government of Malawi (supported by partners) which is a main cause of death in the nation. Infant mortality rate (per 1000 live births) is at 43.4 in 2015 which is a decrease from 103.5 in the year 2000. These indicators imply a large population size which continues to grow at a high rate. While more children are being born, those already born are now living longer within the same space.

In 2015 the natural increase was positive, as the number of births exceeded the number of deaths by 524 934. Due to external migration, the population declined by 6 443. The sex ratio of the total population was 1.002 (1 002 males per 1 000 females) which is lower than global sex ratio which was approximately 1 016 males to 1 000 females as of 2015.

Below are the key figures for Malawi population in 2015:

- 671 258 live births
- 146 324 deaths
- Natural increase: 524 934 people
- Net migration: -6 443 people
- 8 747 513 males as of 31 December 2015
- 8 726 221 females as of 31 December 2015

During 2016 Malawi population is projected to increase by 534 347 people and reach 18 008 081 in the beginning of 2017. The natural increase is expected to be positive, as the number of births will exceed the number of deaths by 540 987. If external migration will remain on the previous year level, the population will be declined by 6 640 due to the migration reasons. It means that the number of people who leave Malawi to settle permanently in another country (emigrants) will prevail over the number of people who move into the country (to which they are not native) in order to settle there as permanent residents (immigrants).

However, the increase in population in Malawi put more challenges to people for they experiencing pressure on living conditions due to poor provision of resources and facilities for instance: health and education facilities.

The total dependency ratio of population in Malawi is 91.4 % this is a ratio of people who are generally not in the labor force (the dependents) to workforce of a country (the productive part of population). The dependent part includes the population under 15 years old and people aged 65 and over. The productive part of population accordingly consists of population between 15 and 64 years. Child dependency ratio in Malawi is 86.3 % and this is a ratio of people below working age (under 15) to workforce of a country. Aged dependency ratio in Malawi is 5.1 % that’s a ratio of people above working age (65+) to workforce of a country. (The estimation data for section "Malawi age dependency ratio" is based on the latest demographic and social statistics by United Nations Statistics Division).

Table 3-1 Malawi population history (2000–2016)

Year	Population	Growth Rate
2000	11 037 887	2.94 %
2001	11 342 527	2.76 %
2002	11 640 278	2.63 %
2003	11 939 604	2.57 %
2004	12 249 047	2.59 %
2005	12 577 732	2.68 %
2006	12 930 115	2.80 %
2007	13 305 380	2.90 %
2008	13 701 524	2.98 %
2009	14 116 864	3.03 %
2010	14 549 440	3.06 %
2011	14 998 319	3.09 %
2012	15 463 625	3.10 %
2013	15 945 281	3.11 %
2014	16 442 690	3.12 %
2015	16 955 243	3.12 %
2016	17 473 734	3.06 %

3.4.2 Socio - Economic and Cultural Environment

a. **Urbanization**

The GoM through the Ministry of Lands and Housing intended to formulate an urban policy based on the observed fact that urbanization is a key to national development concern arising out of the growing urban population.

The 2008 Population and Housing Census found that 15.3% of the national population lives in urban areas of various sizes. Although, this is a moderate level of urbanization compared to many countries, the rate of urbanization of 5.2% per annum is very high compared to the

national growth rate of 2.8% per year. As such, the national urbanization level of 15.3% is expected to rise to 30% by 2030 and 50% by 2030.

The population density of an urban area is a relationship of the total population to its official land area. The density reflects growth in population due to natural increase and migration. In absence of boundary changes, the higher the in-migration and natural increase, the higher the density. Malawi's urban density is generally low and varying among the urban areas. The highest density is in Blantyre followed by Mzuzu. Though NSO (2010:201) proposes that the low density of Lilongwe is due to easy outward expansion of the informal settlements, the real cause is possibly its large land area a large part of which remains undeveloped (19.2%) or only utilized (23.5%) for agriculture (KRI / Nippon, 2010). None the less nearly all the councils appear to have insatiable appetite for unjustifiable urban boundary extensions. Examples of councils showing interest to extend boundaries are Lilongwe City, Mzuzu City, Karonga Town, Nkhata Bay District, Balaka Town, Zomba City and Blantyre City. The high urban density is considered less environmentally destructive as contrasted with low density and urban sprawl in Malawi (McGranahan & marcotullion 2005).

b. **Employment**

Malawi has high unemployment rate. According, to the National Statistical Office (NSO) report (2014), in its first ever labor force survey report for the country, put formal unemployment rate in Malawi at 21%. Unemployment rate in Malawi averaged 4.90 percent from 2005 until 2013, reaching a record low of 3 percent in 2007.

The International labor says job creation for world's youth remains an uphill struggle as two out of five economically active youth in most countries including Malawi are still unemployed.

c. Economic Situation

Malawi is a landlocked economy in South East Africa and is ranked 173 on the 2015 UNDP's Human Development Index (HDI). In 2015, the GDP (current US$) was at 6.4 Billion. Real gross domestic product (GDP) grew by 5.7% in 2014 but slowed down to 2.8% in 2015 as Malawi suffered from dual challenges of adverse weather conditions and macroeconomic instability. It has been estimated that it will go to 4% in 2017. Flooding in southern districts followed by countrywide drought conditions saw a contraction in agricultural production. Maize, the key crop for food security purposes, saw a 30.2% year-on-year drop in production. As a result, an estimated 2.8 million people (17% of the population) are unable to meet their 2015/16 food requirements.

For the country, agriculture represents 37% of GDP and accounts for over 80% of the labour force, and represents about 80% of all exports. Its most important export crop is tobacco, which accounts for about 70% of export revenues. Malawi's manufacturing sector contributes 18.9% to the national GDP. Malawi's manufacturing industries are mostly situated around the city of Blantyre and City of Lilongwe. According to African Development Bank (AfDB), the services sector in Malawi, particularly information and communication, proved more resilient, registering 9% growth. This was partly driven by rapid expansion in mobile phone services[2].

The main foreign exchange earner is tobacco whose production went down by more than 30% in 2005-2015 season because of extreme weather conditions of floods and drought. Other important exports are tea, sugarcane and coffee. These crops are grown in commercial estates/plantations. Sugarcane is grown and processed by Illovo Sugar Group on its two large irrigated sugarcane estates at Nchalo in Lower Shire Valley and Dwangwa Sugarcane Estates in Nkhotakota District. Exports from sugar, tea and coffee constitute about 20% of Malawi's exports.

The implication for DMP is that it may need to employ more people that maximize mechanization. In this way, the project will provide the needed employment and therefore the project will directly contribute to the growth of the economy.

d. ICT Access

To date there are a total of eight fibre gateways to the East Africa cable landings, three each through MTL and the ESCOM and two for SimbaNet from Karonga to Mchinji. MTL and SimbaNet are currently the only operator with a full redundancy fibre backbone. All operators and major ISPs are currently using MTL, ESCOM and SimbaNet for backbone and international connectivity to the cable consortia landings in Mozambique, Tanzania and through Zambia.

GoM through MACRA and the Ministry of Information and Communication Technology aims at enhancing universal access to ICT services whilst ensuring that reliable and affordable services are being offered throughout the country. The impressive growth in ICT infrastructure and uptake during the past decade has led to an increase in demand for accurate and comparable data and statistics on ICT (NSO, Survey on access and usage of ICT services in Malawi, 2014). MACRA took a survey in 2015 to generate coherent, reliable and up to date ICT database in the country aiming at addressing the challenges in the sector stifling economic growth and development. The survey results indicate that there is huge potential for ICT services to make significant contribution to the economy of the country. For instance the survey revealed that about 6.5 % of households in Malawi have internet access. 55.9% of households indicated that the internet prices are expensive and cannot afford to purchase internet services (Macra, National ICT Survey 2015).

The GoM underlines the contribution of ICT towards the socio-economic development of the country. This is evidenced by the emphasis it has placed on the sector in the Malawi Growth and Development Strategy II (MGDS II) as a key priority area although now under review. One deliberate strategy in the national development strategy is promoting the adoption, transfer and utilization of appropriate technologies to bridge the digital divide and lower the cost of communication in the country. A critical step in achieving this objective is to establish the ICT access levels in the country, determine ICT access gaps that need to be served and evaluate barriers to ICT access such as costs, literacy levels and technological barriers. Mobile phones were first introduced in Malawi in 1995 when the Government of Malawi licensed the first mobile phone operator.

Currently, Malawi has two major mobile phone operators namely Airtel Malawi and Telekom Networks Malawi (TNM). Malawi Telecommunications Limited (MTL) and Access Communications Limited (ACL) are the two fixed line providers. Over the years ownership

of mobile phones has been rapidly increasing and this has facilitated both access and use of mobile phone services.

e. Education

Malawi had a 79.34% (in 2014) of completion rate in primary school according to UNESCO Institute for Statistics which is a growth from 58.72 a decade ago. 47.7% of the female learners survived to the end of primary education in 2011 compared to their counterparts at 50.58%. Table 3- 4shows GER for Females and Males.

Table 3-4 GER for Females and Males for Malawi

	YEAR		
Education: Primary gross enrolment ratio (f/m per 100 pop.)	2014	148.0/145.1	
Education: Secondary gross enrolment ratio (f/m per 100 pop.)	2014	37.5/41.4	
Education: Tertiary gross enrolment ratio (f/m per 100 pop.)	2014	0.6/1.0	2011.

Malawi has a Gross Enrolment Ration (GER) of 148.0 % in 2014 for female and 145.1 for male implying that there is considerable grade repetition and or learners go into a grade too early or too late for their age in the primary schools. But generally, almost every school going age child go to school in primary school. Then there is a big jump when looking at the GER for the secondary education as it shows more than half of both female and males who were supposed to be in class at secondary school level are not in school. For the tertiary, it is worse. Almost all (99% for males and 99.4% for females) who were supposed to be in college at their age are not.

According, to Malawi Demographic and Health Survey, (2010), the official primary school age is age 6-13; students enter primary school at age 6. They stay in primary school for eight years, and at the end they sit for a Primary School Leaving Certificate (PSLCE). Students who receive the certificate qualify to start secondary education; the official age for the secondary school level is age 14-17. Secondary school lasts four years and is divided into two sets of two-year courses. At the end of the first two years, students sit for the Junior Certificate of Education (JCE). At the end of the second set of courses, they sit for the Malawi School Certificate of Education (MSCE) and the General School Certificate of Education (GCSE). Tertiary education consists of public and private universities and technical colleges.

The 2010 MDHS show that the secondary school National Attainment Rate has increased from 11 percent in the 2004 MDHS to 12 percent, while the GAR has decreased from 30 percent in the 2004 MDHS to 20 percent. The secondary NAR is slightly higher for females than males (13 and 12 percent, respectively), while there is a more pronounced difference between males and females for secondary GAR (22 and 17 percent, respectively). The overall secondary school GPI for GAR of 0.77 indicates that there are more males than females attending secondary school.

An example of e-education is that "both public and academic libraries have embarked on projects to implement integrated library management systems using open source softwares such as Koha and Dspace with support from the government as part of the e-education. There has also been effort to incorporate ICT in teaching and learning in various areas. Institutions like Queen Elizabeth Central Hospital have automated systems of keeping, processing, interpreting and also sharing information through the e-health systems. Nevertheless, huge number of health facilities remains subserviced with ICT systems.

Overall there has been progress in educational attainment since the 2004 MDHS: the proportion with no education has decreased, and the proportion with primary education has increased. In the 2004 MDHS, 30 percent of women and 20 percent of men had no education at all; these proportions have decreased to 19 percent and 11 percent. The median number of school years completed has increased from 3.1 to 3.5 for men and from 1.8 to 2.5 for women.

The 2010 MDHS show that the secondary school National Attainment Rate has increased from 11 percent in the 2004 MDHS to 12 percent, while the GAR has decreased from 30 percent in the 2004 MDHS to 20 percent. The secondary NAR is slightly higher for females than males (13 and 12 percent, respectively), while there is a more pronounced difference between males and females for secondary GAR (22 and 17 percent, respectively). The overall secondary school GPI for GAR of 0.77 indicates that there are more males than females attending secondary school.

f. Environmental pollution: e – waste management

The Malawi government has conceded that it is stuck with an e – waste problem, in the face of the increasing use of electronic gadgetry, including computers and cell phones. This emerged during the Global Environmental Fund Africa (GEF) constituency meeting in Lilongwe. Malawi, as a country is helpless because government has no concrete plans of managing electronic waste since this is a new and emerging issues. However, at global level, such wastes are regulated under the Basel Convention, to which Malawi is a party.

It is expected that once the global guidelines are finalized, local efforts will be enhanced to ensure that robust management measures are in place. Efforts are underway to develop a draft policy for e-waste under e-government initiatives as well as the Basel Convention on management of hazardous wastes.

There are no specific places designed for disposal of such wastes at present. In the absence of the legal instruments the public, distributors and retailers of the products that result in waste better start collecting such products at the end of their lifespan and ship them back to original manufacturers for safe disposal.

Malawi does not yet have a proper facility for safe disposal of these products and other hazardous chemicals such as obsolete chemical. Obsolete computers, cell phones and other electronic gadgets contain dangerous substances like lead, mercury and other dangerous substances which can lead to serious health hazards if not properly disposed of (Environmental Affairs Department).

g. Poverty

Poverty reduction efforts in Malawi are currently based on the twin strategies of the Poverty Reduction Strategy Paper (PRSP) and decentralization of government.

Poverty reduction efforts in Malawi aim at changing those household characteristics that are judged important determinants of household welfare and poverty status.

Poor rural Malawians confront multiple severe constraints that can only be addressed by some combination of raising agricultural productivity, diversifying farm output to reduce risk and shift toward higher value output, and diversifying livelihoods toward nonfarm enterprises.

h. **Health**

The main purpose of the MDHS is to provide the data needed to monitor and evaluate population, health, and nutrition programmes on a regular basis. Increasing emphasis by planners and policy formulation, planning, and measuring progress has increased the reliance on regular household survey data, given the inadequate availability of appropriate information from administrative statistics and other routine data collection systems.

The Malawi Demographic and Health Survey provides a comprehensive overview of population and maternal and child health issues, and the data are freely accessed to all stakeholders

The 2015 -2016 MDHS covers household and respondent characteristics, fertility and family planning, infant and health and mortality, maternal health and maternal and adult mortality, child and adult nutrition, malaria, HIV/AIDS, domestic violence, and orphans and vulnerable children. The survey also included HIV testing that will provide data for analysis of HIV prevalence in the country.

HIV and AIDS

Malawi's HIV prevalence is one of the highest in the world, with 10.6% of the adult population (aged 15-64) living with HIV. Malawi accounts for 4% of the total number of people living with HIV in sub-Saharan Africa. An estimated 980,000 Malawians were living with HIV in 2015 and 27,000 Malawians died from HIV-related illnesses in the same year[3]. ICT still remain an important part of dealing with the pandemic as the country works towards eradicating HIV by 2030.

Water and Sanitation

According to Malawi Demographic and Health Survey 2015 – 2016, 15 percent of households (overall) have the source for drinking water within their premises, but 43 percent of households spend 30 minutes or longer to fetch their drinking water. In rural areas, nearly half of households (47 percent) spend 30 minutes or more to obtain their drinking water, as compared with only 19 percent in urban households.

Nearly 7 in 10 households do not treat their drinking water, and this is more common in urban (78 percent) than in rural (67 percent) areas. The most commonly used method of water treatment is adding bleach/chlorine (20 percent). Overall, 26 percent of households use an

appropriate treatment method. The most common source of drinking water in urban areas is water piped into the dwelling/yard/plot. In rural areas, the most common source of drinking water is a tube well or borehole (72 percent). The source of drinking water is an indicator of whether it is suitable for drinking. They include a piped source, public tap or standpipe, tube well or borehole, and protected well or spring.

The most common type of toilet facility in rural areas is a pit latrine with a slab that is not shared with other households (52 percent of rural households). While pit latrines with a slab are also the toilet facilities most commonly used by urban households, they are usually shared with other households (50 percent of urban households).

There are a number of efforts that are using ICT to advance the health of people and communities in general. An example is where Public health practitioners in Malawi are using information and communication technology (ICT) to more effectively inform and educate the people on health issues such as family planning, child health and malaria prevention in Lilongwe. This is done in conjunction with US-based Johns Hopkins Center for Communication Programs (JHU-CCP) which is pioneering a mass communication programme locally known as *Moyo ndi Mpamba* (Life is Precious) to address health issues and analyse feedback through mobile phone short message service (SMS) and Facebook[4]. This is just one of the initiatives using ICT as part of the Malawi ICT policy of using e-health.

i. **Cultural heritage**

For many centuries, culture has been a valuable heritage passed on from one generation to another, article 27 of the universal declaration of human rights, which Malawi subscribes to, also affirms everyone's right to freedom of expression and opinion, association and choice of education for one's children. This freedom is the basis of the world's cultural diversity, which is a fundamental part of the heritage of humanity which cherishes and nurtures cultural diversity.

Despite cultural preservation and promotion being paramount for country's existence, Malawi has been caught napping to the extent that it has been depending on foreigners to free its thinking and reflection on culture.

UNESCO's world commission on culture and development, in its 1995 report, Our Creative Diversity, stated that any nation that believes in creative diversity needs to create a sense of itself as a civic community that preserve cultural heritage and promotion of living culture.

It argued that a society's heritage – from national monuments, museums, and galleries to a people's language, history and religion – is an essential source of meaning and fulfilment to people living now. Hence, the importance of protecting and preserving the heritage..

3.5 Cross – Sectoral Resources

3.5.1 Energy

According Malawi Energy profile 9% of the country's total population have access to electricity. Malawi currently has a remarkable low national electrification rate. While electricity has reached almost 25% of urban households, rural electrification lies only at 5%. Only 7% of the population has access to modern cooking fuel and more than 98% from rural areas (roughly 85% of country's total population) still use fuel wood for cooking.

Malawi's energy supply is dominated by biomass (firewood, charcoal, agricultural and industrial wastes) accounting for 84% of the total primary energy supply. The total installed electricity capacity (2010) is 515 MW (Hydro 94% and Thermal 6%)

The national power utility ESCOM, is stretched with regular day-to-day occurrence of load shedding (power interruptions). Dependency on hydro power stations on the Shire River is now considered as a risk due to declining levels of water flow. Wood and charcoal use for cooking is highly unsustainable and is estimated to destroy around 75,000 hectares of natural forests across Malawi annually. Malawi has great solar potential with an average of 3,000 hours of sunshine per year. Wind pumping has potential especially for water pumping for agriculture and livestock farming.

In Malawi biomass is the main source of energy for the majority of the population. This is the case because of high poverty levels as well as low coverage of electricity and other alternative sources of energy (Yaron et al., 2010).

With about 40% of Malawians living below the poverty levels, access to and use of electricity and other non-biomass forms of energy remains low. Biomass accounts for 97% of total primary energy supply of which 59% is used in its primary form as firewood (52%) and residues (7%), while the remaining 41% are converted into charcoal.

According to the 2008 population and housing census1, 43.4% of all households in urban areas used charcoal for cooking, 41.8% used firewood for and only 13.6% used electricity for cooking. Both charcoal and firewood are obtained from products from different forest and land tenure arrangements, which include government forest plantations and forest reserves, private forest plantations and indigenous wood (customary land).

There are four Energy Acts aimed at addressing various aspects of the energy sector which are: Act 20, the Energy Regulation Act which established Malawi Energy. Regulatory Authority (MERA); Act 21, the Rural Electrification Act which laid the foundation for the formation of Rural Electrification Management Committee and Rural Electrification Fund; Act 22, the Electricity Act which deals with electricity issues in terms of licensing, tariffs, generation, transmission, distribution, sales con-tracts and related issues; Act 23, the Liquid Fuels and Gas (Production and Supply) Act which handles issues related to liquid fuels and gas production in terms of li-censing, safety, pricing, taxation, strategic reserves and any other related issues.

3.5.2 Tourism

The tourism industry is still in its infancy in Malawi but it offers a great potential for the development of the country both as a foreign exchange earner and for provision of employment.

Tourism offers an alternative source of income and as one avenue towards diversifying economic activities from agriculture. Development of tourism also assists in the development of the rural areas by distributing wealth from the major urban centres to rural areas. In cognizance of these factors, Government has made a decision to develop and promote tourism as one of the major economic activities.

The Department of Tourism as the line functionary responsible for policy formulation and co-ordination aims to develop and promote the tourism sector in Malawi. The Department intends to develop the industry as a national priority in a sustainable and acceptable manner so that it will significantly contribute to the quality of life of every Malawian. Community tourism and involvement of local communities will be promoted to ensure direct benefits to rural communities. The Ministry aims for a globally competitive tourism industry, which will be a major force in the development efforts of Government (National Tourism Policy for Malawi).

The country's tourism attractiveness lies in its diversity. Malawi is endowed with a variety of natural features, which provide a great potential for development of tourism. Some of the features, which make Malawi attractive, include:

Lake Malawi and its Islands: Lake Malawi and its Islands and Biodiversity take up 23,000 square kilometers of the total 118,000 square kilometers of Malawi. The Lake is about 570 kilometers long and between 16 and 80 kilometers wide. It is a very large inland sea with magnificent mountain surroundings harbouring over 800 species of fish. It is a fresh water lake. Its crystal-clear waters and fine sandy beaches are a major attraction to tourists.

