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MINISTRY OF COMMUNICATION AND INFORMATION TECHNOLOGY (MCIT)

DIGITAL TANZANIA PROJECT
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ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

FINAL REPORT

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Abbreviations and Acronyms

AFOM	French Association of Mobile Phone Operators
AGL	Above Ground Level
BDA	Big Data Analytics
BPM	Business Process Management
CBD	Convention on Biological Diversity
CBOs	Community-Based Organizations
CERT	Computer Emergency Response Team
CGM	Community Grievance Mechanism
COSTECH	Commission for Science and Technology
CRP	Compensation and Resettlement Plan
DHs	District Hospitals
DIT	Dar es Salaam Institute of Technology
DTP	Digital Tanzania Programme
EBRD	European Bank for Reconstruction and Development
eGA	e-Government Authority
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMF	Electric and Magnetic Fields
EMP	Environmental Monitoring Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard
FAA	Federal Aviation Administration
FGDs	Focus Group Discussions
FYDP	Five years Development Plan
GIIP	Good International Industry Practice
GPSA	Government Procurement Services Authority
HLIs	Higher Learning Institutions
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICT	Information Communication Technology
ICTC	Information and Communications Technology Commission
IDA	International Development Association
IPC	Institutional Project Coordinator
LGA	Local Government Authority
IFC	International Finance corporation
LGRIS	Local Government Revenue Collection Information System
LRP	Livelihoods Resettlement Plan
MCIT	Ministry of Communication and Information Technology

MDAs	Ministries' Departments and Agencies
MHCDGEC	Ministry of Health, Community Development, Gender, Elderly, and Children
MITI	Ministry of Industry, Trade and Investment
MNH	Muhimbili National Hospital
MoCLA	Ministry of Constitutional and Legal Affairs
MoEST	Ministry of Education, Science and Technology
MoFP	Ministry of Finance and Planning
MSD	Medical Store Department
MWTC	Ministry of Communication and Information Technologys
NEAP	National Environmental Action Plan
NEMC	National Environment Management Council
NGOs	Non-Governmental Organizations
NICTBB	National ICT Broadband Backbone
NPKI	National Public Key Infrastructure
NSOC	Network Security Operation Centre
NTFPs	Non-Timber Forest Products
PDO	Project Development Objective
PEA	Preliminary Environmental Assessment
PIU	Project Implementation Unit
PO-PSMGG	President's Office Public Service Management and Good Governance
PO-RALG	President's Office Regional Administration and Local Government
PPRA	Public Procurement Regulatory Authority
PSRP II	Public Service Reform Programme II
RAMD	Record and Archive Management Department
RAP	Resettlement Action Plan
RCIP	Regional Communication Infrastructure Programme
RCIP-TZ	Regional Communications Infrastructure Program – Tanzania
RITA	Registration Insolvency and Trusteeship Agency
RPF	Resettlement Policy Framework
SCDP	Stakeholder Consultation and Disclosure Plan
SOP	Series of Projects
SPRP	Spill Prevention and Response Plan
TA	Technical Assistance
TAC	Technical Advisory Committee
TCRA	Tanzania Communications Regulatory Authority
TDV	Tanzania Development Vision
TNA	Training Needs Assessment
ToR	Terms of Reference
TPC	Tanzania Postal Corporation
TRA	Tanzania Revenue Authority
TRC	Tanzania Railway Corporation
TTC	Tanzania Telecommunications Corporation
UCSAF	Universal Communication Access Fund
UDOM	University of Dodoma

UDSM	University of Dar es Salaam
UNFCC	United Nations Framework Convention on Climate Change
URT	United Republic of Tanzania
VC	Video Conference System
VCI	Vocational Training Institutions
VPO-DoE	Vice President's Office – Division of Environment
WB	World Bank
WMP	Waste Management Plan

Executive Summary

1. Project Background

The Government of the United Republic of Tanzania through the Ministry of Communication and Information Technology (MCIT) is preparing the proposed Digital Tanzania Project (DTP) intended for financing support from the World Bank (WB). The project development objectives of the proposed DTP are to increase access to affordable, high quality internet services for government, businesses and citizens and to improve the government's capacity to deliver digital public services. The DTP builds on the very successful Regional Communications Infrastructure Program-Tanzania (RCIP-TZ) that has been completed.