National Parks, Wildlife and Forest Reserves: Malawi has five national parks and four wildlife reserves, which offer a variety of fauna and flora. The national parks and wildlife reserves include Nyika, Kasungu, Lake Malawi, Liwonde, and Lengwe national parks, Vwaza, Nkhotakota, Majete and Mwabvi Wildlife reserves. The forest reserves include Chongoni, Mulanje, Ntchisi, Chikala, Dzalanyama, Chikangawa, Zomba, and Dedza.

Cultural and Historical attractions: Malawians are a very friendly people who stem from a number of ethnic groups and whose culture is marked by a wide range of dance forms, music, handicrafts and carvings. There are also several monuments, historical sites and archaeological sites throughout the country.

Natural Features: Malawi is endowed with a diversity of natural features and offer potential for the development of tourism. Tourism sporting activities that take place in these natural features include mountaineering, horse riding, angling and aquatic sports such as scuba diving, skiing and yachting.

Urban Attractions: Surrounded by impressive mountain terrain, Blantyre city is the country's main commercial, industrial and communications centre. Business travellers usually visit the city. Lilongwe is the capital of Malawi. It is well planned and beautifully laid out with a fine new style of architecture and potential for growth. Other urban centres include Mzuzu, the commercial city of the Northern region and Zomba, the former capital of Malawi.

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[1] Department of Climate Change and Meteorological Services- http://www.metmalawi.com/climate/climate.php (accessed on 7 January 2017)
[2] https://www.afdb.org/en/countries/southern-africa/malawi/malawi-economic-outlook
[3] http://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/malawi (acceeed on 7 January 2017).
[4] http://www.scidev.net/sub-saharan-africa/icts/news/ict-radio-malawians-health-education.html (Accessed on 7 January 2017)

CHAPTER 4. ADMINISTRATION, POLICY, LEGAL AND REGULATORY FRAMEWORK

DMP activities under component 2 and 3 which aim at improving and increasing connectivity and creation of digital platforms respectively could impact biophysical and socioeconomic environments. There may also be need to acquire parcels of land for the installation of fibre cable, towers, and other telecom equipment. The required parcels of land may be a source of livelihood for the people in the project areas since it may be used for grazing or cultivation by the local communities. This chapter discusses relevant policy and legal framework for environmental and social assessment in Malawi.

This section will also provide local and international policies and legislation which have to be complied with in the process of compensating the people who will be affected by the implementation of the MDP. The chapter also reviews WB Policy provisions and principles on environmental assessment and involuntary resettlements which will be applied in cases where the local legal framework is not providing clear guidelines on environmental and social assessment, compensation and relocation.

4.1 Policy Framework

4.1.1 The Constitution of the Republic of Malawi

The Constitution of the Republic of Malawi of 1995 sets out a broad framework for sustainable environmental management at various levels in Malawi. Among other issues, section 13 (d) provides for prudent management of the environment and accords future generations their full rights to the environment. The constitution also provides for a framework for the integration of environmental consideration into any development programs. Among other issues, it calls for prudent management of the environment and accords future generations their full rights to the environment. The Constitution provides the fundamental principles that require the State to promote the welfare and development of the people by progressively adopting and implementing policies and legislation aimed at achieving gender equality, adequate nutrition, adequate health care and responsible management of the environment. Specifically, for the environment, the constitution aspires to prevent the degradation of the environment, provide healthy living and working environment, ensure intergenerational equity through environmental protection and sustainable development of natural resources

The Constitution of Malawi also provides the basis for and against land acquisition. Section 28 (2) of the Constitution of the Republic of Malawi states that “No person shall be arbitrarily deprived of property” and section 44 (4) states that “Expropriation of property shall be permissible only when done for public utility and only when there has been adequate notification and appropriate compensation, provided that there shall always be a right to appeal to a court of law for redress.

The implication of this provision is that the proposed project has a responsibility of ensuring that the implementation of project activities is undertaken in an environmentally sustainable

manner in order to prevent environmental degradation and not to compromise the socioeconomic environment.

In cases where people will be deprived of their land, property and source of livelihood to pave way for the implementation of the Malawi Digital project, the developer will be required to compensate them for the losses that will be incurred. In preparation of the RAPs, the developer should ensure that the compensation packages will improve and restore the livelihoods of the PAPs

4.1.2 National Environmental Action Plan (NEAP), 1994

The NEAP adopted in 1994 estimated that the discounted economic cost of the major forms of degradation, which include soil erosion, deforestation, water resources degradation, fisheries depletion and biodiversity loss amounted to 10% of the formal Gross Domestic Product (GDP). Considering the small size of the economy this is substantial economic of Malawi's economy and therefore NEAP set to address these problems by among other things reshaping the mechanisms governing the management of natural resources in Malawi. NEAP recommended a number a number of mitigation measures that were outlined in the Environmental Support Programme whose main objective was to integrate environmental issues into the country's social and economic development programme. NEAP is still being as a framework for all development plans in the country to ensure environmentally sustainable development in line with the strategic objectives of Vision 2020.

Under the Environment Management Act of 1996, the Environmental Affairs Department is required to prepare State of the Environment Report every year. These provide useful information for environmental planning purposes and other forms of social and economic development programmes and this is partly based on the District State of the Environment and Outlook reports.

The ESMF should include the state of the problems isolated by the NEAP from the baseline assessment of different sites and include mitigation measures in the Generic ESMP aimed at the various issues identified by NEAP as key environmental problems in Malawi such as soil erosion, biodiversity loss, degradation and depletion of water resources

4.1.3 The National Environment Policy (2005)

The National Environmental Policy as an umbrella framework guides different lead agencies and stakeholders in so far as their activities affect the environment and natural resources management, including how to minimize impacts of environmental degradation. Its aspirations under different sectors considered relevant to enhance the ideals of sustainable land and water management are summarized in the overall goal of the policy that states that "*the overall policy goal is the promotion of sustainable social and economic development through the sound management of the environment and natural resources"*. The policy seeks among other things, to secure for all people and future generations an environment suitable for their health and well-being.

Preparation of this ESMF is to ensure that the implementation of activities under DMP is carried out in a sustainable manner, considering that some project activities could generate adverse impact on both biophysical and socioeconomic environments.

4.1.4 National Water Policy (2005)

The National water policy seeks to promote the sustainable management and utilization of water resources, to provide water of acceptable quality in sufficient quantities. The protection of water resources for domestic water supply is one of the guiding principles in the policy which should be given the highest priority.

The policy advocates for proper management of water resources to prevent water degradation. Activities under DMP must observe the buffer zones for rivers, flood lines and river banks to prevent siltation of rivers and degradation of river banks. This will ensure that the implementation of the DMP project will not contribute to the pollution and degradation of water bodies.

4.1.5 The National Land Policy (2002)

The 2002 Malawi National Land Policy recognizes the centrality of land as a basic resource common to all people of Malawi for their social and economic development. The policy provides opportunities for the people of Malawi to embark on a path of socially and environmentally sustainable development. The policy recognizes environmental impact assessment of all big land development projects, and those planned in fragile ecosystems in order to protect biodiversity and water resources.

The policy recognizes the free enjoyment of legally acquired property rights in land and that a land holder is entitled to compensation in the event that his land is acquired by government for public use. The policy emphasizes that customary land has value and as such, compensation for such land has to be based on the market value of the land and all permanent improvements on the land at the time of acquisition.

The land that will be required for the RoW for the ICT facilities may fall under customary or private tenure and the developer should ensure that the affected people receive fair compensation for their land and the property they will lose based on the current market value. The money they will receive should enable them to settle comfortably wherever they will be relocated and restore the source of livelihood.

The policy further highlights that compensation is inadequate at times because certain items or qualities are excluded during the assessment to determine their value and that there are always delays in the payment once the value has been determined. This should be taken into account during the RAP preparation process to ensure that all items are taken into account during assessment and that the affected people receive their compensation in time before the commencement of the project implementation.

4.1.6 The National Forestry Policy (1997)

The 2006 National Forestry Policy provides a framework for sustainable production and conservation of wood resources and recognises the importance of wood fuels in the national

energy supply and the need to bring about improvements in their sustainable production and supply. The policy specifically mentions the wood fuel needs of farmers in its general objectives and strategies, and recognises the importance of forest products in improving the quality of life in rural communities and providing a stable local economy. Additionally, the policy calls for a reduction in the dependence on wood fuel as a source of energy through switching to alternative sources of fuel and adopting wood fuel-saving devices so that 50 per cent of energy should be sourced from non-biomass sources.

The policy is being revised and the National Forestry Policy of Malawi, 2013 (Draft) is aligned to the 2002 National Land Policy by among other things recognising that both rural and urban areas will be subject to planning and management controls that will promote sustainable forestry management. The draft policy also aims to reduce overdependence on wood fuel, promote efficient use of wood fuels as a way of reducing the rate of deforestation. Realising that biomass will remain a significant source of energy for the foreseeable future the new policy is realistic and advocates the promotion of sustainable charcoal production.

The ESMF should provide measures for protection of forest resources through promotion of efficient use of fuelwood, use of trees and other tree products for construction from sustainable sources, control land clearing on environmentally fragile areas such as on steep slopes, wetlands and riverbanks without proper conservation measures.

4.1.7 National Disaster Risk Management Policy

The overall goal of the National Disaster Risk Management (NDRM) Policy is to sustainably reduce disaster losses in lives and in the social, economic and environmental assets of communities and of the nation. The policy is aimed at creating and providing enabling framework for the establishment of a comprehensive disaster risk management system in Malawi. The priority areas the policy focuses on include mainstreaming of disaster risk management into sustainable development, establishment of comprehensive system for disaster risk identification, assessment and monitoring, development and strengthening of a people centred early warning system, promotion of a culture of safety, adoption of resilience enhancing interventions and the reduction of underlying risks. The strategies to implement the policy cut across several sectors including infrastructure development, agricultural diversification, microfinance initiatives, disaster risk insurance, social support schemes, reforestation and river training. This policy is very relevant to the Digital Malawi Project as some of the areas to benefit from connectivity lie in disasters prone areas therefore protection measures should be developed to protect the infrastructure and to ensure the ICT services assist in responding to disasters.

4.1.8 National Wildlife Policy (2002)

The National Wildlife Policy 2000 aims at ensuring proper conservation and management of the wildlife resources in order to provide for sustainable utilisation and equitable access to the resources and fair sharing of the benefits from the resources for both present and future generations. It recognizes that wildlife forms the basis for the tourism industry in Malawi which is overwhelmingly nature-based and has potential for increased contribution to GDP. The National Wildlife Policy seeks to meet a number of objectives including ensuring adequate protection of representative ecosystems and their biological diversity through promotion and adoption of appropriate land and water management practices that adhere to the

principles of sustainable use and enhancing public awareness and understanding of the importance of wildlife conservation and management and its close relationships with other forms of land use.

The ESMF considers the potential impacts posed by the Digital Malawi Project on the terrestrial and aquatic habitants of wildlife and propose mitigation measures that would protect wildlife from negative impacts caused by the activities of the project such installation of towers and fiber cable.

4.1.9 National HIV/AIDS Policy (2012)

The national HIV/AIDS policy highlights that HIV/AIDS impact on the country is quite significant and affects a range of socio-economic activities be it in agriculture, fisheries, public sector, private sector, tourism, urban areas, rural areas among others. HIV/AIDS prevalence in the country varies from one region to the other and from rural to urban areas. The highest rate is in the Southern Region and the lowest in the Northern Region. Prevalence rate is high in urban areas as compared to the rural areas.

National HIV/AIDS Policy identifies migrant workers and women among highly vulnerable people to transmission of HIV/AIDS and other sexually transmitted diseases. An application of migrant workers is that some single male migrant workers would be at an increased likelihood of contracting HIV/AIDS. The reason is that some migrant workers may approach and indulge in casual sexual intercourse with infected local female partners in the surrounding local communities or some sex workers in the targeted irrigation schemes. In addition, increased disposal of income from migrant workers may enhance some workers to indulge in extra-marital affairs with either local girls or married women within the surrounding villages. These sexual activities would enhance the spread of HIV/AIDS among workers and local people.

In order to minimize the risks, this study recommends the following mitigation measures:

- Periodic distribution and training in use of both female and male condoms to workers at the estates.
- Periodic HIV/AIDS sensitization meetings for workers and their spouses at the scheme.
- Development of HIV/AIDS work place policy.
- Periodic distribution of HIV/AIDS Information, Education and Communication (IEC) materials.

4.1.10 National Gender Policy (2000)

The 2012 – 2017 National Gender Policy recognizes that women play important roles in in socioeconomic development of the country. This contribution is however not matched with their access to and control over resources such as land and capital and their enjoyment of benefits from management and use of natural resources.

The project affected people will include women, men, the youth, and girls including some who may be vulnerable. The National Gender policy provides gender mainstreaming in in

the planning and implementation of projects to ensure that the needs of different groups of people affected by a project are taken care of in a manner that promotes equity. The developer should ensure that principles that promote equity among different groups are applied in the assessment and implementation of the RAPs that will be prepared to facilitate the compensation and resettlement of the PAPs.

4.2 Legal Framework

4.2.1 Environment Management Act (1996)

In Malawi, the Environment Management Act (EMA), provides the basic legal framework for environmental planning including the preparation of environmental management plans for project likely to have negative impacts on people and the environment. The Act makes provisions for protection and management of the Environment and the conservation and utilization of natural resources. Section 24 of Environment Management Act, 1996 requires environmental and social considerations to be integrated in various development activities in Malawi.

The planning, construction and operation phases of the DMP will induce negative impacts on the environment which will have to be avoided, minimised or mitigated. In order to integrate environmental considerations into the activities of the project, DMP has prepared this ESMF to provide guidance in environmental and social management of adverse impacts to be generated by project activities.

4.2.2 Telecommunication Act (2016)

The Telecommunication Act provides guidance for the regulation and provision of services in the Communication Sector in Malawi. The act also provides for the establishment of the Malawi Communications Regulatory Authority (MACRA) whose major responsibility is to regulate the provision of telecommunication services through:

- Licensing of service providers;
- Providing advice to the minister on regulations or policies;
- Monitoring the activities of licensees to ensure compliance with the terms and conditions of their license and applicable regulations, and related activities.

Other duties for the authority include:

- Ensuring that reliable, affordable and sufficient communication services are provided are provided throughout Malawi,
- Protect the interests of consumers, purchasers and other users of communication services in respect of the prices charged for the quality and variety of services provided and terminal equipment supplied.
- Promote open access to information by means of communication services;
- Encouraging the introduction of new communication services
- Foster the development of communications services and technology in accordance with recognized international standards
- Promote efficiency and competition among persons engaged in provision of communication services or supply of communication equipment;

The project, especially during operation, will have to meet all the requirements and standards that MACRA expect from service providers in the communication industry.

4.2.3 Water Resources Act (2013)

The Water Resources Act has a bearing on effluent and storm water discharges into the environment especially water resources. The legislation regulates water resources protection, conservation and planning and catchment management. Specifically, the Act controls use of water resources, water rights and pollution of public water.

Proposed activities under DMP will also have to ensure that the river banks and the water bodies are not affected by land clearing, planting of towers and installation of cables will have cross rivers which are along the corridor for the optic fiber cables. The river reserves will have to be respected to prevent siltation of rivers and degradation of river banks.

4.2.4 Forest Act (1997)

The Forestry Act (1997) guides the management of indigenous forests on customary and private land; forest reserves and protected forest areas; woodlots and plantation forestry and it also deals with crosscutting issues including law enforcement and fire management. Section 46(a) states that no person shall cut, take, fell, destroy, uproot, collect and remove forest produce from a forest reserve, customary land, public land and protected forest area.

The country has a number of forest reserves, community managed woodlots, game reserves, private forests and indigenous trees which could be impacted by proposed project activities under Components 2 and 3 especially on increasing rural connectivity. The contractors with oversight from project implementing unit will have work with the responsible authority and ensure that afforestation programmes are implemented where ever trees are going to be affected by the project activities. There will be cases where compensation for the lost trees will also have to be paid as such relevant government departments will have to be consulted to ensure transparent and fair compensation process is adopted.

4.2.5 Land Act (2016)

The Land Act of 2016 has replaced the Land Act of 1965 and it will come into force once the date indicated by the Minister responsible for Land matters has been gazetted. Section 18 of the act provides for the compensation of customary land in cases where it is required for public use. The section also provides for any person who suffers any disturbance or loss or damage to any property to be paid reasonable compensation for such disturbance, loss or damage.

The developer will have to compensate the people who will be affected by the implementation of the Digital Malawi Project for loss of land or access to it as well as the developments on the land as has been provided for in this act.

4.2.6 Land Acquisition Act (Cap. 58:04)

The Lands acquisition act provides procedures which have to be followed by developers when acquiring land of any tenure in the country. The project may affect land under

Government, private, freehold or customary tenure. The developer should ensure that procedures provided for under this act are followed when acquiring the land from the affected persons.

Section 3 of the act provides for the payment of fair compensation on acquisition of land by compulsory or by agreement. The compensation can be paid as a lump sum or by installments as has been provided in section 9 of this act. To ensure fair compensation, section 9 provides that an assessment for compensation will have to be carried out taking into account the following aspects:

a) The amount of money that the owner paid when acquiring the land;
b) The value of the improvements on the land, standing crops and growing produce; and
c) Appreciation in the value of the land since the date of acquisition.

The act in section 5 provides that the owners of the land that is to be acquired should be given a notice of the intention to acquire their land which should be served on the people and also published in the government gazette.

In preparing the RAPs, the developer will have to carry out an assessment for compensation for the land that will be acquired taking into consideration what has been provided for under this act.

4.2.7 Town and Country Planning Act Cap 23:01 and Physical Planning 2016

Some of the sites for the project will fall within towns which are statutory planning areas established under the Town and Country Planning Act. The act regulates the use of land and provides guidelines for the planning and management for all development activities in the country especially those in statutory planning areas. It is therefore a requirement for all development within a statutory planning area should seek permission from the planning authority before being implemented.

In resettling the displaced persons within districts that are planning areas the Planning areas, the developer will have to ensure that PAPs submit their development plans to respective Town Planning committees so that they are approved before commencement of the redevelopment exercise.

Section 40 of the Act also requires Local Councils to ensure that environmental negative impacts of projects are avoided. The implication of this provision for the proposed project is that PAPs are allocated land that is zoned for the use and should monitor the implementation of their development to ensure that they are complying with the zoning to ensure environmental protection during construction and operation of their various developments..

Parliament passed the Physical Planning Act of 2016 which provides for developer to seek permission for development activities on any parcel of land regardless of tenure. In the event that the sub projects will be implemented after the new law comes into force, PAPs will be required to submit development plans for the redevelopment of their structures to the respective planning authorities for approval before commencing construction works.

4.2.8 National Parks and Wildlife Act (2004)

The provision of the National Parks and Wildlife Act are among other things meant for:

- The conservation of selected examples of wildlife communities in Malawi;
- the protection of rare, endangered and endemic species of wild plants and animals;
- the sustainable use of wildlife and minimization of conflict between human beings and animals;
- conservation and management of wildlife; and
- the protection and management of protected areas.

There are a number of game reserves and national parks in the country which could be impacted by DMP activities as such care should be taken when considering implementing project activities within game reserves and national parks. The contractors should also ensure that the waste that may be generated during this period is removed from these reserves as it is prohibited to discard or deposit any waste material in a national park under this act.

4.2.9 Monuments and Relics Act, 1990

Graves are among the monuments that are protected under the monuments and relics act. The chief antiquities officer is given the power to preserve and protect all monuments entrusted to his care under section 4 (a) of the act.

Section 13 (b) of the act states that no person shall without prior consent of the minister carry out any cultivation or mining project or other work so as to cause or likely to cause damage or disturbance to any protected monument or protected relic.

The country has a number of active and inactive graves whose locations are known and some cannot be identified easily as such proposed activities which require excavations will have to be implemented in a manner that protects monuments or relics. Any chance finds should be rescued using procedures outlined in this ESMF with assistance from Department of Antiquities

4.2.10 Public Health Act, Cap 34:01

The Public Health Act is for the protection of public health from activities that might endanger human life. The Act prohibits any person from causing nuisance on any land or premises owned or occupied by another. DMP activities should therefore not cause any nuisance during installation of ICT infrastructure in the country.

The Act requires developers to provide adequate sanitary and health facilities to avoid harmful effects of waste on public waters. It is upon incumbent on any contractor that would undertake civil works for DMP to comply with the requirements of this Act by providing potable water, toilets and proper solid waste disposal mechanisms for use by workers throughout the construction period.

4.2.11 Occupational Safety, Health and Welfare Act, Cap 55:07

Occupational Safety, Health and Welfare Act regulate work conditions with respect to safety, health, and welfare of workers. The Act seeks to ensure that work places are safe and that the welfare of workers is protected. The act also provides that workers should be provided with protective wear to ensure that they are safe while they are working. These may include gloves, heavy duty boots, helmets and overalls.

The workers who will be undertaking any civil works, cable and electrical installations under DMP should be provided with proper personal protective wear that will make them comfortable and safe from occupation and health safety hazards.

4.2.12 Public Roads Act

The Public Roads Act is the most comprehensive of all Acts that deal with compensation in providing guidance on assessment of land and assets. It will provide guidance during the valuation exercise for compensation of the people affected by the implementation of the proposed Malawi digital project.

Section 45 states that compensation has to be paid in cases where:

a) A person has to move his residence or place of business;
b) Where no alternative land can be made available to him; and
c) Where he will have to spend money in order to make the land that he will be given as a replacement fit for cultivation.

The act also provides the factors that should be taken into account when assessing the amount of compensation in section 46 to include:

a) The open market value of land or interest at the valuation date;
b) The damage if any sustained by the person interested at the valuation; and
c) Any increase in the value of the other land or other benefit of the person interested.

The valuation exercise for the land and assets along the RoW for the ICT infrastructure and repeater stations and towers stations will have to take into account the provisions of this act in order for the people to get fair compensation.

4.3 Institutional Framework

The Digital Malawi Project will be implemented by the Public Private Partnership Commission, which operates under the Ministry of Finance and Economic Planning. The commission is the Government body mandated to coordinate all PPP projects, including ones in the ICT sector. As such it will coordinate all connectivity initiatives at national level. These will also be coordinated with World Bank Group financed initiatives as well as with activities privately funded, those directly funded by governments, or funded by other development partners within the country. Effort will also be made to link the existing ICT initiatives at national level to those within the region.

The institutions for the project implementation will cascade from national level (formal and informal players) to community level and how these stakeholders will relate within the project. Table 4-1 showing key institutions for the project at different levels.

A governing structure will be put in place to oversee the project. It will be formed from all key government stakeholders. These will maintain supervisory and consultative roles through regular meetings to review the progress of DMP in terms of technical soundness and also financial transparency and accountability.

The project will not have full-time safeguards staff in the project team. However, it will work closely with the government agency which is responsible for these issues particularly the Environmental Affairs Department. EAD is bestowed with responsibility for reviewing the environmental and social protection aspects of projects. This is also the department to which telecommunications operators in the country submit applications for safeguards approvals in advance of network development. The department will be represented on DMP Governance Structure and so will be fully updated on project implementation. During project implementation, the project team and the private implementing partners will be required to go through EAD for environmental approval, as per the legal framework in Malawi. The Governance Structure will provide an additional institutional mechanism to ensure that the regulatory framework is being complied with in Malawi. In cases where additional technical capacity on environmental issues is required in the project team, the project will hire expertise on contract.

The Commissioner for Lands, under the provisions of the Land Act 2016, has the mandate to facilitate the planning and management of resettlement and compensation of PAPs affected by the implementation of projects. However, it is the responsibility of the Local Government Structures for affected councils to request the department of Lands to provide the technical assistance for assessment of land and assets for the purpose of compensation. Government Agencies will advise the developer on the actions and steps to be taken to ensure that the PAPs are fairly compensated in line with provisions of both the local pieces of legislation and World Bank Policy on involuntary resettlement. Institutions involved in the formulation and implementation of Environmental and Social Management Plans (ESMP) are outlined in the Table 5,1 (Note that RAP stakeholder details, are included in the associated RPF).

Table 4-1 Institutions involved in Planning and Implementation of ESIAs

Institution	Role
Environmental Affairs Department	Has regulatory power to approve the implementation of the project. It is the main enforcing agency of the Environment Management Act (EMA). The department review and approve environmental and social impact assessment.
Department of Forestry	Providing licenses and schedule for assessment of trees
Department of National	Providing guidance and licenses and

Institution	Role
Parks and Wildlife	assesses wildlife habitats including wetlands.
Ministry of Lands, Housing and Urban development	Policy guidance on land acquisition and compensation Review and Approval of RAP Monitoring the Implementation of the RAP
The Malawi Communications Regulatory Authority (MACRA)	Regulate the provision of telecommunications services through: (i) licensing of service providers; (ii) providing advice to the Minister on regulations or policies; and (iii) monitoring the activities of licensees to ensure compliance with the terms and conditions of their license and Applicable regulations and related activities; Draw up numbering plans for public telecommunications networks; Establish a type approval regime for terminal equipment to grant approvals and ensure that type approval procedures are adhered to; Regulate broadcasting services; Plan the use of radio frequencies and make frequency allocations; and Regulate the provision of postal services.
Local Government- District, Town and City Councils.	Overseeing implementation of the ESMP through DEAPs. Coordination the compensation and resettlement process Heading the Grievance Mechanism committee Oversees the payment of Compensation to PAPs
Department of Lands	Policy and Technical Guidance on land use including National Physical Development Plans and Assessments of Land and Assets
Office of the President and Cabinet	Provision of Funds for compensation for Government projects
Developer	Preparation of ESIAs, ESMPs and RAPs Payment of Compensation for private led projects
Customary land Committees (and Traditional Leaders)	Coordinates with the developer and District Council Helps in identifying the PAPs Identifies Alternative Land for PAPs Member of the Grievance redress committee
Project Affected Persons (PAPs)	Participates in the planning and implementation of the compensation

Institution	Role
	process Member of the Grievance redress committee through representatives
Grievance Redress Committee	To hear and resolve complaints on compensation packages and relocation sites
Relevant Civil Society Organizations (NGOs, FBOs, CBOs)	Monitoring the implementation of ESMP and RAPs

4.4 Review of Applicable World Bank's Safeguard Policies

This section discusses the safeguard policies of the World Bank and their applicability. The policies are central to the bank's support to sustainable development. The safeguard policies provide guidelines in the identification, preparation and implementation of projects or programs supported by the World Bank. The project is expected to finance development of a national telecom backbone network under Component B; and refurbishment or construction of new national data centre and other ancillary telecommunication infrastructures under Component C. Considering the type and nature of these activities, and the requirements of the Bank's safeguard policies, the following policies might be triggered.

4.4.1 Environmental Assessment (OP/BP 4.01)

OP 4.01 has the objective to ensure that World Bank-financed projects are environmentally sound and sustainable, and that decision-making is improved through appropriate analysis of actions and mitigation of their likely environmental and social impacts. This policy is triggered if a project has potential adverse environmental impacts and risks in its area of influence. The World Bank's classification of projects, with respect to significance of environmental and social impacts is as follows:

(a) **Category A** projects are likely to have significant adverse environmental and social impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities of the physical works. EA for a Category A project examines the project's potential negative and positive environmental and social impacts, compares them with feasible alternatives (including the "without project" situation), and recommends measures needed to prevent, minimize, mitigate or compensate for adverse impacts and improve environmental and social performance. For a Category A project, the borrower is responsible for preparing a safeguards document, normally either a Framework (Environmental and Social Management Framework –ESMF whenever there is still an unclear definition of the project intervention footprint); or an ESIA (or a suitably comprehensive sectoral EA) that includes as necessary, other elements such as environmental audits or hazard or risk assessments or when such a footprint of project intervention zone is made known.

(b) **Category B** projects have potential adverse environmental and social impacts (on human

populations or environmentally important areas - including wetlands, forests, grasslands, and other natural habitats) which are less adverse than those of Category A projects. These impacts are site specific and easy to deal with; few if any of them are irreversible; and in most cases appropriate mitigatory measures can be designed more readily than for Category A projects. The scope of EA for a Category B project may vary from project to project, but it is narrower than that of Category "A" EA. Like Category A EA, it examines the project's potential negative and positive environmental and social impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental and social performance.

(c) **Category C:** A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental and social impacts. Beyond screening, no further EA action is required for a Category C project.

(d) **Category FI**: A proposed project is classified as Category FI if it involves investment of Bank funds through a financial intermediary, in subprojects that might result in adverse environmental impacts.

For Digital Malawi Project, some civil works under Component 2 and refurbishment of national data centre under component 3 are likely to generate environmental and social impacts which require mitigation. Therefore, in line with the Operational Policy, the ESMF has been prepared for screening of these activities since the exact locations are not known. The initial appraisal of the DMP classifies the project as category B as the adverse impacts to be generated are moderate and the project is not expected to fund any investments that have will classified as Category A based on the screening.

4.4.2 Involuntary Resettlement (OP/BP 4.12)

The World Bank's Safeguard Policy OP 4.12 applies to all components of the program, all associated activities, and to all economically and/or physically affected persons, regardless of the number of people affected, the severity of impact and the legality of land holding. The OP 4.12 further requires particular attention to be given to the needs of vulnerable groups especially those below the poverty line, the landless, the elderly, women and children, indigenous groups, ethnic minorities, orphans, and other disadvantaged persons.

The World Bank's Policy requires that a resettlement action plan shall be prepared and cleared by the Bank prior to implementing activities causing loss and/or impacts. The Bank also requires that the provision of compensation and other assistance to Project Affected Persons, to restore livelihoods when these are affected appreciably, shall be done prior to impacting people. In particular, the policy requires that possession of land for project activities may take place only after compensation has been provided. Resettlement sites, new homes and related infrastructure, public services and moving allowances and replacement of impacted assets` must be provided to the affected persons in accordance with the provisions of the RAP.

4.4.3 Forest (OP/BP 4.36)

The objective of this policy is to assist borrowers to harness the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development and protect the vital local and global environmental services and values of forests. Where forest restoration and plantation development are necessary to meet these objectives, the Bank assists borrowers with forest restoration activities that maintain or enhance biodiversity and ecosystem functionality. The Bank assists borrowers with the establishment of environmentally appropriate, socially beneficial and economically viable forest plantations to help meet growing demands for forest goods and services.

The country has a number of forest reserves, community managed woodlots, game reserves, private forests and indigenous trees which could be impacted by project activities. This policy will be triggered by any project activity that will have negative effects on these forest reserves, community woodlots, game reserves and private woodlots. Any installation of ICT in forests could result in remove of vegetation including mature trees. However, the locations of these project activities are not identified and it is not yet known if the proposed project activities will have any negative impacts on forests.

4.4.4 Natural Habitats (OP/BP 4.04)

This policy recognizes that the conservation of natural habitats is essential to safeguard their unique biodiversity and to maintain environmental services and products for human society and for long-term sustainable development. The Bank therefore supports the protection, management, and restoration of natural habitats in its project financing, as well as policy dialogue and economic and sector work. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. Natural habitats are land and water areas where most of the original native plant and animal species are still present. Natural habitats comprise many types of terrestrial, freshwater, coastal, and marine ecosystems. They include areas lightly modified by human activities, but retaining their ecological functions and most native species. Civil works implemented in natural habitats such as forest reserves, national parks and game reserves could negatively affect the habitats. However, the locations of these project activities are not identified and it is not yet known if the proposed project activities will have any negative impacts on natural habitats.

4.4.5 Physical Cultural Resources (OP/BP 4.11)

The objective of this policy is to assist countries to avoid or mitigate adverse impacts of development projects on physical cultural resources. For purposes of this policy, "physical cultural resources" are defined as movable or immovable objects, sites, structures, groups of structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above ground, underground, or underwater. The cultural interest may be at the local, provincial or national level, or within the international community. There are known and unknown sites having archaeological, historical and religious property in Malawi. The Bank will not finance any project activity that will damage any physical cultural property as defined under the OP 4.11. Chance finds

procedures have been developed (Annex 3) and will be provided to contractors to prevent any damage to physical cultural resources.

4.4.6 International Finance Corporation /World Bank Environmental Health and Safety Guidelines

The IFC/World Bank guidelines on environmental health and safety are technical documents prepared by the IFC and World Bank providing management measures on impacts expected to be generated during construction and operation phase of any project. The guidelines aim at assisting borrowers to manage their activities and operations in a sustainable manner to minimize project foot print on the environment. The guidelines describe typical environmental issues applicable to all industry sectors but the ESMF takes cognizance of environmental issues associated with telecommunication industry and these include: terrestrial habitat alteration, aquatic habitat alteration, visual impacts, hazardous materials and waste, electric and magnetic fields, emissions to air and noise. The guidelines present one of the best practices in environmental health and safety in managing environmental risks and impacts generated by telecommunication construction and operation activities. These guidelines have to be referred during implementation and ESMPs prepared by this project should include measures stipulated in the guidelines.

4.4.7 Gap Analysis between Malawian Legislation and World Bank Requirements

Environmental Assessment

Various pieces of Malawi legislation on EIA require that environmental and social impact assessment studies be conducted for projects that are likely to generate adverse impacts on the environmental. Similarly, the World Bank OP 4.01 - Environmental Assessment have provisions for conducting environmental impact assessment studies for projects that are likely to cause adverse environmental impacts. However, Malawi legislation does not make provisions for screening projects whose locations are not known but the Bank policy provides for environmental and social screening of each proposed project to determine the extent and type of environmental and social assessment that would be required. The Bank further classifies proposed projects into one of four categories (A, B, C and D), depending on the type, location, sensitivity, and magnitude of the project, and the nature and scale of its potential environmental and social impacts. By preparing the ESMF, the gap that exists for the projects whose activities and locations are not known is bridged

Both Malawi legislation on management of compensations and resettlement, and the World Bank operational policies on involuntary resettlement have provisions which are very similar management of land acquisition, resettlement and compensations. For example, both policies emphasize on minimization of the extent of resettlement. Secondly, the policies recommend considerations of fair and adequate compensations to project affected persons. However, there are some gaps, which exist between the policies of World Bank and those of Government of Republic of Malawi. Some selected examples are as follows:

a) On aspect of compensations on assets to project affected people, the policies of World Bank on resettlement include illegally built structures of squatters and pirates as eligible for

compensations on their assets. In case of Malawi, such claimants are not entitled to compensations.

b) On aspects on compensations on land, the policies of Government of Malawi consider different intrinsic values associated with various classes of land (customary land, leasehold land, freehold land, public land). In such cases, rates for compensation on land vary from one site to another and from one class of land tenure to the other. World Bank policies do not distinguish such differential aspects of land classes and corresponding different market rates.

c) In cases on compensation of loss of land by project-affected people, the World Bank policies prefer land for land compensation. In Malawi, an option of land for land compensation is normally preferred in customary land transaction while option of land for money compensation is the preferred options in urban areas.

d) World Bank policies clearly stipulate resettlement as an upfront project – in that all issues of land acquisition and relocation of project affected people has to be done prior to commencement of the project site on the acquired site. Malawi policies do not clearly spell out this approach and in practice; resettlement is treated as a separate exercise outside project planning and implementation process.

e) World Bank Policies clearly recommend for adequate resettlement assistance and rehabilitation assistance to affected people as a way of restoring and enhancing socio-economic living standards. This is supposed to be undertaken within the first years of relocation on the new sites. Malawi legislation does not clearly define the extent f resettlement assistance to relocated people. Much of available support is normally left in hands of District Commissioner and local chiefs within the district and area of relocation of the project affected people.

4.4.8 Resolving the Gaps

The existing gaps, as discussed above, are not contradictions. Some gaps are silent on one or more provisions whilst some gaps emphasize categorization of land and PAPs for consideration of compensation. As a resolution, in cases where there is inconsistency between Government requirements and OP 4.12 requirements, the more stringent requirement will govern. As such, the above-identified gaps will be resolved as follows:

a) Illegally built structures of squatters and pirates will be eligible for compensations on their assets.
b) On aspects on compensations on land, all land will be treated the same, taking into account the 2016 Land Bill. In addition, those compensated with land-for-land will be assisted in the registration of their land including costs associated with the process.
c) In cases on compensation of loss of land by project-affected people, in kind compensation (in this case land-for-land) will be preferred for all forms of land.
d) All issues of land acquisition and relocation of PAPs will be done prior to commencement of project works on the acquired site.

Adequate resettlement assistance and rehabilitation assistance to affected people will be provided as a way of restoring and enhancing socio-economic living standards. This will be undertaken within the first years of relocation on the new sites.

4.4.7 Required Permits and Licenses

Environmental legislation in Malawi establishes permits and licenses required for various types of projects and are managed by line ministries and Environmental Affairs Department. Table 4.2 provides a list of applicable permits and licenses for DMP.

Table 4-2: Applicable Permits and Licenses

	Permit or License	**Act /Regulation**	**Requirements**	Implementing Agency
1	**Environmental impact assessment certificate**	Environment Management Act, 1996	To ensure that all prescribed projects undertake environmental impact assessment	Environmental Affairs Department
2	**Land Leases**	Land Act	To facilitate acquisition of land and ensure that parcels of land acquired are properly registered	Ministry of Lands, Housing and Urban Development
3	**Installation of telecommunication facility/equipment and operation of such facilities in forest reserves**	Forest Act, 1997	To ensure that forest reserves are protected from construction and operations of projects	Department of Forestry
4	**Planning Permission**	Physical Planning Act, 2016	To ensure that the use is in line with the zoning of the area and that town planning standards have been adhered to	Department of Physical Planning
5	**Operation License**	Telecommunication Act	To ensure that the service provided and the technology used is in accordance with recognized international standards.	Malawi Communication Regulatory Agency
6	**Licenses to handle, store and dispose of hazardous wastes**	Environment Management Act, 1996	To ensure that all hazardous materials are handled, stored and disposed safely	Environmental Affairs Department
7	**Building by law approval for the project**	Building By-Laws, 1962, Local Government Act, 1998	To guide constructions work, building materials and occupation standards of the buildings	City, Municipality and District Councils
8	**Work Place Registration**	Occupational Health, Safety and Welfare Act (55:01)	To guide occupational health and safety standards at the construction site	Ministry of Labour, Youth and Sports

CHAPTER 5. ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCESSES

5.1 Screening of Sub-Projects and Sites

Screening is a key environmental and social management process aiming at determining appropriate studies and follow up that might be required for sub-project activities. The screening aims at categorizing the sub-projects into one of the environmental and social categories consistent with Malawi Guidelines for Environmental Impact Assessment and Operational Policy 4.01 of the WB. Screening will be carried out on specific project activities once they have been identified during planning phase of the project. Screening will be required where investments will be made on development of new infrastructure or refurbishment of existing infrastructure. The Environmental District Officers (EDO) will handle screening and will propose the environmental category. Screening will also help to propose whether a proposed sub-project activity will further require a full-fledged Resettlement Action Plan (RAP) or Abbreviated Resettlement Action Plan, per procedures outlined in the Resettlement Policy Framework. The main objectives of the screening process will include the following:

- Determine which project activities will generate adverse environmental and social impacts;
- Determine the level of environmental and social analysis and additional environmental and social management measures required;
- Prescribe appropriate mitigation measures for managing adverse impacts either through Environmental and Social Management Plans, Environmental Construction Plans or Environmental Rules for Contractors;
- Indicate the need for preparation of Abbreviated Resettlement Action Plan or Fully Fledged Resettlement Action Plan as indicated in the Resettlement Policy Framework and
- Provide guidance for environmental compliance monitoring during implementation of project activities.

5.2 Key Steps in Conducting Environmental and Social Screening

The scope and extent of environmental work that might be required, prior to the commencement of construction and refurbishment of facilities, will depend on the outcome of the screening process described below:

Step 1: Screening of Sub-Project Activities and Sites

Malawi's Guidelines for EIA (1997) provide for categorization of projects into either List A or List B depending on the size, nature and perceived environmental consequences of a project. Where it is clear that project activities fall under List A of the Guidelines, an EIA has to be carried out. The screening process will be used to determine the appropriate environmental follow-up measures, depending on the nature, scope and significance of the expected environmental impacts from each DMP-supported sub-project. The Environmental

and Social Screening Form (ESSF, Annex 2) will be completed by trained and qualified personnel within the project management unit, in the implementation of the screening process. If the project activity is confined to a district, then the screening will be carried out by the District Environmental Sub-Committee. The District Environmental Sub-Committee, which includes the EDO, will carry out the initial screening in the field, through the use of the ESSF (Annex 2).The PIU will provide financial resources to facilitate screening process of sub-projects.

The screening form formalizes a rapid field investigation to screen on-site whether any environmental and social issues may require specific attention and further environmental and social assessment work. All sub-projects (including the laying of national backbone) will undergo the screening process in order to avoid any miss in screening potential environmental issues.

Step 2: Assigning the Appropriate Environmental Categories

The ESSF, when completed, will provide information on the assignment of the appropriate environmental category to a particular activity. The EDO will be responsible for assigning the appropriate environmental category to the proposed sub-projects consistent with the requirements of OP 4.01.

Category A project activities would have significant and long-term adverse environmental impacts and therefore would require an EIA, in accordance with Malawian legal requirements. As was the case with RCIPMW activities, DMP will not have sub-projects to be classified as category A. Project activities under DG will generate little to moderate adverse impacts. Further, DMP will not fund any sub-projects that will be classified as Category A under Operational Policy 4.01of the WB.

Category B projects are those with one or a few potentially significant adverse impacts. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects. Given that most sub-projects in the DGM will not generate significant adverse environmental and social impacts necessitating development of a separate EIA report, the screening process would recommend preparation of an ESMP to address specific impacts during project implementation, but not a full EIA. All sub-projects which require land acquisition or cause loss of livelihoods, and restrict access to natural resources will require preparation of either a RAP or Abbreviated Resettlement Action based on the provisions of RPF. The RAPs will have to be reviewed and approved by the Commissioner of Lands in line with Resettlement Policy Framework before disbursement of compensations and implementation of project activities.

Category C projects would not have any significant adverse environmental impacts; they would therefore not require an EIA or a specific ESMP, but they would require adherence to mitigation measures outlined in this ESMF or good environmental practices, including any applicable Environmental Rules for Contractors (Annex 6).

Assignment of the appropriate environmental category will be based on the provisions of the WB Operational Policy (OP 4.01) on Environmental Assessment and the Malawi EIA

Guidelines. All DMP would either be categorized as B or C and the task to categorize the sub-projects will be undertaken by well trained staff familiar with World Bank operational policies.

Step 3: Carrying Out Environmental and Social Work

After reviewing and analyzing the information provided in the environmental and social screening form, and having determined the appropriate environmental category, or the District Environmental Sub-Committee will make a recommendation to establish whether: (a) no additional environmental work will be required, (b) implementation of simple mitigation measures outlined in the Environmental and Social Screening Checklist are adequate; (b) an Environmental and Social Management Plan will need to be prepared to address specific environmental and social impacts; or (c) separate environmental impact assessment ESIA will be carried out though this unlikely for DMP sub-projects.

After establishing the appropriate environmental and social work to be undertaken, the safeguard specialist at PIU will prepare a project brief that stating the nature of the sub project, the projected biophysical and socioeconomic environment that may be affected, the activities that shall be undertaken during and after the implementation of the project, the design of the project, the materials that the project will use and submit five copies of the brief to the Director of Environmental Affairs Department who will endorse the screening results and make a determination on whether an ESMP or ESIA will be required. The ESIA and ESMP will have to follow procedures for preparing EISA outlined in annex 5.

Although the screening process includes screening of category A, initial assessment of project activities indicate that none of the project activities will require preparation of ESIA such that the environmental and social assessment work for DMP will not be subjected to technical review by Technical Committee on the Environment (TCE) before they are recommended to National Council on the Environment (NCE) for approval.

Environmental and Social Checklists

Generic checklists on environmental and social impacts have been prepared and are attached in Annex 6. The checklists cover potential environmental and social impacts in construction works, as well as typical mitigation measures. The Environmental and Social Checklist will be completed by District Environmental Sub Committees. Some of the activities categorized as B might benefit from the application of mitigation measures outlined in the checklist (Annex 4).

In situations where the screening process identifies the need for land acquisition and the project impacts on assets, causes a loss of livelihood, and/or restricts access to natural resources, an Abbreviated Resettlement Action Plan shall be prepared consistent with the standards and guidelines set forth in the Resettlement Policy Framework and World Bank Involuntary Resettlement Policy (under OP 4.12).

Where standard designs will be used, the District Environmental Sub Committees, in consultation with the District Commissioner will assess impacts on the chosen land site and the community; and modify the designs to include appropriate mitigation measures. For

example, if the environmental screening process identifies loss of fertile agricultural fields as the main impact from the construction of a rural connectivity infrastructure, the mitigation measure would be for the District Environmental Sub Committees and members of the planning team to choose a site further away from the fertile gardens so that the livelihood systems are maintained.

Environmental and Social Impact Assessments for Sub-Projects

The ESIA process will identify and assess the potential environmental and social impacts of the proposed construction activities, evaluate alternatives, as well as design and implement appropriate mitigation, management and monitoring measures. These measures will be captured in the ESMP which will be prepared as part of the ESIA process for each sub-project, based on environmental and social screening.

Preparation of the ESIA and environmental management plans will be carried out in consultation with the PPPC. The PPPC in close consultation with the EAD will arrange for the (i) preparation of terms of reference for preparing ESIA and ESMP; (ii) recruitment of a consultant to prepare the ESIA or ESMP; (iii) public consultations; and (iv) review and approval of the ESIA through the national ESIA approval process. A parallel exercise of preparation of RAP will also commence, if determined as required by the procedure outlined in the RPF.

Step 4: Review and Approval of the Screening Activities

Under the guidance of the District Environmental Sub Committees, the relevant sector committees at the district level will review (i) the results and recommendations presented in the environmental and social screening forms; and (ii) the proposed mitigation measures presented in the environmental and social checklists.

Where an environmental impact assessment has been carried out, EAD will review the reports to ensure that all environmental and social impacts have been identified and that effective mitigation measures have been proposed.

Step 5: Recommendation for Approval of environmental assessment reports

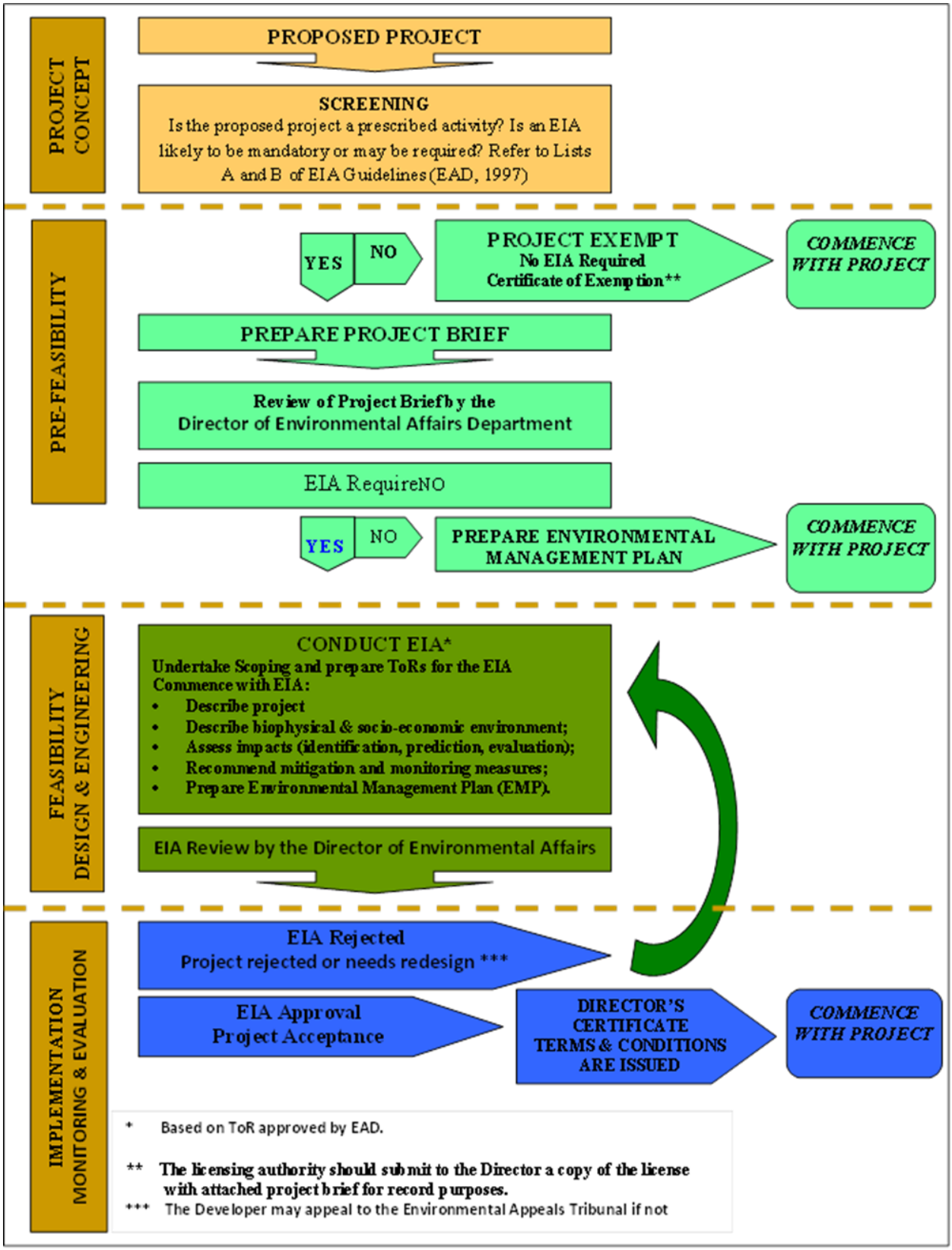
Based on the results of the above review process, and discussions with the relevant stakeholders and potentially affected persons, the District Environmental Sub Committees, in case of projects that don't require environmental assessment, will make recommendations to the District Executive Committee (DEC) for approval/disapproval of the screening results and proposed mitigation measures. As regards ESIA reports, Director of Environmental Affairs will recommend ESIA reports to the National Council for the Environment (NCE) for approval.

Step 6: Approval of the reports and environmental and social management plans

Approval based on the results of the ESSF will be done by the District Environmental Sub Committees based on submissions by the EDO. Approval of the results of the ESIA will be provided by the NCE. Approval of RAP/ARAP will be done by Commissioner of Lands.

EIA process in Malawi is provided in the schematic below.

Figure 5-1 The General EIA Process (adopted from EIA Guidelines, EAD, 1997)



5.3 Participatory Public Consultations and Disclosure

According to Guidelines for EIA in Malawi (1997) and WB operational policies for environmental assessment, participatory public consultations are central and fundamental in the ESIA process. The guidelines recognize the following elements as key in ESIA process:

- Developers are required to conduct participatory public consultation during the preparation of Project Briefs and ESIAs;
- The DEA may, on the advice of the TCE, conduct his or her own public consultation to verify the works of a developer;
- Formal EIA Reports documents are made available for public review and comments. Documents to which the public has access include Project Briefs, ESIA terms of reference, draft and final ESIA Reports, and decisions of the appropriate authorities regarding project approval;
- The DEA as required by the EMA and guidelines for EIA will make these documents available for commenting by the public; and
- Certificates approving projects will be published by the developer and displayed for public inspection.

Public consultations and participation are critical in preparing an effective plan for implementing project activities. These consultations should identify key issues and determine how the concerns of all parties will be addressed in response to the terms of reference for the ESMP and ESIA, to be carried out for construction and/or refurbishment of facilities.

These consultations should identify key issues and determine how the concerns of all parties will be addressed in response to the Terms of Reference for the ESIA studies which may be required for construction and rehabilitation proposals.

Scope of Consultations in Environmental Assessment of Sub-Projects

Guidelines for Environmental Impact Assessment in Malawi (1997), provides details concerning the public consultation methods in Malawi. Such methods include press conferences, information notices, brochures/fliers, interviews, questionnaires and polls, open houses, community meetings, advisory committees, and public hearings.

The guidelines for public consultation include, among others, a requirement that major elements of the consultation program should be timed to coincide with significant planning and decision-making activities in the project cycle. In terms of Malawi's ESIA process, public consultation should be undertaken during (i) the preparation of the ESIA Reports terms of reference; (ii) the carrying out of an ESIA Reports; (iii) government review of an ESIA Reports; and (iv) the preparation of environmental and social terms and conditions of approval. Public consultations under sub-projects will be carried out by district environmental sub-committees, consultants and project committees as part of the environmental and social screening process of sub-projects, and the results will be communicated in an understandable language to potentially affected persons and beneficiaries.

For all Category B sub-projects, public consultation will include the following steps:

- Identification of interested parties (project beneficiaries, communities potentially affected by the sub-project, district councils, government departments);
- Initial step of consultation, before further environmental assessment work is undertaken: one initial meeting with each of the identified parties, presenting the sub-project and seeking input on the scope of work for further environmental assessment work;
- Second step of consultation, after further environmental assessment work is complete: presentation of the results of the environmental assessment, including presentation of identified impacts and proposed mitigations, seeking input on these proposed environmental management measures; this second step will include dissemination to identified interested parties of a brief summary of the environmental and social assessment in simple language easily understood by affected communities and beneficiaries.

It is estimated that 2 to 3 meetings will be required for each of the above two steps of consultation for Category B. The consultation will be undertaken by consultants in charge of the environmental and social assessment work. Any consultation meeting will be properly documented. Disclosure (one copy of the full ESIA report, plus copies of the brief summary) at the Environmental Affairs Department and affected District Councils;

- Disclosure (at least one copy of the full report) at the WB country office in Lilongwe;
- Disclosure through the WB website.

CHAPTER 6. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND THEIR SIGNIFICANCE

This section outlines potential environmental and social impacts and their significances in the course of and after implementation of the DMP. Focus will be on both positive and negative impacts based on consideration of the types of activities to be financed under the project. These impacts will be defined in the ESMPs to be developed for each sub-project once the project activities have been clearly defined and the exact locations have been identified during planning phase.

6.1 Positive Environmental and socioeconomic Impacts

6.1.1 Socio-economic benefits

The DMP will play an important role in socioeconomic growth and sustainable development. This will be a result of the introduction of affordable connectivity, high-speed connectivity and its fundamental role in capacity building as stipulated in Project objectives. The main benefits of improved telecommunication services leading to socio-economic growth and sustainable development may be considered in diverse areas as will be discussed below.

Firstly, the open access backbone network infrastructure expected to be built or assembled from existing infrastructure assets by a private sector service provider as a result of the DMP will pave way for low/affordable prices and improved services to consumers. This will lower wholesale transit costs and move competition to the retail layer of the market, where internet service providers and mobile operators are able to directly compete for customers by selling similar services. For consumers to buy their products, service providers will need to be innovative by either providing better services or reducing prices. It is this potential of accessing good products at a low price that will lead to economic gain for the Malawian consumers.

Secondly, the wide geographical extension of DMP will benefit a broader range of socioeconomic users/consumers thereby bridging the existing digital divide in Malawi. The extension to more users has diverse socio-economic and development consequences. For instance, it will provide employment to small-scale entrepreneurs who can afford their own service and provide 'per call' service to those who can't. It will further improve access to information by people in rural areas hence giving them a chance to adequately compete on the free market.

Thirdly, high-speed provision by DMP will boost the economy of Malawi by helping consumers do their work on time. It is therefore expected to help in the context of time management, which is fundamental in productivity, given that connectivity will be fast and people will have time to do other productive things that will contribute to the development of the nation.

The DMP is also envisaged to transform different sectors of Malawi. Firstly, the Project, by affording greater access to ICT services and providing enabling environment for growth of ICT, will be a catalyst for innovation and business growth. Businesses will be in a position to

reach customers that could not have been reached without greater access to broadband. Further, within itself, ICT offers opportunity for new business ventures for diverse populations.

As Malawi is an agro-based economy, greater access to ICT will help farmers connect to and access markets easily. ICT is a bridge and crosses physical boundaries, thereby allowing for growth of national and international e-trade. Local farmers will also be able to access information on best agricultural practices, which would enhance productive and adoption of modern farming techniques.

In Education, particularly higher education, access to reliable, affordable and fast Internet will surely bring about positive and significant changes. Universities and colleges in Malawi will be able to expand their services through e-learning education. Students and learners will also manage to access information with ease to expand their learning.

One of the major challenges of self-growth and development in Malawi is to balance between work and time, considering that skills and educational development are becoming increasingly unaffordable for most citizens. With greater access to broadband, students can enroll in e-learning programs and work or engage in other economic activities simultaneously. Further, there are numerous free courses online that if accessed can help employees attain necessary and improve skills, which will translate to high public and private sector productivity per capita.

Further, ICT enhances learners' experience. Blanskat, Blamire, kefala (2006) found that schools with higher level of e-maturity have a rapid increase in performances in scores compared to those with lower level and schools with sufficient ICT resources achieved better results than those that are not well-equipped. There is a significant improvement on learners' performances and high percentage of teachers in Europe (86%) states that pupils are more motivated when computers and Internet are being used in class.

In Health, the Digital Malawi Project will help in efficient functioning and automation of hospital information systems, which will help improve quality of care because of their far-reaching capabilities. For instance, in Ethiopia, mobile phone-based tools are being used by community health workers for registration of patients, appointment reminders, and management of inventory. Currently, USAID is implementing the Malawi Open Logistics Management Information System (Open LMIS) in hospitals in Malawi. This project will be enhanced and only succeed with expanded access to affordable and reliable 'virtual national network'. The Digital Malawi Project will thus help to improve patient care and efficient health care delivery and management of resources.

Finally, the DMP will help to address problems of public service delivery. One of the major challenges that Malawi is facing concerns delivery of and efficiency in public service. As with the health sector, other public services will greatly be enhanced by the DMP. For instance, in assessing the status of e-governance (i.e., ICT use in delivering government services) the United Nations Public Administration Network (UNPAN) survey of 2012 noted that, while it is important to continue with service delivery, governments must increasingly begin to rethink in terms of e-government and e-governance. The scope of e-government should be widened for a transformative role of the government toward cohesive, coordinated,

and integrated processes and institutions. Malawi has already taken strides towards e-government and e-governance through introduction of, among others, the Malawi Investment and Trade Centre, an online stop centre of information for investing in Malawi; and the Malawi Traffic Information System (MalTIS), a system used by Road Traffic Directorate for registration of vehicles, producing driving licenses and issuing motor vehicle certificates of fitness (CoF). These systems have transformed public service delivery in these government departments and drastically reduced time taken to process applications and delivering different services. These services and more will be greatly enhanced by affordable and high-speed connectivity provided by 'Virtual National Network' under the Digital Malawi Project.

If objectives of the DMP are met through the 4 major project components, and if Malawians will favourably adopt and adapt the use of ICT in different sectors, Malawi will be in a position to fulfill its huge potential leading to sustainable growth and social economic development. Table 6.1 outlines the potential environmental and social impacts associated with the ICT\telecommunications industry.

Table 6-1 Potential Positive Environmental and Social Impacts from proposed DMP activities

Item No	Description and source of impact	Enhancement measures	Impact significance:
CONSTRUCTION PHASE			
1	Employment through construction jobs during installation of ICT facilities such as laying of cables, planting of towers and masts.	a) Prioritize and promote recruitment of local labour where technically and commercially feasible	High
2	Increased business opportunities for construction materials. Local material suppliers and traders within the project areas will benefit from construction works	a) The contractors should purchase as many local materials as possible during the construction phase	Moderate
OPERATION PHASE			
3	Huge savings in time and costs as most of transactions such as processing of passports, drivers license, birth certificates will be done electronically	Maintain connectivity to minimize disruptions to the public accessing the online services	High
4	Improved connectivity and reliability of internet services as most areas in Malawi will be connected faster internet.	a) Connect as many institutions as possible to increase uptake of the internet services	High

Item No	Description and source of impact	Enhancement measures	Impact significance:
		b) Provide broadband connectivity to educational institutions	
5	Booming of small and medium businesses who operating as agents for mobile money transactions such as TNM Mpamba, Airtel Money, Mukuru, Fast cash and Zoona	a) Ensure the connectivity is reliable to minimize connectivity disruptions	High
6	Increased agricultural markets as use of ICT in rural areas will connect agricultural producers to markets and sell the produce prevailing prices	a) Provide connectivity for farmers to agricultural markets, weather and extension information;	Moderate
7	Improved access to education through distant learning where students can access teaching and learning materials worldwide	a) Connect as many educational institutions as possible to increase uptake of the internet services	High
		b) Provide ICT equipment to educational institutions	

Item No	Description and source of impact	Enhancement measures	Impact significance:
8	Improved delivery of public services through integration of various systems such as IFMIS, MaTIS, PIS and e-procurement	a) Maintain and upgrade installed systems in good operating order	High
9	Improved Information management such as dissemination and storage. ICT services will improve information sharing, flow and faster delivery services	a) Provide ICT training to public institutions to ensure workforce appreciates efficiency brought by ICT services	Moderate
10	Increased in ICT innovation as affordable and fast internet would allow higher education institutions to develop, test and launch applications at a low cost.	a) Connect as many educational institutions as possible to increase uptake of the internet services	Moderate
		b) Provide ICT equipment to educational institutions	
11	Improved inter/intra-government electronic transactions through establishment of shared platforms that could connect various government systems such as Integrated Financial Management System, MATIS	a) Provide ICT training to public institutions to ensure workforce appreciates efficiency brought by ICT services	Moderate

Item No	Description and source of impact	Enhancement measures	Impact significance:
12	Creation of jobs as proposed project will spur booming if Internet Service Providers. Reduced connectivity costs will attract more ISPs to enter into internet business.	a) Maintain connectivity to minimize disruptions	High
13	Reduction in greenhouse emissions as most of the transactions, meetings and conferences will be done online	Connect as many public institutions as possible to reduce travels to attend meetings and conferences	High

6.2 Potential Negative Environmental and Social Impacts

6.2.1 Impact categories

The potential negative impacts associated with telecommunications can be divided into three broad categories:

- Impacts associated with the land clearing in preparation for installation of ICT facilities;
- Impacts associated with the installation of telecommunications systems (e.g., antenna/mast erection, cable laying, telephone pole erection, construction of exchange buildings);
- Impacts associated with operation and maintenance of the telecommunications systems (e.g., energy consumption, maintenance of cables and ancillary equipment, generation of hazardous wastes)

Table 6.2 outline potential adverse environmental and social impacts associated with the ICT\telecommunications industry. The rating has been ranked from high to minimal based on significance of the impact in the absence of any mitigation measure.

Table 6-2 Potential Negative Environmental and Social Impacts from proposed DMP activities

Item No.	Description and source of impact	Mitigation measures	Impact significance without mitigation measure:	Impact significance with mitigation measure
CONSTRUCTION PHASE				
1	Loss of vegetation such as exotic, indigenous and fruit trees due to land clearing to install ICT infrastructure under the project.	Design project activities in such a way that minimizes loss of vegetation. Restrict vegetation clearing and stripping to project areas to minimize project footprint and soil erosion Re-vegetate disturbed areas with native plant species	High	Moderate

Item No.	Description and source of impact	Mitigation measures	Impact significance without mitigation measure:	Impact significance with mitigation measure
2	Disturbance and loss of habitat from construction of ICT infrastructure depending on the type of infrastructure component and proposed location. Activities aimed at providing connectivity to rural areas could result in land clearing for erection of towers or cable installation.	Site fixed line infrastructure (e.g., fiber optic cable) and other types of linear infrastructure rights-of-way, access roads, lines, and towers to avoid critical habitat through use of existing utility and transport corridors whenever possible; and Avoid construction activities during the breeding season and other sensitive seasons or times of day.	High	Minimal
3	Soil disturbance in areas earmarked for construction works. Excavation and soil stripping could lead to soil disturbance	Avoid installing infrastructure in areas such as hilltops, steep slopes where soils could easily be disturbed;	High	Moderate

Item No.	Description and source of impact	Mitigation measures	Impact significance without mitigation measure:	Impact significance with mitigation measure
4	Increase in surface runoff and soil erosion from clearance of vegetation which could expose soils to erosion.	Restrict vegetation clearing and stripping to project areas to minimize project footprint and soil erosion Avoid stripping in steep slopes and to minimize soil erosion and landslides	Moderate	Minimal
5	Risks of introduction and spread of communicable diseases and sexually transmitted diseases including HIV/AIDS	Put in place HIV/AIDS Work Policy and operationalise it for benefit of workers Daily sensitization meetings among workers, on dangers of HIV/AIDS.	High	Moderate
6	Pollution of land by solid wastes from domestic and construction wastes	Restrict discharge of wastes into drains or onto ground sites Provide waste bins and allocate designated areas for disposal of solid wastes	Moderate	Minimal
7	Pollution from spillage of oils and fuel products construction machinery and operation of generators powering towers. Loose soils from construction sites could also increase sediments loads in nearby streams and rivers	Secure proper fuel storage facilities to contain any spillage onto soils and water resources. Provide containment dip trays to contain any leakage from machinery	Moderate	Minimal

Item No.	Description and source of impact	Mitigation measures	Impact significance without mitigation measure:	Impact significance with mitigation measure
8	Loss or damage of physical cultural resources from trenching activities.	Avoid sites of cultural importance during network design Follow and adhere to chance find procedures to rescue any relics	High	Minimal
9	Disruption of traffic flow during construction works as most of the works could be implemented along road reserves.	Provide temporary road signs and employ flag persons to warn road users on dangerous conditions and works ahead Provide diversions and alternatives where road use is	Moderate	Minimal
10	Noise and vibrations from construction machinery and operation of generators in areas in close proximity to communities could be nuisance	Use vehicles and machineries that are in good use and are well maintained and operate during normal working hours	Moderate	Minimal
11	Emissions from vehicular traffic will result in discharge of greenhouse gases such as sulphur, nitrogen, carbon dioxide and monoxide. Quantities of emissions will largely depend on volume of traffic and was the case with RCIPMW, the impacts will be very minimal and negligible	Use vehicles and machineries that are in good use and are well maintained Switch off engines of trucks and machines when not in use	Moderate	Minimal

Item No.	Description and source of impact	Mitigation measures	Impact significance without mitigation measure:	Impact significance with mitigation measure
12	Influx of migrant workers leading to competition of job opportunities for installation of ICT infrastructure.	Require contractors to prioritize sourcing of unskilled and skilled labour from local areas.	High	Moderate
13	Risks of interferences in local marriages, increased instances of Gender Based Violence (GBV), and Violence Against Children (VAC) . Increased disposable income could promote such behavior	Require contractor to draft an enforceable code of conduct for workers, which among others will provide monthly leave for construction workers to be with their families	High	Moderate
14	Conflicts between migrant workers and local people due to competition of jobs requiring unskilled labour such as bush clearing, trenching and excavations	Require contractors to prioritize recruitment of local people where commercially and technically feasible Sensitization of migrant workers to respect local cultures and live with local people in harmony	High	Moderate
15	Risks of child labour to undertake some project activities. Recruitment of under aged persons to undertake some works such as bush clearing, excavations, cabling pulling which may encourage local children to drop out of school.	Require contractors and sub-contractors to recruit workers through District Labour Office. Restrict recruitment of school going children or persons below 18 years for any work.	High	Moderate

Item No.	Description and source of impact	Mitigation measures	Impact significance without mitigation measure:	Impact significance with mitigation measure
16	Physical injuries from accidents– fall during construction of towers, fibre cable installation and servicing of ICT infrastructure. Community members including vulnerable groups such as women, children, disabled and elderly persons could fall into open trenches and excavated areas as well as trip on wire cables.	Provide training to workers in respect to working at heights Provide protective equipment to workers and enforce wearing of PPE such as hard hats, overalls, high visibility vests, googles, safety boots, ear plugs and gloves; Backfill all open trenches and excavated soon after completing construction works	Moderate	Minimal
17	Loss of livelihood, access to property, or physical/economic displacement as parcels of land could be acquired for project activities or assets damaged to create route for the cabling.	Design project activities carefully to minimize impact on livelihoods and properties Provide fair compensation to affected project persons in line with Resettlement Policy Framework prepared for this project Women, youth, people with disabilities and other vulnerable groups affected by project persons should be provided with additional assistance		
OPERATION PHASE				

Item No.	Description and source of impact	Mitigation measures	Impact significance without mitigation measure:	Impact significance with mitigation measure
1	Occupation health and safety risks for workers maintaining the equipment.	Provide appropriate training on occupational health and safety Enforce use of personal protective wear	High	Moderate
2	Safety risks to communities attempting to invade the facilities and steal equipment or fuel.	Install fences around ICT facilities and employ guards to man the facilities.	Moderate	Minimal
3	Generation of e-wastes such as used gadgets which require proper disposal	Consult EAD on proper disposal of e-wastes	Moderate	Moderate

6.3 Environmental and Social Management Plans

The purpose of the Generic ESMP is to provide strategies to ensure that identified environmental and social impacts associated with implementation of DMP activities are avoided, mitigated, controlled, and eliminated throughout the project's life. The generic ESMP also provides opportunities for enhancement of positive impacts. Specifically, the ESMP provides modalities for implementation of mitigation and enhancement measures including institutional responsibilities for the implementation of measures, implementation indicators, time frame for implementation and estimated costs for implementing the interventions. In some cases, a single enhancement measure will help enhance a number of positive impacts. The same scenario is also applicable to some mitigation measures, which mitigate a number of negative impacts. Such measures have been referred to throughout the ESMP, and this is also reflected in the estimated cost of implementation.

It is to be appreciated however, that implementation of the ESMP may be slightly modified to suit changes or emergencies that may occur on site at the time of project implementation. In this regard, flexibility should be allowed to optimize the implementation of the ESMP for the best results in environmental management.

This ESMP will have to be reviewed and updated from time to time to reflect the conditions at the time of project implementation. Presented in Table 6.3 and 6.4 are ESMPs, which would easily fit in the implementation of the DMP activities in the different project locations throughout the country. The costs given in the table are only indicative and actual costs will have to be determined for specific project activities and sites to reflect current costs at the time of project implementation.

The environmental management and monitoring plan provides quantifiable indicators, assign institutional responsibilities and provides an estimated budget for monitoring implementation of measures mitigating and enhancing identified impacts. It is envisaged that institutions assigned with monitoring responsibilities will incorporate the estimated costs for monitoring activities in their recurrent budgets to promote sustainability of monitoring activities after the project is phased out. From Tables 6.3 and 6.4, the project will allocate some funds for the implementation of the activities as indicated in the tables. A summary of the cost for implementing the ESMP are presented in the last columns of Tables 3.2 and 6.4. It is expected that the costs will be revised once the exact locations and activities are defined and these costs will be included in the tender documents for potential contractors to include bid documents.

Table 6-3 Environmental and Social Management Plan for DMP activities

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
POSITIVE IMPACTS					
1	Employment through construction jobs during installation of ICT facilities such as laying of cables, planting of towers and masts.	a) Prioritize and promote recruitment of local labour where technically and commercially feasible	During construction	NA	Contractors
2	Increased business opportunities for construction materials. Local material suppliers and traders within the project areas will benefit from construction works.	a) The contractors should purchase as many local materials as possible from Malawi	During construction	NA	Contractors
3	Improved connectivity and reliability of internet services as most of areas in Malawi will be connected to faster internet.	a) Connect as many institutions as possible to increase uptake of the internet services	During operation phase	NA	Contractor
4	Booming of small and medium businesses who operating as agents for mobile money transactions such as TNM *Mpamba*, Airtel Money, *Mukuru*, Fast cash and *Zoona.*	a) Ensure the connectivity is reliable to minimize connectivity disruptions b) Provide connectivity to start-up ISPs	During operation phase	NA	Contractor

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
5	Increased agricultural markets as use of ICT in rural areas will connect agricultural producers to markets and sell the produce prevailing prices.	a) Provide connectivity in Agricultural Development Market Corporations markets	During construction phase	NA	Contractors
6	Improved access to education through distant learning where students can access teaching and learning materials worldwide.	a) Connect as many educational institutions as possible to increase uptake of the internet services b) Provide ICT equipment to	During construction phase	NA	Contractors
7	Improved delivery of public services through integration of various systems such as IFMIS, MaTIS, PIS and e-procurement.	a) Maintain and upgrade installed systems in good operating order	During operation	NA	Contractors
8	Improved Information management such as dissemination and storage. ICT services will improve information sharing, flow and faster delivery services.	a) Connect as many educational institutions as possible to increase uptake of the internet services	During construction and operation	NA	Contractors and MoEST
9	Increased in ICT innovation as affordable and fast internet would allow higher education institutions to develop, test and launch applications at a low cost.	a) Connect as many educational institutions as possible to increase uptake of the internet services b) Provide ICT equipment to educational institutions	During operation phase	NA	Contractors and MoICT

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
10	Improved inter/intra-government electronic transactions through establishment of shared platform that could connect various government systems such as IFIM, DRTS and PIS	a) Provide ICT training to public institutions to ensure workforce appreciates efficiency brought by ICT services	During operation phase	NA	MoICT
11	Creation of jobs as proposed project will spur booming if Internet Service Providers. Reduced connectivity costs will attract more ISPs to enter into internet business	• Maintain connectivity to minimize connectivity disruptions	During operation phases	NA	MoICT
NEGATIVE IMPACTS					
1	Loss of vegetation such as exotic, indigenous and fruit trees due to land clearing to install ICT infrastructure under the project.	• Restrict construction activities to areas earmarked for construction activities • Re-vegetate disturbed areas with native plant species;	During construction phase	US$3,000.00	Project Contractors

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
2	Disturbance and loss of habitat from construction of ICT infrastructure depending on the type of infrastructure component and proposed location	a) Site fixed line infrastructure (e.g., fiber optic cable) and other types of linear infrastructure rights-of-way, access roads, lines, and towers to avoid critical habitat through use of existing utility and transport corridors whenever possible; b) Avoid construction activities during the breeding season and other sensitive seasons or times of day; c) Prohibit illegal harvesting of forest products by construction workers	During construction phase	US$1,000.00	Contractors
3	Soil disturbance in areas earmarked for construction works. Excavation and soil stripping could lead to soil disturbance sources in the area	a) Avoid installing infrastructure in areas such as hilltops, steep slopes where soils could easily be disturbed; b) If siting within the hilltops, steep slopes area is required, comply with the design and construction requirements	During construction phase	US$1,000.00	Contractors

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
4	Increase in surface runoff and soil erosion from clearance of vegetation which could expose soils to erosion	a) Restrict vegetation clearing and stripping to project areas to minimize project footprint and soil erosion b) Avoid stripping in steep slopes and to minimize soil erosion and landslides	During road construction phase	US$500.00	Contractors
5	Risks of introduction and spread of communicable diseases and sexually transmitted diseases including HIV/AIDS	a) Put in place HIV/AIDS Work Policy and 88operationalize it for benefit of workers b) Daily sensitization meetings among workers, on dangers of HIV/AIDS. c) Distribution of condoms and IEC materials for free of workers, and, local people around	During construction phase	US$1,000.00	Contractors
6	Pollution of land by solid wastes from domestic and construction wastes	a) Restrict discharge of wastes into drains or onto ground sites b) Provide waste bins and allocate designate areas for disposal of solid wastes c) Provide mobile sanitary facilities to construction workers avoid open defecation in nearby bushes.	During construction phase	US$500.00	Contractors

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
7	Pollution from spillage of oils and fuel products construction machinery and operation of generators powering towers	a) Secure properly fuel storage facilities to contain any spillage onto soils and water resources. b) Provide containment dip trays to contain any leakage from machinery	During road construction phase	US$400.00	Contractors
8	Loss or damage of physical cultural resources from trenching activities	a) Follow and adhere to chance find procedures to rescue any relics b) Avoid implementing civil works in areas known cultural and archaeological sites	During road construction phase	US$400.00	Contractors and Department of Antiquities
9	Disruption of traffic flow during construction works as most of the works could be implemented along road reserves	a) Provide temporary road signs and employ flag persons to warn road users on dangerous conditions and works ahead b) Provide diversions and alternatives where road use is disrupted by civil works c) Restrict trucks and project vehicle movement to off peak hours especially in urban areas to avoid traffic jams	During construction phase	US$400.00	Contractors and Roads Authority

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
10	Noise and vibrations from construction machinery and operation of generators in areas close to communities could be nuisance	a) Use vehicles and machineries that are in good use and are well maintained b) Switch off engines of trucks and machines when not in use from injuries	During construction phase	NA	Contractors
11	Air emissions from vehicular traffic will result in discharge of greenhouse gases such as sulphur, nitrogen, carbon dioxide and monoxide	a) Use vehicles and machineries that are in good use and are well maintained b) Switch off engines of trucks and machines when not in use	During construction phase	NA	Contractors
12	Influx of migrant workers leading to competition of job opportunities for installation of ICT infrastructure	a) Prioritize sourcing of unskilled and skilled labour from local areas.	During construction phase	NA	Contractors
13	Risks of interferences in local marriages by migrant workers.	b) Provide paid leave every month for construction workers to be with their families, workers and community members	During construction phase	NA	Contractors
14	Conflicts between migrant workers and local people due to competition of jobs requiring unskilled labour such as bush clearing, trenching and excavations	a) Prioritize recruitment of local people where commercially and technically feasible c) Sensitization of migrant workers to respect local cultures and live with local people in harmony	During construction phase	US$500.00	Contractor

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
15	Risks of child labour to undertake some project activities	a) Recruit workers through District Labour Office. d) Restrict recruitment of school going children or persons below 18 years for any work	During construction phase	NA	Contractors
16	Physical injuries from accidents– fall during construction of towers, fibre cable installation and servicing of ICT infrastructure	a) Provide training to workers in respect to working at heights b) Provide protective equipment to workers and enforce wearing of PPE such as hard hats, overalls, high visibility vests, googles, safety boots, ear plugs and gloves; c) Backfill all open trenches and excavated soon after completing construction works d) Fit firmly all network cables e) Restrict access to open trenches and excavated areas to children	During construction phase	US$2,000.00	Contractors

Item No.	Potential Impacts	Recommended Enhancement measures	Recommended Period of implementation	Budget Estimates (in USD)	Responsible Institution
17	Loss of livelihood or access to property or physical displace as parcels of land could be acquired for project activities or assets damaged to create route for the cabling.	a) Provide fair compensation to affected project persons in line with Resettlement Policy Framework prepared for this project b) Women, youth, people with disabilities and other vulnerable groups affected by project persons should be provided with additional assistance	During construction phase	To be assessed in RAP	Contractors, , Department of Lands, District Councils
18	Occupation health and safety risks for workers maintaining the equipment.	a) Provide appropriate training on occupational health and safety b) Enforce use of personal protective wear	During operation	N/A	MoICT
19	Safety risks to communities attempting to invade the facilities and steal equipment or fuel	a) Raising awareness on dangers of opening unknown links and use of malware removers	During operation phase	NA	MoICT
20	Generation of e-wastes such as used gadgets which require proper disposal	a) Consult EAD on proper disposal of e-wastes	During operation phase	NA	MoICT/EAD

Table 6-4 : Environmental and Social Monitoring Plan for DMP Project

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
POSITIVE IMPACTS						
1	Employment through construction jobs during installation of ICT facilities such as laying of cables, planting of towers and masts	a) Prioritize and promote recruitment of local labour where technically and commercially feasible	Number of people employed	Every month	Ministry of Labour, PIU US$700.00	Inspections Records
2	Increased business opportunities for construction materials. Local material suppliers and traders within the project areas will benefit from construction	The contractors should purchase as many local materials as possible from Malawi	Amount of materials purchased locally	Bi-annually	PIU US$500.00	Inspections Records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
3	Improved connectivity and reliability of internet services as most of areas in Malawi will be connected with the proposed project activity	a) Connect as many institutions as possible to increase uptake of the internet services	Number of institutions connected to internet	Bi-annually	MoICT PIU US$1,000	Inspections Records
4	Booming of small and medium businesses who operating as agents for mobile money transactions such as TNM *Mpamba*, Airtel Money, *Mukuru*, Fast cash and *Zoona*	a) Ensure the connectivity is reliable to minimize connectivity disruptions b) Provide connectivity to start-up ISPs	a) Number of mobile money transactions b) Number of new mobile money agents	Quarterly	MACRA PIU Ministry of Finance	Inspections Records
5	Increased agricultural markets as use of ICT in rural areas will connect agricultural producers to markets and sell the produce prevailing prices	c) Provide connectivity in Agricultural Development Market Corporations markets; d) Train farmers on e-trading	a) Number of markets with internet connectivity b) Number of farmers trained e-trading	Bi-annually	Ministry of Agriculture PIU US$500.00	Inspections Records
6	Improved access to education through distant learning where students can access teaching and learning materials worldwide	a) Connect as many educational institutions as possible to increase uptake of the internet services c) Provide ICT equipment to educational institutions	a) Number of institutions connected b) Number of equipment provided	Annually	MoEST MoICT PIU US$500.00	Inspections Records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
7	Improved delivery of public services through integration of various systems such as IFMIS, MaTIS, PIS and e-procurement	a) Maintain and upgrade installed systems in good operating order	Efficient systems operating with minimum interruptions	Quarterly	Ministry of Finance DRTPS Department of Immigration PIU US1,000	Inspections Records
8	Improved Information management such as dissemination and storage. ICT services will improve information sharing, flow and faster delivery services	a) Connect as many educational institutions as possible to increase uptake of the internet services	• Number of ICT users in public institutions.	Quarterly	MoICT PIU	Inspections Records
9	Increased in ICT innovation as affordable and fast internet would allow higher education institutions to develop, test and launch applications at a low cost	• Connect as many educational institutions as possible to increase uptake of the internet services • Provide ICT equipment to educational institutions	• Number of institutions connected • Number of ICT equipment installed	Bi-annually	MoICT PIU	Inspections Records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
10	Improved inter/intra-government electronic transactions through establishment of shared platform that could connect various government systems such as IFIM, DRTS and PIS	• Provide ICT training to public institutions to ensure workforce appreciates efficiency brought by ICT services	• Number of local government institutions using shared platforms	Annually	MoICT PIU US$500.00	Inspections Records
11	Creation of jobs as proposed project will spur booming if Internet Service Providers. Reduced connectivity costs will attract more ISPs to enter into internet business	• Maintain connectivity to minimize connectivity disruptions	• Number of ISPs established	Quarterly	MoICT	Inspection of records
NEGATIVE IMPACTS						
1	Loss of vegetation such as exotic, indigenous and fruit trees due to land clearing to install ICT infrastructure under the project	• Restrict construction activities to areas earmarked for construction activities • Re-vegetate disturbed areas	• Parcels of land that have been disturbed • Areas rehabilitated	Quarterly	EAD PIU US$1,000.00	Inspections Records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
2	Disturbance and loss of habitat from construction of ICT infrastructure depending on the type of infrastructure component and proposed location	a) Site fixed line infrastructure (e.g., fiber optic cable) and other types of linear infrastructure rights-of-way, access roads, lines, and towers to avoid critical habitat through use of existing utility and transport corridors whenever possible; b) Avoid construction activities during the breeding season and other sensitive seasons or times of day; c) Prohibit illegal harvesting of forest products by construction workers	• Parcels of habitats disturbed • Cases of illegal harvesting registered	Bi-annually	EAD PIU US$1,000.00	Inspections Records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
3	Soil disturbance in areas earmarked for construction works. Excavation and soil stripping could lead to soil disturbance sources in the area	a) Avoid installing infrastructure in areas such as hilltops, steep slopes where soils could easily be disturbed; b) If siting within the hilltops, steep slopes area is required, comply with the design and construction requirements	• Portions of hilltops and steep slopes disturbed • Number of non-compliances registered	Every six months	EAD Forestry Department PIU US$500.00	Inspections Records
4	Increase in surface runoff and soil erosion from clearance of vegetation which could expose soils to erosion	a) Restrict vegetation clearing and stripping to project areas to minimize project footprint and soil erosion b) Avoid stripping in steep slopes and to minimize soil erosion and landslides	• Parcels of land cleared • Portions of slopes disturbed.	Quarterly	EAD PIU	Inspection of records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
5	Risks of introduction and spread of communicable diseases and sexually transmitted diseases including HIV/AIDS	a) Put in place HIV/AIDS Work Policy and operationalize it for benefit of workers b) Daily sensitization meetings among workers, on dangers of HIV/AIDS. c) Distribution of condoms and IEC materials for free of workers, and, local people around	a) HIV/AIDS Work Place in place b) Number of sensitization meetings c) Number of condoms and IEC materials distributed	Quarterly	Ministry of Health PIU US$500.00	Inspection of records
6	Pollution of land by solid wastes from domestic and construction wastes	a) Restrict discharge of wastes into drains or onto ground sites b) Provide waste bins and allocate designate areas for disposal of solid wastes c) Provide mobile sanitary facilities to construction workers avoid open defecation in nearby bushes	• Number of waste bins and sanitary facilities provided	Quarterly	Environmental Affairs Department	Inspection of records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
7	Pollution from spillage of oils and fuel products construction machinery and operation of generators powering towers	a) Secure properly fuel storage facilities to contain any spillage onto soils and water resources. b) Provide containment dip trays to contain any leakage from machinery	• Incidences of spillages recorded and how these were cleaned • Number of dip trays provided	Quarterly	EAD PIU US$500.00	Inspection of records
8	Loss or damage of physical cultural resources from trenching activities	• Follow and adhere to chance find procedures to rescue any relics • Avoid implementing civil works in areas known cultural and archaeological sites	• Number of chance find recorded and how these were managed	Annually	Department of Antiquities US$400.00	Inspections Records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
9	Disruption of traffic flow during construction works as most of the works could be implemented along road reserves	• Provide temporary road signs and employ flag persons to warn road users on dangerous conditions and works ahead • Provide diversions and alternatives where road use is disrupted by civil works • Restrict trucks and project vehicle movement to off peak hours especially in urban areas to avoid traffic jams	• Number of temporary signs mounted • Number of diversions created • Periods of traffic jams recorded and how these were disruptions were managed	Quarterly	Roads Authority Department of Road Traffic US$500.00	Inspection of records
10	Noise and vibrations from construction machinery and operation of generators in areas close to communities could be nuisance	• Use vehicles and machineries that are in good use and are well maintained • Switch off engines of trucks and machines when not in use from injuries	• Number of vehicles and machineries maintained	Quarterly	PIU	Inspection of maintenance records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
11	Air emissions from vehicular traffic will result in discharge of greenhouse gases such as sulphur, nitrogen, carbon dioxide and monoxide	• Use vehicles and machineries that are in good use and are well maintained • Switch off engines of trucks and machines when not in use	• Number of vehicles and machineries maintained	Quarterly	PIU	Inspection of maintenance records
12	Influx of migrant workers leading to competition of job opportunities for installation of ICT infrastructure	• Prioritize sourcing of unskilled and skilled labour from local areas	• Number of people employed	Quarterly	Ministry of Labour PIU	Inspection of records
13	Risks of interferences in local marriages by migrant workers	• Provide paid leave every month for construction workers to be with their families	• Number of interferences recorded and how these were managed	Monthly	Ministry of Gender PIU	Inspection of records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
14	Conflicts between migrant workers and local people due to competition of jobs requiring unskilled labour such as bush clearing , trenching and excavations	• Prioritize recruitment of local people where commercially and technically feasible • Sensitization of migrant workers to respect local cultures and live with local people in harmony	• Number of conflicts recorded • Number of sensitization meetings conducted	Monthly	District Councils US$500.00	Inspection of records
15	Risks of child labour to undertake some project activities	• Recruit workers through District Labour Office. • Restrict recruitment of school going children or persons below 18 years for any work	• Number of under aged children employed	Quarterly	Ministry of Labour Ministry of Gender PIU US$500.00	Inspection of records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
16	Physical injuries from accidents– fall during construction of towers, fibre cable installation and servicing of ICT infrastructure	• Provide training to workers in respect to working at heights • Provide protective equipment to workers and enforce wearing of PPE such as hard hats, overalls, high visibility vests, googles, safety boots, ear plugs and gloves; • Backfill all open trenches and excavated soon after completing construction works • Fit firmly all network cables • Restrict access to open trenches and excavated areas to children	• Number of workers trained • Number of workers suing protective wear • Number of non-compliances on PPE usage • Number of accidents recorded	Quarterly	Ministry of Labour PIU	Inspection of records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
17	Loss of livelihood or access to property or physical displace as parcels of land could be acquired for project activities or assets damaged to create route for the cabling.	• Provide fair compensation to affected project persons in line with Resettlement Policy Framework prepared for this project • Women, youth, people with disabilities and other vulnerable groups affected by project persons should be provided with additional assistance	• Number of Project Affected Persons with affected assets recorded • Number of vulnerable and disadvantaged groups provided with additional assistance	Monthly during construction	Ministry of Lands District Councils PIU US$4,000.00	Inspection of compensation schedules and disbursement records
18	Occupation health and safety risks for workers maintaining the equipment.	• Provide appropriate training on occupational health and safety • Enforce use of personal protective wear	• Number incidences registered and how they were resolved	Quarterly	Ministry of Labour PIU US$500.00	Inspection of records

	Potential Impacts	Recommended enhancement measures	Monitoring indicators	Frequency of monitoring	Monitoring institution and budget estimates	Means of verifications
19	Safety risks to communities attempting to invade the facilities and steal equipment or fuel.	• Install fences around ICT facilities and employ guards to man the facilities.	• Number of incidences registered	Bi-annually	MoICT	Inspection of records
20	Generation of e-wastes such as used gadgets which require proper disposal	• Consult EAD on proper disposal of e-wastes	• Quantity of e-wastes collected from public and private institutions	Bi-annually	MoICT/EAD US1,000.00	Inspection of records

CHAPTER 7. CAPACITY BUILDING, TRAINING AND INSTITIONAL ARRANGMENT FOR ESMF IMPLEMENTATION

7.1 Capacity Building and Training

Effective implementation of ESMF and RPF will require technical capacity within the PIU and other institutions responsible for monitoring DMP activities including line ministries and departments. There will be need for in depth understanding of the operationalisation mechanism for ESMF and RPF to be provided to various key stakeholders involved in the implementation of DMP activities. Capacity building will be integral to support the teams in appreciating their roles in providing supervision, monitoring, evaluation and environmental reporting on the projects activities. Therefore, a special initiative is needed to develop the capacity of the project implementing unit, staff from line ministries and DESC, to support implementation of the DMP including social and environmental aspects. During consultations with EAD, PPPC and Department of Lands, it was observed that the three institutions which will be key in providing guidance for use of ESMF and RPF are handicapped in terms of human resources and finances. EAD will require training support for staff before being involved in screening and monitoring of project activities. Similarly, staff at Department of Lands will have to be trained on key aspects of RPF. PPPC will have to be provided with human resources to manage safeguards of the project.

7.2 The Institutional Arrangements for the Environmental and Social Activities

At national level, **the EAD** is in charge of issuing policies, acts and standards, and of enforcing the laws and policies, including on ESIAs, ESMPs and environmental monitoring, for all programs or activities that fall under the control of GoM. The EAD ensures that all project activities being financed by the project comply with local legislation on environmental impact assessment and that appropriate measures and due diligence have been undertaken prior to project implementation. Specifically, EAD will support PPPC in screening project activities, reviewing ESIA or ESMPs as required by the law, and providing oversight role in monitoring implementation of ESIAs or ESMPs.

Public Private Partnership Committee: PPPC would be responsible for overall coordination and monitoring and evaluation of the project and facilitation of capacity building. PPPC does not have staff providing oversight and monitoring role on environmental management though the institution engages experts from time to time to provide consultancy services on safeguards. Capacity building will include engagement of full time specialists in social and environmental assessments review and monitoring and evaluation. They are also responsible to earmark budget and properly implement mitigation measures proposed by the general ESMP, ESSF, ESIA and ESM study documents.

District Environmental Sub Committee: DESC is also expected to review and approve ESSF and oversee implementation of safeguard component of DPM at district level. They will carry out impromptu checks of sub projects to confirm that environmental and social screening and environmental management plans are properly done. They will also advise the

EAD and PPPC involving impacts beyond the generic issues, determining if the mitigation measures are acceptable or project activities will have to be redesigned.

Table 7-1 Environmental and Social Management Process - Implementation Responsibilities

Institution	Responsibilities
Project Management Unit (Public Private Partnership Commission)	Contract consultants for ESIAs study of Category B2 sub project activities based on ToRs prepared for each sub-project and reviewed by the relevant institutions. Designate focal staff that will take responsibility for environmental screening and generally for environmental management and get trained accordingly- this staff will ultimately conduct Environmental and Social Screening and supervise the implementation of mitigation measures proposed by ESSF, ESIAs, ESMPs and Environmental Rules for Contractors. Source for EIA specialist recoginsed by EAD to prepare terms of reference and undertake any environmental assessment study Designate technical supervisor of works, who, in the absence of the environmental focal staff mentioned above, will supervise the implementation of mitigation measures Take responsibility for and supervise the implementation of environmental mitigation measures at construction and operation phases, including those related to land occupation and compensation Take responsibility for and supervise the implementation of monitoring measures Provide an annual environmental monitoring report to Environmental Affairs Department
Construction contractors	Implement ESMPs, ESIAs and Environmental Rules for Contractors
Construction supervision consultants	Take responsibility for and supervise the implementation of Environmental and Social Management obligations for construction contractors
ESIA Consultants	Develop safeguards documents such as ESMPs or ESIAs where required (Category B2 sub-project activities)
Environmental District Officers	Participate in the provisions of training for extension workers to undertake screening process Participate in the finalization of the screening forms based on this ESMF Supervise the development of ESMPs or ESIAs by

Institution	Responsibilities
	consultants where required, review project brief and participate in public consultations Supervise the monitoring of environmental mitigations implemented by construction contractors in their respective districts
Environmental Affairs Department and Ministry of Lands Housing and Urban Development	Supervise and monitor the overall implementation of ESMF and RPF As required, update the ESMF and RPF Review and clear TORs and ESIAs for category B2 sub-project activities Provide assistance during environmental and social screening and monitoring processes
World Bank	Review the draft ESMF and RPF Review ESMPs for category B2 sub-project activities Monitor the overall implementation of plans and other safeguard documents that could prepared under the project.

Monitoring

Environmental monitoring of project will take place bi-monthly on a "spot check" basis by PIU and at least once every quarterly jointly with EAD. These checks will aim at controlling the actual implementation of mitigation measures, at both construction and operation phases. Environmental monitoring needs to be mainstreamed in the overall Monitoring and Evaluation (M&E) system of the DMP.

Reporting

Screening Forms

Screening forms will be submitted by implementing agencies consistent with the draft form proposed in Appendix 3.

Annual Reports

The PIU will develop a brief annual environmental monitoring report to be submitted to EAD. The report contents will be the following:

- A summary of Environmental and Social Screening reports, with a table summarizing which subproject activities have been assigned each of the screening categories,

- A summary of ESMPs developed during the year;

- A summary of environmental monitoring carried out on systems at both construction and operation phases.

7.2.1 Capacity Building Training

The training will try to address the following thematic areas:

a) Overview of enabling policy, legal and institutional framework for ESMF and RPF,
b) Basic principles of ESMF and RPF;
c) Potential Environmental and Social Impacts for DMP,
d) Environmental and social screening process,
e) Assignment of environmental categories,
f) Carrying out of the environmental work as discussed in the ESMF,
g) Review and clearance of the screening results and separate ESIA/ESMP reports,
h) Preparation of terms of reference for carrying out ESIA/ESMPs, ARAP/RAP
i) Supervision, monitoring, evaluation and environmental reporting;
j) Participatory public consultation and engagement,
k) WB requirements related with public consultation,
l) Areas of the DMP where public consultation is required,
m) Public consultation process in view of the ESMF and RPF requirements,
n) Public consultations during sub-project design
o) Requirements and procedures for ARAP/RAP, and
p) Discussion of, and amendments to, the environmental and social screening form.

The following institutions will need capacity building training to ensure effective implementation of the ESMF and RPF:

- The main implementing agencies, about 10 individuals (6 staff members from PPPC and 4 staff from Department of e-Government, directly involved in the implementation of the DMP),
- The EAD (3 individuals),
- DESC, about 34 individuals (one individual for each city, municipality and district councils),
- 5 staff from Ministry of Lands, Housing and Urban Development

The above 2-day training should also aim at reviewing and refining some aspects of the process, particularly the forms, toolkits and guidelines proposed in this ESMF, in view of their smooth implementation by the different institutions involved in the process of supervising and monitoring implementation of DMP activities. The project will have to conduct a refresher course at least once every year for all staff working on the project. The refresher course will take into account changes observed during project implementation.

7.2.2 Training Budget

Fifty-two participants will be trained in both ESMF implementation, in the thematic areas outlined in section 7.1.1. The cost of this training, which is proposed to take place in Lilongwe, will be $27,400.00. The estimated costs cover travel expenses from the 28 district councils, 4 city councils and 2 municipal councils which could be impacted by project

activities. Other expenses are for accommodation, hire of training room and facilities, meals and per diems for the participants. The budget is also based on the following:

- Participants' per-diem, including accommodation and meals:
  - USD 116 per day x 2 days x 52 participants
  - Sub-total: USD 14,800.00
- Trainers' fees:
  - 10 days (including preparation) x 2 x USD 200.00 per day
  - Sub-total: USD 4,000.00
- Logistics of the workshop, including participants' transport from their respective districts and hiring of conference hall, snacks and lunch: USD 8,600

Table 7.1 provides details of the budgetary requirements for the two-day training.

Table 7-2 Summary of costs for training

No.	Description	Unit	Quantity	Rate	Total
A	**PER DIEM**			USD	
1	Participants for 2 days	Person days	52	30	1,560.00
2	Support staff for 2 days	Person days	2	30	60.00
3	Drivers	Person days	10	30	300.00
B	**MEALS AND REFRESHMENTS**				
1	Lunches	No	104	10	1,040.00
2	Tea	No	208	5	1,040.00
C	**ACCOMMODATION**				
1	Participants	Person nights	104	100	10,400.00
2	Support staff for 2 days	Person nights	4	100	400.00
D	**TRANSPORT**				8,000.00
E	**WORKSHOP MATERIALS**				200.00
F	**PA SYSTEM**	Sum			100.00
G	**HIRING OF CONFERENCE HALL**	Sum			300.00
H	**TRAINERS**	Fees			4,000.00
	GRAND TOTAL				**27,400.00**

CHAPTER 8. CONCLUSIONS AND RECOMMENDATIONS

This ESMF has been prepared to guide the assessment of the environmental and social impacts of the DMP activities and to assist project implementers and other stakeholders to mitigate potential environmental and social impacts of the project.

The ESMF has identified the following key generic positive environmental impacts from the proposed project activities:

- Access to information - Increased access to fast and affordable internet services;
- Improve and increased access to distance learning education;
- Improved access to healthcare services-fast and affordable internet services will enable local medical practitioners to consult specialist from overseas when executing complex medical procedures;
- Reduced cost of doing business and organisation expenditure as video conferencing, teleconference, and instant messaging will replace travel to meetings;
- Increased connectivity between urban and rural growth centres;
- Improved productivity in organisations as connectivity will enable organisations to respond to changes or interact with colleagues from overseas quickly;
- Improved information management within organisations;
- Creation of job and business opportunities as more internet service providers will enter the market;
- Acceleration of innovation with improved connectivity;
- Improved trade within and outside the country as farmers and traders will be able to compare market prices of commodities and
- Increased ICT business support services

The key generic negative environmental and social impacts of the project activities, in the absence of adequate mitigation, measures could include:

- Loss of land for community members whose parcels of land will be acquired during planning and design for installation of project equipment and facilities;
- Loss of livelihoods for people whose trees and crops could be affected by clearing of alignment for cable and tower installations
- Disturbance of marginal, steep slopes and hilltops to accommodate installation of towers and opening up of access roads;
- Loss of vegetation as stretches of land may be to be cleared to pave way for installation of project equipment and facilities. Vegetation will also be removed n in areas earmarked for opening access roads
- Generation of dust, solid and liquid wastes during construction phase of the project.
- Increased air pollution and also greenhouse effects from the transportation of labour, materials and equipment during construction phase of the project
- Increased incidences of gender based violence and violence against children, partly because of inappropriate contacts between migrant workers and community members,
- Spread of HIV/AIDS and other sexually transmitted diseases in areas as a result of increased incidents of sexual interaction between workers and local women due to , increased disposal income

- Increased emission of noise from backup power generators powering project facilities and equipment during operation.

Capacity building and training will be required on the screening process for project activities and sites in order to identify potential impacts of the project and determine appropriate environmental and social category of the project leading to identification of impacts. Key stakeholders to be trained should include staff from PIU, district council and local authorities. These will be critical for implementation of the ESMF for the DMP.

Successful implementation of ESMF will depend to a large extent on the involvement and participation of EAD, district councils, local communities and the local institutions. It is therefore recommended that these stakeholders should be provided with capacity building training for them to effective use of the guidelines in screening project activities and develop appropriate instruments for management environmental and social safeguards. It is further recommended that:

- Participatory consultation and engagement of key stakeholders will be critical to effective implementation of ESMPs as such no project activity will be implemented prior to engagement with key stakeholders;
- Qualified and experienced personnel will be recruited by contractors to implement environmental management systems;
- EDOs and other members of DESC will be provided with adequate resources to ensure effective implementation of ESMF;
- ESMPs will be prepared for sub-projects determined to have adverse impacts on the environment from the environmental and social screening results;
- The ESMPs will be prepared prior to project implementation and contain commitments that are binding on project developer. ESMPs will be part of contract documents provided to any contractor;
- The environmental and social management and monitoring plans, prepared on the basis of the ESMF, should be regularly updated to respond to changing local conditions and should incorporate lessons learned from ESMP and Compliance Audit Report prepared for RCIPMW;
- Training is of paramount importance and will be provided to all key stakeholders that will be involved in monitoring of project activities.

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16 Government of Malawi (2000) *National Gender Policy,* Ministry of Women and Community Development, Lilongwe.

17 World Bank Operational Policies, *OP 4.01 Environmental Assessment*

18 World Bank Operational Policies, *OP 4.12 Involuntary Resettlement Policies*

19 World Bank Operational Policies, *OP 4.09 Forest Resources*

Annex 1: Views of Key Stakeholders Consulted.

Name and details	Institution	Remarks
1. Mrs Juwo Sibale Head of EIA Section	Environmental Affairs Department	• The propose project is likely going to generate some adverse on the environment during implementation as such screening all project activities should be undertaken to determine appropriate EIA instrument to be prepared. • Project briefs should be submitted to Environmental Affairs Department before implementation of project activities to seek guidance on whether an EIA or ESMP would be required by the project. • Where project activities will affect livelihoods of communities, an abbreviated RAP or full RAP should be prepared before implementation of project activities. • Communities should be engaged during design, preparation and implementation of project activities. • Project should provide resources for training staff that will be involved in monitoring of project activities.
2. Maxwell Mbulaje Environmental District Officer (EDO-Blantyre) 0882627866 02-12-2016	Environmental Affairs Department	• The project is likely going to cause deforestation through poles and wood or charcoal for cooking by workers during the work. The project should therefore avoid going through sensitive areas. The proposed project should also avoid wanton cutting of trees and do selective cutting of trees where it cannot avoid. • Where archeological findings are involved, the activity must stop and department of antiquities should be involved as quickly as possible. • The project has to have a proper way of disposing litter from unpacking project materials and not just litter anyhow in the bush or communities. • The project is likely going to affect people's livelihoods through removing some trees including fruit trees which are a source of income. Therefore the project should do less of using heavy machinery and equipment but resolve to use manual labor to create labor for the local communities. • There is very little expected impact through noise and therefore nothing can be done.
3.		•
4. Cecilia Chauluka (Regional Forestry Officer –South) **cecilia.chauluk @yahoo.co.uk** 0999 954754 08-12-2016	Dept of Forestry	• The project will mostly go through customary land whether it takes Zalewa Road or Zomba Road. Therefore most potential project impact includes: cutting of trees from Village Forestry Areas (VFAs), individuals woodlots and orchards. The project may also affect private plantations like in estates around 6 Miles and Annies Forest), coffee and macadamia estates especially around Mapanga; and Mission Forests like Namikango in Zomba and Illovo and smallholder cane growers plantations in Chikwawa. In Blantyre city and town assemblies, the project will go through government and private lands mostly with installations of sewage systems, water, electricity and ICT infrastructure owned by various players. As the project descends to Chikwawa, there is government forest at Milare before going onto a community forest reserve planted with eucalyptus up to Thabwa. The project may also affect government forests like (Mua-Livulezi in Dedza; Liwonde (Balaka) and Malosa (Zomba). The project should avoid creating a way where communities go through the reserves to cut trees because the project is cutting trees. It is important for the project to make this clear to communities that the project is for public benefit and not an individual.
5. Patrick Magawa Acting Head of	Malawi	• MTL is the first to have its own optic fibre network in Malawi and other services providers have for some time been getting service from MTL. This

	Planning and Implementation 0888518895 16-12-2016	Telecom Limited (MTL)	network runs from Tanzania connecting Malawi through Songwe in Karonga. Then it goes to Rumphi, and Mzuzu. From Mzuzu, the network becomes cyclic through Nkhatabay, Nkhotakota, Lilongwe and back through Kasungu and Mzimba. Another cycle runs from Lilongwe to Dedza to Ntcheu to Blantyre and back through Zomba, Mangochi and Salima. The cable goes out to Mozambique through Mwanza. In the end the MTL network forms a figure of 8. This structure allows MTL to separate effects of faults or vandalism of one section from the other areas. The Lower Shire is not serviced yet. It is using radio/microwave transmission which has low capacity than the optic fibre network. • Apart from MTL, there are other optic fibre cable networks and these include ESCOM and Simbanet. • The proposed Digital Project may cause damage to MTL existing infrastructure if not well planned because all these use the road reserves therefore may disturb MTL services. • Apart from this, communities may also affect the project through possible vandalism because of curiosity. There is an existing copper market outside Malawi. Communities now cut the fibre cable and realize it is not copper after the damage is already done. The project must have a thorough engagement of the communities to deal with this potential problem. • On the impact of the project to MTL, it will increase competition. On the other side, the project is an opportunity for a back-up to MTL when its infrastructure has fault. • On environment, the project should make use of existing infrastructure like ESCOM pylons instead of creating a new way-leave but can discuss with the owners. This will reduce time, cost and also vandalism.
6.	Herbert Mwalukomo Director of Programs (23-2-2017)	Center for Policy Advocacy (CEPA)	• The project should avoid areas of biodiversity significance to reduce high environmental costs. • The project should make sure that all relevant environmental laws are adhered to. E.g. If the line is passing through the National Parks, comply to National Parks & Wildlife Act, if through a Forest Reserve, comply to Forestry Act. • Trenching activities may be less costly in many ways on the environment. "An example is how the SimbaNet avoided cutting trees in Vizara to create way-leave because the project could not compensate for the exotic trees. This shows a more realistic value of using poles in most places. It is just that proper values are not established in the other areas. In fact the other areas have indigenous trees which take long to grow and have more value but we tend to undervalue these. We may have an effective ICT but pass on to the next generation very high environmental cost. It is important to do a realistic environmental cost analysis before the project is implemented. The aerial cable on poles, require cutting of trees for poles, will remain visible as it is for years demanding high maintenance costs and also poses as traps to birds while trenching is once , not visible, and pauses limited damaged to the soil, wildlife and its habitats. At the end trenches are easily reclaimed. We need to do less of cutting trees in the face of high deforestation rate and do more re-vegetation. • On social side, peoples livelihoods e.g. loss of land use needs alternatives and not just compensations. Malawi does not have a clear Resettlement Policy and tends to use World Bank Frameworks. But mostly, implementation is not monitored to ensure compliance. People tend to think that the compensation (in terms of money) is enough but soon they realize what they lost because they did not get right values of their property. The project needs to provide real value. If people have lost a house, they should get an equal house or better, if water source, the better source of water so that the ICT development is sustainable.
	Mrs Masupayi, Assistant Director of Forestry, 0999667801 pmasupayi@ya	Department of Forestry	• There are two major licenses related to telecommunications that the developer needs to obtain. License for the installation of the telecommunications equipment and the license for installation of telephone lines. • The license for the installation of telephone line requires that the applicant pays an application fee of MK2000; an annual (Government financial year) operation fee of MK50,000; and an annual Government financial year) residential fee per square meter of MK100.

	hoo.co.uk		• The license for the installation of telecommunications equipment requires that the applicant pays an application fee of MK2000; and an annual (Government financial year) operation fee of MK1,000 per square kilometer. • Application for licenses is made to the Director of Forestry by the project developer. The minimum requirements for each license are provided to the applicant and the conditions needs to be properly followed by the developer once the licence is provided. The department is mandated to make follow-ups and monitor the operations if they are in line with the provisions under the license. • Trees cut in the process of installation of telecommunication equipment and telephone lines needs to be properly valued and compensated for. There is need for proper involvement of the project affected persons, local leaders and district officials.
1.	**Mr. Khombe** Historian 0888566022 akhombe@gmail.com	Department of Antiquities	• It is a requirement by Government and other funding agencies such as World Bank and Africa Development Bank that Cultural Heritage Impact Assessment should be conducted for any development project that may have impact to the socioeconomic and biophysical environments. This can be done as a component of the Environmental and Social Impact Assessment (ESIA). This is also in line with the provisions of the Monuments and relicts Act. • Principles of rescue archeology needs to be applied fully and followed. The developer can either engage a consultant, a certified archeologist, with experience on African Heritage. The consultant needs to be accompanied by antiquities officer during the assessment. Otherwise, the developer may also engage the department of antiquities to do the assessment. • A cultural heritage survey should be done before the implementation of the project. This survey recommends whether rescue of monuments is required or not. The report provides the details of the items to be rescued. • The department of antiquities can do the rescue or an expert can be hired to do the work under the company of the officials from the department of antiquities. The hired expert needs to be given a license/permit to carry out the work. • The rescued property becomes the property of Malawi Government • The department recommends that a diversion be created where immovable cultural heritage resources are identified. Only where the resources can not be avoided through diversions then rescue is recommended. • There is need for proper sensitization of the affected persons and other stakeholder of the intentions and the procedure of operations. There is need for full involvement of the stakeholders such as policy, hospital staff, community members, District Councils and local leaders during the rescue operations.

Annex 2: Basic Environmental and Resettlement Screening Form for Sub-projects.

ENVIRONMENTAL AND SOCIAL SCREENING FORM FOR THE SCREENING OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS OF SUB- PROJECTS.

INTRODUCTION

This Environmental and Social Screening Form (ESSF) has been designed to assist in the evaluation of construction and refurbishment/rehabilitation activities under Digital Malawi Project. The form will assist the sub-project implementers and reviewers to identify environmental and social impacts and their mitigation measures, if any. It will also assist in the determination of requirements for further environmental work (such as environmental and social management plan) if necessary.

The form helps to determine the characteristics of the prevailing local bio-physical and social environment with the aim of assessing the potential impacts of the construction and rehabilitation activities on the environment by the sub-project.

The ESSF will also assist in identifying potential socio-economic impacts that will require mitigation measures and/or resettlement and compensation.

GUIDELINES FOR SCREENING

The evaluator should undertake the assignment after:

1. Gaining adequate knowledge of baseline information of the area.

2. Gaining knowledge of proposed project activities for the area.

3. Having been briefed / trained in environmental and social screening.

The form is to be completed by consensus of at least three people, knowledgeable of the screening process.

Government of Republic of Malawi

Ministry of Finance and Economic Planning

Digital Malawi Project

Environmental & Social Screening Form

Guidelines: Site inspection of project site. The evaluation results to be a consensus of at least three officials.

Project Name:	District.:
Project Location:	Nature/Size:
Name & Signature of Evaluator:	Date of Field Evaluation:

		Appraisal	Significance	Potential Mitigation Measures
		Yes/No	Low, medium, high	
1.0	Environmental Screening (OP 4:01)			
	Will the project generate the following impacts			
1.1	Loss of trees			
1.2	Soil erosion/siltation in the area			
1.3	Pollution to land-diesel ,oils			
1.4	Dust emissions			
1.5	Solid and liquid wastes			
1.5	Spread of HIV/AIDS and other STI			
1.6	Borrow pits and pools of stagnant water			
1.7	Rubble/heaps of excavated soils			
1.8	Invasive tree species			
1.9	Long term depletion of water			
1.11	Reduced flow of water			
1.12	Nuisance from noise or smell			
1.13	Loss of soil fertility			
1.14	Incidence of flooding			
4.0	Resettlement Screening (OP 4:12)			
	Will the project generate the following negative social and economic impacts?			
4.1	Loss of land to households			
4.2	Loss of properties –houses, structures			
4.3	Loss trees, fruit trees by households			

4.4	Loss of crops by people			
4.5	Loss of access to river/forests/grazing area			
4.6	Impact cultural site, graveyard land			
4.7	Conflicts over use of local water resources			
4.8	Disruption of important pathways, roads			
4.9	Loss communal facilities –churches			
4.10	Loss of livelihood system			
4.11	Spread of HIV/AIDS			
4.12	Blockages to footpath/roads			

Overall evaluation of Screening Exercises

The results of the screening process would be either the proposed sub-projects would be exempted or subjected to further environmental and resettlement assessments. The basis of these options is listed in the table below:

Review of Environmental Screening	Tick	Review of Resettlement Screening	Tick
1. The project is cleared. No serious impacts.		1. The project is cleared. No serious social impact.	
2. There is need for further assessment. *(when*		2. There is need for resettlement/compensation.	
Signature: Date		Signature: Date:	

NOTES:

1. The Safeguard specialist or EDO shall ensure that a completed form are submitted to Project Implementation Unit and Environmental Affairs Department
2. Project Management Committee will maintain a copy of completed form
3. It is the duty of Environmental District Officer and Project Implementing Unit to ensure mitigation measures outlined in form are implemented.
4. The Safeguard specialist or EDO shall prepare a monthly monitoring report on implementation of mitigation measures.

Annex 3: Sample Chance Find Procedures

Chance finds procedures will be an integral part of the project ESMP and civil works con- tracts. If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:	
Step 1	Stop the construction activities in the area of the chance find;
Step 2	Delineate the discovered site or area;
Step 3	Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Department of Antiquities take over;
Step 4	Notify the supervisory Project Environmental Officer and Project Engineer who in turn will notify the Director of Antiquities in the Department of Antiquities immediately (within 24 hours or less);
Step 5	Responsible local authorities and the Department of Antiquities would then be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the Department of Antiquities. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values.
Step 6	Decisions on how to handle the finding shall be taken by the Director of Antiquities. This could include changes in the layout (such as when finding irremovable remains of cultural or archeological importance) conservation, preservation, restoration and salvage.
Step 7	Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.
Step 8	Construction work may resume only after permission is given by Director of Antiquities concerning safeguard of the heritage

Annex 4: Generic Environmental and Social Checklist List

The Environmental and Social Checklist below serves as a sample checklist which will be adapted to the particular type and circumstance of the sub-project as well as the relevant local level (Village, District) at which the sub-project is planned. The checklist will be completed members of District Environmental Sub-Committee.

General Environmental and Social Checklist for construction works sub-projects

Stage	Potential Adverse Impacts	Tick if relevant	Mitigation Measure	Tick if relevant	Responsible Person
Before construction					
	Loss of livelihoods, impact on assets, land acquisition		Prepare Resettlement Action Plan as per OP 4.12 – see RPF		
	Landslides and soil erosion on sloppy hillsides		Terracing; excavation to level; control of water flows		
	Destruction of vegetation during excavation; may cause loss of fauna		Construction contracts to include provisions for limiting vegetative removal, and for revegetation of the construction area after		
	Soil erosion, deposition of fine debri (sand, silts, clays) in downstream water courses during construction, particularly in the rainy season		Construction contracts will require revegetation as soon as possible; contractors to be limited regarding activities that can be carried out in the rainy season		
	Traffic disruption		Deliver materials during off peak hours		
	Noise disturbance		Not likely to be a problem		
	Dust impacts		In extreme cases, particularly near clinics, contractors will be required to moisten the construction area to		
	Pit formation from sand mine		Use sand from existing borrow pits; fill back pits		

During construction					
	Noise		Use of ear protectors		
	Soil erosion		Planting trees and grasses, landscaping works		
	Soil and water pollution due to large number of labourers on the construction site and related wastes		Provide mobile toilets and ensure adequate waste water disposal		
	Increase in spread of HIV/AIDS and communicable diseases		Distribute condoms Civic education		
	Conflicts between migrant workers and host com-munities		Civic education to migrant workers. Sensitization of host communities		
After construction					
	Soil and water pollution due to remainder of construction wastes, tools, equipment, and temporary infrastructure		Contractors to clear construction site of temporary infrastructures and restore vegetation of the site		

This form has been signed by: _____ Chairperson of the VDC / CDC: ___

Chairperson of the Environment Sub-Committee: __

Date:……..

Annex 5: Procedures for ESIA Preparation

According to Malawi's Guidelines for Environmental Impact Assessment (December 1997), there are two sequential types of formal EIA submissions which represent progress reports to meet the requirements of Malawi's EIA process. These are Project Briefs and EIA Reports. A Project Brief is a short report informing DEA that a prescribed activity is being considered. Its sole purpose is to provide sufficient information to allow DEA to determine the need for an EIA based on screening criteria outlined in Appendix D of the guidelines. Thus, a Project Brief must contain the information needed by DEA to evaluate the report against the screening criteria.

Section 24 of the EMA requires that a Project Brief should at least state:

- The nature of the project;
- The activities that shall be undertaken;
- The possible products and by-products anticipated;
- The number of people the project shall employ;
- The area of land, air or water that may be affected; and
- Any other matters as may be prescribed.

More generally, the Project Brief should also contain:

- A basic description of the project purpose, size, location and preliminary design, including any alternatives which are being considered (i.e. site, technology, construction and operation procedures, handling of waste).
- The stage of the project in the project cycle.
- A location map of the project site or site alternatives, and a site plan as it is currently known.
- Maps and plans should conform to the standards discussed in the section describing the requirements of an EIA report.

A discussion of which aspects of the project are likely to cause environmental concerns, and of proposed environmental management measures.

The *General Requirements of an EIA Report* include: (i) quality standards; (ii) terms of reference; (iii) identification of the EIA team; (iv) discussion of EIA methods; (v) public consultation; and (vi) information and mapping standards.

Typical elements of an EIA report include: (i) an Executive Summary; (ii) an Introduction; (iii) a Project Description; (iv) a discussion of the Environmental Planning and Design; (v) Public consultation; (vi) description of the Environmental Setting; (vii) Assessment of Environmental Impacts; (viii) Environmental Management Plan; (ix) Resource Evaluation; (x) Summary and Recommendations; and (xi) Appendices.

For details on the preparation of the above documents, please refer to *Annex C* of the *Guidelines for Environmental Impact Assessment (December 1997).* In this context, the ESMF not only complements Malawi's procedures for meeting EIA requirements as outlined in *Appendix C* of the above guidelines, but it also meets the safeguard policy requirements of the World Bank

Annex 6: Environmental Rules for Contractors

These Environmental Rules for Contractors are prepared for all the contractors to be engaged for the DMP construction activities. The rules include provisions for proper management of construction sites, safe storage of construction materials and safe disposal of wastes.

General Considerations:

The contractor shall, in all his activities ensure maximum protection of the environment and the socio-economic wellbeing of the people affected by the project, whether within or outside the physical boundaries of the project area.

Before any construction works begin, the contractor shall ensure that the relevant environmental and land acquisition certificates of authorization for the works have been obtained from the Director of Environmental Affairs and/or the Commissioner for Lands.

In general, the contractor shall familiarize himself with the ESMF and the RPF for the DMP. Specifically, the contractor shall make every effort to follow and implement the recommendations and mitigation measures of the ESMP and the RAPs, to the satisfaction of the PPPC and the EAD, or any such persons or agencies appointed by the PPPC or the EAD, to inspect the environmental and social components of the DMP.

The contractor shall work in cooperation and in coordination with the Project Management Team and/or any other authority appointed to perform or to ensure that the social and environmental work is performed according to the provisions of the ESMF and RPF for the DMP, along with any specific RAP and/or EMP.

The contractor shall always keep on site and make available to Environmental Inspectors or any authorized persons, copies of the ESMPs, RAPs and any other relevant documents for the monitoring and evaluation of environmental and social impacts and the level or progress of their mitigation.

Acquisition of Construction Materials:

The contractor shall ensure that construction materials such as sand, quarry stone, soils or any other construction materials are acquired from approved suppliers and that the production of these materials by the suppliers or the contractor does not violate the environmental regulations or procedures as determined by the EAD.

Movement and Transportation of Construction Materials:

The movement and transportation of construction materials to and within the construction sites shall be done in a manner that generates minimum impacts on the environment and on the community, as required by the ESMP and/or the RAP.

Fencing of Construction sites:

Construction sites refer to all areas required for construction purposes, including staff/employee living quarters. The boundaries of the site shall be demarcated prior to any work commencing on the site. It is the responsibility of the contractor to decide on an appropriate system of protective fencing for the site. The site boundary demarcation fence shall be removed when the site is decommissioned and full or almost fully restored to its original state. The Contractor shall ensure that all their plants, labour and materials remain within the boundaries of the site and he shall ensure that materials used for construction on the site do not blow on or move outside the site.

Storage of Construction Materials and Equipment

Construction materials shall be stored in a manner to ensure that:

- There is no obstruction of service roads, passages, driveways and footpaths;
- Where it is unavoidable to obstruct any of the service paths, the contractor shall provide temporary or alternate by-passes without inconveniencing the flow of traffic or pedestrians;
- There is no obstruction of drainage channels and natural water courses;
- There is no contamination of surface water, ground water or the ground;
- There is no access by public or unauthorized persons, to materials and equipment storage areas; and
- There is no access by staff, without appropriate protective clothing, to materials and equipment storage areas.

Solid Waste Management:

The Contractor shall institute a waste control and removal system for the site. All wastes shall be disposed of offsite at an approved landfill site in consultation with the District Council. Burning of any waste on any construction site is forbidden. The Contractor shall supply waste bins throughout the site at locations where construction personnel are working. The bins shall be provided with lids and an external closing mechanism to prevent their contents blowing out and shall be scavenger-proof to keep out and other animals that may be attracted to the waste. The Contractor shall ensure that all personnel immediately deposit all waste in the waste bins for removal by the Contractor. Bins shall be emptied on a daily basis and waste removed to a temporary storage site where it shall be properly contained in water and windproof containers until disposed of. The bins shall not be used for any purposes other than waste collection.

In performing his activities, the contractor shall use the best practical means for preventing emissions of noxious or offensive substances into the air, land and water. He shall make every effort to render any such emissions (if unavoidable) inoffensive and harmless to people and the environment. The means to be used for making the emissions harmless or for preventing the

emissions shall be in accordance to the RAP and/or the ESMP, and with the approval of the relevant Local Authority or the Environmental Affairs Department. The contractor shall, in particular, comply with the regulations for disposal of cement pipes, construction/demolition wastes, wastewater, combustion products, dust, metals, rubble and timber. Hazardous wastes shall be treated and disposed of in conformity with the national regulations and where applicable, with the supervision of qualified personnel.

Wastewater Management:

The Contractor shall construct and operate the necessary collection and waste treatment facilities for waste water to prevent pollution. In case where water is mixed with oil/waste, separators shall be installed. The oil should be stored in tanks or drums as hazardous waste and disposed off in approved manner. The Contractor shall dispose of collected waste water in a manner agreed with the respective councils and Environmental Affairs Department.

Site Restoration:

The Contractor shall ensure that all temporary structures, equipment, materials, and facilities used for construction activities are removed upon completion of the project. Any oil and fuel contaminated soil shall be removed and buried in waste disposal areas. Soak pits and septic tanks shall be covered and effectively sealed off and the sites shall be grassed and all the sites shall be restored to a similar condition to that prior to the commencement of the works or to a condition agreed to with council officials. The ESMP will also specify occupational health and safety measures to be followed during project construction including measures to raise awareness and to prevent the spread of HIV/AIDS and other sexually transmitted diseases.

Health and Safety of Workers:

The contractor shall protect the health and safety of workers by providing the necessary and approved protective clothing and by instituting procedures and practices that protect the workers from dangerous operations. The contractor shall be guided by and shall adhere to the relevant national Labour Regulations for the protection of workers. In addition, the contractors should indicate specific measures they will take during construction to prevent HIV-AIDS transmission by the work force, in relation or in addition to those indicated in the ESMP

Natural Habitats:

In all relevant civil works projects, the contractor shall locate project facilities (permanent and temporary) so as to avoid or minimize the clearing of natural vegetation. The contractor shall enforce a strict prohibition on the washing of vehicles or changing of lubricants in waterways or wetlands,

Chance Finds Procedures for Physical Cultural Resources:

If, during project construction, the contractor or project workers encounter archaeological relics, fossils, human remains, or other items of historical or other cultural value, the Contractor shall (i) temporarily suspend any works which might damage these items and (ii) notify the Client who then notifies the competent authority for instructions or guidance regarding the appropriate next steps to evaluate, salvage, recover, protect, and/or document the items found.

Worker Behaviour:

To help ensure that good environmental and social practices are consistently followed throughout project construction and operation, all workers, operational staff, and contract personnel shall be prohibited from (i) hunting, (ii) fishing, (iii) wildlife capture, (iv) bush-meat purchase, (v) plant collection, (vi) unauthorized vegetation burning, (vii) speeding, (viii) weapons possession (except by security personnel), (ix)working without Personal Protection Equipment (PPE), (x) inappropriate interactions with local people, (xi) disrespecting local customs and traditions, (xii)littering of the site and disposing trash in unauthorised places, (xiii) Use of alcohol by workers during working hours, (xiv) sexual harassment, or (xv)Building fires outside camp areas without being authorised

Annex 7: Summary of World Bank Operational Policies

OP/BP 4.01 Environmental Assessment	The objective of this policy is to ensure that Bank-financed projects are environmentally sound and sustainable, and that decision-making is improved through appropriate analysis of actions and of their likely environmental impacts. This policy is triggered if a project is likely to have potential (adverse) environmental risks and impacts on its area of influence. OP 4.01 covers impacts on the natural environment (air, water and land); human health and safety; physical cultural resources; and trans-boundary and global environment concerns.	The policy is triggered as a result of: I) proposed development of national backbone network which include access network; and II) refurbishment/rehabilitation of national data centre under component 2 which would include infrastructure and equipment investments.
OP/BP 4.04 Natural Habitats	This policy recognizes that the conservation of natural habitats is essential to safeguard their unique biodiversity and to maintain environmental services and products for human society and for long-term sustainable development. The Bank therefore supports the protection, management, and restoration of natural habitats in its project financing, as well as policy dialogue and economic and sector work. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. Natural habitats are land and water areas where most of	The policy could be triggered if project activities would be implemented in national parks and game reserves. However, the project will not finance any activity that would involve significant conversion of natural habitats through its direct or indirect activities.

	the original native plant and animal species are still present. Natural habitats comprise many types of terrestrial, freshwater, coastal, and marine ecosystems. They include areas lightly modified by human activities, but retaining their ecological functions and most native species.	
OP/BP 4.36 Forests	The objective of this policy is to assist borrowers to harness the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development and protect the vital local and global environmental services and values of forests. Where forest restoration and plantation development are necessary to meet these objectives, the Bank assists borrowers with forest restoration activities that maintain or enhance biodiversity and ecosystem functionality. The Bank assists borrowers with the establishment of environmentally appropriate, socially beneficial and economically viable forest plantations to help meet growing demands for forest goods and services.	The policy could be triggered only if project activities have direct impacts on health and quality of forests; people who depend on forests; nor is there an aim to change the management, protection, or utilization of forests. Some infrastructure could be installed in forest reserves as such appropriate mitigatory measures should be undertaken to avoid and minimize impacts.
OP 4.09 Pest Management	The objective of this policy is to (i) promote the use of biological or environmental control and reduce reliance on synthetic chemical pesticides; and (ii) strengthen the capacity of the country's regulatory framework and institutions to promote and support safe, effective and environmentally	The project would not supply any pesticides or agrochemicals as such the policy is not applicable to the project activities.

	sound pest management. More specifically, the policy aims to (a) Ascertain that pest management activities in Bank-financed operations are based on integrated approaches and seek to reduce reliance on synthetic chemical pesticides (Integrated Pest Management (IPM) in agricultural projects and Integrated Vector Management (IVM) in public health projects. (b) Ensure that health and environmental hazards associated with pest management, especially the use of pesticides are minimized and can be properly managed by the user. (c) As necessary, support policy reform and institutional capacity development to (i) enhance implementation of IPM-based pest management and (ii) regulate and monitor the distribution and use of pesticides.	
OP/BP 4.11 Physical Cultural Resources	The objective of this policy is to assist countries to avoid or mitigate adverse impacts of development projects on physical cultural resources. For purposes of this policy, "physical cultural resources" are defined as movable or immovable objects, sites, structures, groups of structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above ground, underground, or underwater. The cultural interest may be at the local, provincial or	This policy applies to all projects requiring a Category A or B Environmental Assessment under OP 4.01, project located in, or in the vicinity of, recognized cultural heritage sites, and projects designed to support the management or conservation of physical cultural resources.

	national level, or within the international community.	
OP/BP 4.10 Indigenous Peoples	The objective of this policy is to (i) ensure that the development process fosters full respect for the dignity, human rights, and cultural uniqueness of indigenous peoples; (ii) ensure that adverse effects during the development process are avoided, or if not feasible, ensure that these are minimized, mitigated or compensated; and (iii) ensure that indigenous peoples receive culturally appropriate and gender and inter-gene rationally inclusive social and economic benefits.	The policy is triggered when the project affects the indigenous peoples (with characteristics described in OP 4.10 para 4) in the project area. The policy is not triggered as it is not expected that indigenous peoples will be affected. Project activities that could negatively impact on indigenous peoples will not be funded
OP/BP 4.12 Involuntary Resettlement	The objective of this policy is to (i) avoid or minimize involuntary resettlement where feasible, exploring all viable alternative project designs; (ii) assist displaced persons in improving their former living standards, income earning capacity, and production levels, or at least in restoring them; (iii) encourage community participation in planning and implementing resettlement; and (iv) provide assistance to affected people regardless of the legality of land tenure.	This policy covers not only physical relocation, but any loss of land or other assets resulting in: (i) relocation or loss of shelter; (ii) loss of assets or access to assets; (iii) loss of income sources or means of livelihood, whether or not the affected people must move to another location. The policy will be triggered as project activities could require acquisition of small parcels of to plant towers or masts. Project activities could as well result in loss of assets and crops in areas where cable installation would be undertaken. The policy would require that transparent and

		fair compensations are provided to affected persons.
OP/BP 4.37 Safety of Dams	The objectives of this policy are as follows: For new dams, to ensure that experienced and competent professionals design and supervise construction; the borrower adopts and implements dam safety measures for the dam and associated works. For existing dams, to ensure that any dam that can influence the performance of the project is identified, a dam safety assessment is carried out, and necessary additional dam safety measures and remedial work are implemented.	This policy is triggered when the Bank finances: (i) a project involving construction of a large dam (15 m or higher) or a high hazard dam; and (ii) a project which is dependent on an existing dam This policy will not be triggered because the project will not fund construction of dams.

OP 7.50 Projects in International Waters	The objective of this policy is to ensure that Bank-financed projects affecting international waterways would not affect: (i) relations between the Bank and its borrowers and between states (whether members of the Bank or not); and (ii) the efficient utilization and protection of international waterways. The policy applies to the following types of projects: (a) Hydroelectric, irrigation, flood control, navigation, drainage, water and sewerage, industrial and similar projects that involve the use or potential pollution of international waterways; and (b) Detailed design and engineering studies of projects under (a) above, include those carried out by the Bank as executing agency or in any other capacity.	This policy is triggered if (a) any river, canal, lake or similar body of water that forms a boundary between, or any river or body of surface water that flows through two or more states, whether Bank members or not; (b) any tributary or other body of surface water that is a component of any waterway described under (a); and (c) any bay, gulf strait, or channel bounded by two or more states, or if within one state recognized as a necessary channel of communication between the open sea and other states, and any river flowing into such waters. The policy is not triggered as the project would not invest in any water related activity that would adversely affect the quality or quantity of water flow within the shared waterways.
OP 7.60 Projects in Disputed Areas	The objective of this policy is to ensure that projects in disputed areas are dealt with at the earliest possible stage: (a) so as not to affect relations between the Bank and its member countries; (b) so as not to affect relations between the borrower and neighbouring countries; and (c) so as not to prejudice the position of either the	The policy is not triggered as the area where the program will be implemented is not known to include any disputed area

	Bank or the countries concerned.	

Annex 8: Terms of References

The Public Private Partnership Commission

Digital Malawi

Project Preparatory Advance (PPA)

Terms of Reference for the Preparation of an Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF)

1. BACKGROUND

Information and Communication Technology (ICT) is now globally recognized as an essential tool in promoting competitiveness, job creation, sustainable development, and overall poverty reduction. A combination of widespread access to broadband and a robust ICT services ecosystem can offer a powerful platform for reducing poverty, improving human development and increasing government transparency and efficiency. ICTs have the potential to transform business and government - driving entrepreneurship, innovation and economic growth and breaking down barriers of distance and cost in the delivery of services. In recognition of this fact, the Government of Malawi is preparing a new project in the realm of ICT – the Digital Malawi Project.

Digital Malawi

The proposed project builds on the very successful Regional Communications Infrastructure Program Malawi Project (RCIPMW) that has been recently completed. The objectives of RCIPMW were to contribute to the availability of low cost broadband communications in Malawi through providing high-speed communications access to the East coast of Africa where international submarine

cables were established. The program also provided support to the Government in providing ICT services to public institutions and availing technical assistance to support the development of the sector. In addition, the program facilitated the review of the country's policy and legislative frameworks governing operations in the ICT sector. It specifically involved the establishment of optical fibre cable network from the Malawi-Tanzania border at Songwe through Karonga, Rumphi, Mzimba, Nkhata Bay, Nkhota-kota, and Salima to a Virtual Landing Point (VLP) in Lilongwe. A redundant leg of the cable runs from VLP and terminates at the Malawi-Zambia border in Mchinji.

The overall aim of the proposed Digital Malawi project is to extend and improve access to critical ICT infrastructure for the public and private sectors; improve ICT governance; improve access to government services; and reduce infrastructure costs by providing reliable,

fast and adaptive government digital systems that will facilitate provision of e-services thereby enhancing public service delivery.

The proposed project has been divided into four components, namely; enabling environment, connectivity (infrastructure), e-Government and project management. The enabling environment component will address capacity gaps in the ministries, departments and agencies (MDAs) involved in the policy management, regulation and government services operations of ICT sector. It is envisaged that the interventions will result in reduced prices, higher quality and wider availability of various ICT services for the people of Malawi.

The connectivity component will provide affordable, high quality services and ubiquitous national telecom backbone services for both the public and the private sectors. The services based on open access principles will greatly promote general services competition in the sector. In addition to the backbone, the component will also provide a national data centre, and access networks connecting government offices and other points to the backbone.

The e-Government component encompasses a shared framework (Government Interoperability Framework and Government Data Enterprise Architecture) and some possible applications in the areas of geographic information systems, education services delivery, electronic document management systems, et cetera. It's envisaged that the use of public private partnerships would leverage participation of the private sector in the provision of government digital services in effort to promote efficiency and sustainability.

The fourth component, project management, covers operational essentials of implementing the project such as office rentals, transport, staff wages and other requirements.

Environmental Management and Social Safeguards

Taking into account potential impacts of the project, and with due regard to World Bank environmental management and social safeguards policies, the proposed project has been assigned a Category B. The safeguards policies triggered are OP/BP 4.01 (Environmental Assessment) and OP/BP4.12 (Involuntary Settlements). Safeguards instruments, namely: an Environment and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) need to be prepared. In view of the fact that an ESMF and a RPF were prepared for the Regional Communications Infrastructure Project - Malawi (RCIPMW) in 2009, it is now proposed to update both documents that taking into account changes in the regulatory environment, lessons learnt and possibly a different scope of activities. However, it is not anticipated that the new activities for the proposed project will trigger different safeguards policies compared to RCIPMW.

Some of project activities may require tree cutting for aerial installation or trenching for underground installation of cable. In some cases small pieces of land may be required to install towers, plant repeater stations and other telecom network equipment. In certain situations, the installation might require the appropriation of land which is occupied by cultivated fields. Mitigation measures will be proposed to ensure that all sites are reinstated to their original conditions as far as possible after aerial cable installation or trenching.

Other Bank safeguard policies such as those for physical cultural resources and natural habitats may also be triggered if the project activities pass through graveyards and protected areas such as forest reserves. The situation in the selected areas selected will be assessed during project preparation, and will be taken on board during the preparation of the Environmental and Social Management Plan and Resettlement Action Plan. Radio installation, whether as an alternative or complement to cable construction, would require the same safeguards.

2. Objective

The objective of the study is to update the existing RCIPMW Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) for the Digital Malawi Project. As part of the preparation of the project, the Government of Malawi and the World Bank require preparation of an ESMF to provide guidelines for the management, assessment and mitigation of environmental and social concerns that meet National and World Bank requirements (such as Environmental Impact Assessments, Environmental and Social Management Plans and Construction Environmental Management Plan). The preparation of an RPF to address the needs of people who may be affected by the project will also be undertaken.

3. Scope of Work

Task 1: Undertake an audit exercise of the RCIPMW project to determine the degree of compliance to the approved ESMF, ESMP and CEMP.

The objective of this audit is to ensure that all mitigating activities have been completed, identify those that need to be completed, and provide a list of lessons that could enlighten and improve the environmental and social management of the subject project.

Task 2: Update the RCIPMW Environmental and Social Management Framework

(ESMF)

The ESMF provides the guidelines for the preparation of all mitigation plans (such as Environmental Impact Assessments (EIA) and Environment and Social Management Plans (ESMP), Construction Management Plan (CMP) and Compensation Action Plans (CAP) to respond to the anticipated project impacts once the network details are determined.

The ESMF sets out guidance in selection, preparation and implementation of project activities in order to avoid or minimize environmental and social risks and adverse impacts and enhance social and environmental performance of the project. This will be accomplished through the development and application of proper selection criteria for specific projects, planning that takes into consideration environmental and social criteria, sound implementation and monitoring, disclosure, consultation and feedback. For the preparation of the ESMF the consultant will undertake an analysis based on available information – under RCIPMW I - and field visits to achieve the objectives of the assessment. The consultant will review and take into account the environmental and social outcomes of the RCIPMW Project.

These activities shall be carried out in due consultation with Public Private Partnership Commission, Department of e-Government, and the Department of Environmental Affairs - which is responsible for approving Environmental and Social Management Plans.

The consultant will also review and take into account the regulatory framework of the Government of Malawi and environmental and social policies of World Bank and international best practices on environmental management in the preparation of ESMF. To achieve this objective the consultant will carry out the following tasks through field investigations, desk studies and public consultations:

I. Prepare a brief description of the project focusing on project activities that could generate positive and negative impacts on biophysical and socioeconomic environments.

II. Review and assess any existing environmental and social database for Malawi, and collect additional data as necessary from any possible source including field visits and baseline studies, with emphasis on aspects of biophysical and social environments that could be affected by project activities.

III. Compile a summary of key domestic legislative, regulatory and administrative regimes within which the proposed project will operate, with a focus on requirements that will apply to the planning, approval and implementation of projects; research and summarize World Bank policy requirements governing environmental and social assessment, compensation and resettlement, protection of physical cultural property, and requirements for public consultations and disclosure.

IV. Screen potential environmental and social risks/impacts related to both construction and operation phases of the project, and recommend feasible measures to maximize environmental and social benefits of project activities, as well as, develop measures to avoid, minimize and mitigate any adverse impacts.

V. Establish a clear understanding of the institutional requirements, roles and responsibilities for adopting and implementing the ESMF. Importantly, this should include a thorough review of the authority and capability of institutions at different levels (e.g. local, district, provincial/regional, and national) and their capacity to manage and monitor ESMF implementation.

VI. Identify and describe the required instruments and procedures for managing and monitoring environmental risks and social concerns related to projects, such as environmental and social assessments, management plans (e.g. ESMP and RAP) and respective monitoring instruments.

VII. Develop feasible and cost-effective mitigation and monitoring measures to prevent or reduce to acceptable levels the adverse impacts that have been identified. Present measures to enhance project benefits. Environmental and social rules for contractors shall be developed.

Task 3: Update the RCIPMW Resettlement Policy Framework (RPF)

Tasks 3 of the assignment deals with drafting of the Resettlement Policy Framework which will require the consultant to undertake the following tasks during preparation:

I. Describe the project and its components for which land acquisition or Right of Way (RoW) may be required for the network installation, and provide an explanation of why a resettlement plan cannot be prepared in advance of network determination. Identify potential impacts such as loss of assets, loss of income sources and livelihoods arising from project activities.

II. Describe principles and objectives governing preparation and implementation of land acquisition, compensation and resettlement. The resettlement objectives are to move (or deprive from resources) as few people as possible consistent with the requirements of the project, and that general principles of doing no harm, of avoiding or minimizing resettlement are to be followed in all project activities. The RPF should include instruments that will be used to ensure that affected people are meaningfully consulted, compensated fully and fairly for their losses, and assisted in their efforts to improve their livelihoods and standards of living or at least to restore them.

III. Outline methods to be used by stakeholders in valuing assets eligible for compensation under the World Bank's regulations or under local laws. Explanation on the methods for *inventorying* assets, *assigning values* to each type of asset, and *coming to agreements* with each affected person or group on the total profile of losses and compensation. The RPF will, to the degree possible, present an "entitlement matrix" which shows the types of affected people, the types of losses, and the forms and amounts of compensatory actions that will be taken for each type.

IV. Review the legal framework governing acquisition of Right of Way for ICT facilities and valuation for losses suffered by project affected persons as a result of the establishment of RoW for ICT facilities. A review of World Bank operational policy on involuntary resettlement will be undertaken. The RPF will discuss discrepancies between national and Bank instruments, and summarize what laws and regulations may apply to different categories of affected people and propose how such gaps may be bridged.

V. Since it is impossible to estimate exactly eventual human displacement/loss of income to be caused by the proposed activities, the Consultant should prepare templates for the evaluation and consultation processes, classification and description of the likely population to be affected or deprived of income. Different categories of those affected may include, for example, those losing lands for cultivation or those losing housing or those losing both, those losing temporary access or those losing permanent rights, business or residential property.

VI. Provide eligibility criteria for defining various categories of affected persons. Define the criteria that are to be used to identify the eligibility for compensatory measures for each category of affected people, whether losses are partial or total.

VII. Outline the arrangements for funding any compensation for losses, including the preparation and review of cost estimates, the flow of funds, and contingency arrangements. The RPF will describe the relationship of the RPF to the individual RAP that may be

required for the project in case there is land acquisition or Right of Way or need to compensate people for losses of assets and sources of livelihoods. The RPF will describe roles of the Ministry of Lands, Housing and Urban Development and the Ministry of Information, Communication Technology and Tourism and the network developer in the process of developing RAP.

VIII. Describe mechanisms for consultations with, and participation of displaced persons in planning, implementation and monitoring. Consultation is to be done for the Resettlement Policy Framework which sets many of the parameters by which resettlement and compensations will be carried out. Show that meaningful consultation is being carried out with a broad array of stakeholders including both borrower officials at every level. Include a requirement that the draft RPF is to be circulated to interested parties, and that further consultations will take place before finalization. The RPF should further require a record of all such consultations as an annex. For the individual RAPs, show how the people affected by the particular project activities will be consulted throughout the process of RAP formulation, as prescribed by OP 4.12.

IX. The RPF shall describe the mechanisms available to affected people for complaints about aspects of their treatment under this policy framework. Show how the mechanism will be accessible (in terms of language, distance, and cost) to affected people, and what recourse/appeal from the local grievance mechanism may be available.

Task 4: Public Consultation on the Digital Malawi ESMF and RPF

The Consultant will undertake consultation activities with stakeholders during preparation of ESMF and RPF to solicit views and opinions of stakeholders which will be taken into account before finalization of ESMF and RPF. Stakeholders will include relevant government departments, local government councils, private sector, non- governmental organizations and civil society members.

4. MAIN OUTPUTS

The main outputs of the consultancy assignment will be i) a Compliance report on RCIPMW, ii) an Updated Environmental and Social Management Framework in Draft and Final versions and ii) an Updated Resettlement Policy Framework in Draft and Final versions as described in Table I

Table 1: Reporting schedule

Output	Description	Timing (Weeks after contract signing)
Inception Report	• Overall approach and methodology for conducting the assignment • Detailed plan of work (desk and field activities, outputs, proposed schedule) • Proposed detailed outline of the RCIPMW Compliance Report, the updated ESMF, and updated RPF	2 weeks

Draft Reports	• Draft RCIPMW Compliance Report • Draft updated (Digital Malawi) ESMF • Draft updated (Digital Malawi) RPF	8 weeks
Final Reports	• Final RCIPMW ESMF, ESMP, CEMP Compliance Report • Final updated (Digital Malawi) ESMF • Final updated (Digital Malawi) RPF	12 weeks

The consultant will submit six (6) copies of the draft RCIMW Compliance Report, ESMF and RPF reports to the Public Private Partnership Commission, within eight (8) weeks of signing the assignment contract. The PPPC shall review the reports within one week, and submit acceptable drafts to the WB for review and clearance. The consultant will make any mutually agreed upon changes, and submit six (6) copies of the final report to the PPPC within twelve (12) weeks of signing the assignment contract. All submissions shall be made in Ms Word and PDF formats.

5. QUALIFICATIONS

The consultant should have a strong experience with environmental and social impact assessment, with experience and knowledge in development of Environmental and Social Management Framework as well as Resettlement Policy Framework. The consultant will have some knowledge of the World Bank environmental safeguards policies, and environmental legislation and practice in Malawi, and have demonstrated experience in successfully producing documentation that meets these requirements.

The consultant should be an individual with at least a Master's Degree in Environmental Management and at least 5 years of appropriate work experience.

6. STUDY INPUTS AND DURATION

The assignment will be undertaken in Malawi and will have total duration of five months. The maximum level of input from the consultant will be three person months.

7. REPORTING

This overall assignment will be managed by the Public Private Partnership Commission. Preparation of Environmental and Social Management Framework will be done in close collaboration with the Environmental Affairs Department. The consultant will coordinate with the Ministry of Lands, Housing and Urban Development for preparation of the Resettlement Policy Framework. The consultant will report to the Chief Executive Officer for the Public Private Partnership Commission.