The program is expected to be implemented in two major phases with a five-year period for each phase. Phase I (2021-2025) and Phase II (2024-2029) will cover the main components as described in this report. In addition, specific sub-projects will be proposed and implemented under each major component. The primary implementing agency for DTP will be the Ministry of Communication and Information Technology (MCIT) in close collaboration with the President's Office-Public Service Management and Good Governance (PO-PSMGG).

As part of the preparations for DTP, and in compliance with the World Bank's Environmental and Social Framework, the existing Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) for RCIP-TZ have been updated and will be used appropriately for DTP. This document, therefore, is an updated ESMF providing guidelines for the management, assessment and mitigation of environmental and social concerns that meet national and World Bank requirements (such as Environmental and Social Impact Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs)). An updated RPF is intended to ensure that where land acquisition for the project activities is inevitable, resettlement and compensation activities for lost land, livelihoods, and other properties should be conceived and executed in a sustainable manner as stipulated in this ESMF.

This ESMF is complimented by the following instruments which have been prepared prior to appraisal:

- Resettlement Policy Framework (RPF);
- Stakeholder Engagement Plan (SEP); and
- Environmental and Social Commitment Plan (ESCP).

Which are to be prepared prior to project effectiveness:

- Vulnerable Groups Planning Framework (VGPF); and
- Labour Management Procedures (LMP).

2. Project Components

The Digital Tanzania Project contributes to three core enablers of digital development: (i) Digital Ecosystem: strengthening the laws, policies, regulations, institutional and human capacity needed to promote ICT infrastructure investment, market competitiveness, digital engagement, job creation, and innovation; (ii) Digital Connectivity: ensuring access to affordable, high quality internet services for all citizens, including in rural areas, and for critical government institutions; and (iii) Digital Platforms and Services: building the technical capacity, skills, institutions, and local digital infrastructure for the Government to deliver services to citizens and conduct its own business digitally.

Component 1: Digital Ecosystem

The aim of this component is to make Tanzania a more attractive and competitive place for digital investment and innovation, ensuring that the benefits of digital technology are reaching all citizens and helping lay the groundwork for growth of the digital economy. This will be accomplished by strengthening the many interrelated elements that characterize a thriving digital ecosystem—helping the Government in drafting forward-looking laws, regulations and policies; building digital skills and capacity of Government institutions and youth; prioritizing gender inclusivity, developing a critical mass of innovators, entrepreneurs, and support services; developing a robust local ICT industry that is founded on private investment and is able to deliver e-Commerce services, and working toward closing the digital divide—ensuring that all citizens and businesses benefit from digital development in the long term, especially the poor, women, the elderly and rural areas. These goals will be supported through two subcomponents:

(i) Digital Enabling Environment

a. Establishment of a National Center for ICT Professional Development and Innovation

The objective of this activity is to develop a national center for ICT professional development and a series of four "soft centers", or tech hubs for youth, entrepreneurs and small and medium-sized enterprises (SMEs) in five zones of the country, to promote local innovation in the country. The implementation of this activity will be carried out in collaboration with higher learning institutions, vocational training institutions and the industry, as well as with the Ministry of Education, Science and Technology (MEST) and the Council for Science and Technology (COSTECH). This subcomponent will require close collaboration with the private sector to assure that newly trained ICT professionals are ready to enter the workforce and have

the qualifications and soft skills demanded by private sector companies, including cybersecurity awareness and skills. The project will specifically track the involvement of women in benefitting from the training provided and promoting internships for young women under the Government-funded program for youth employment. Direct collaboration with the private sector will be sought, including by way of specific on-the-job training programs or internships provided by the soft centers. It is planned that a national center would be established at the ICT Commission in Dodoma and four softcentres will be established, to be housed in training institutions or universities. In principle, the softcentres will be located in four zones namely Northern, Southern, Coastal and Western zones. Criteria for selection of the centers, modalities to coordinate and support will be generated and will be defined in the project implementation manual. The softcentres would be assisted in developing cost-recovery mechanisms for the services they offer and will need to establish good relations with private sector clients in order to establish longer term sustainability, once the project funds are fully used.

b. Establishment of FabLabs

This activity aims to establish three (3) Fabrication Labs (Fab Labs) for the refurbishment of ICT hardware, and updating of software, to enable the reuse and increased lifetime of ICT equipment, and to complement efforts to distribute ICT equipment to educational institutions. This will contribute towards the acquisition of low-cost ICT equipment for learning purposes. In addition, establishing FabLabs will reduce e-waste and build capacity in Tanzania for reusing and prolonging the lifespan of ICT equipment, which is an important future strategy to tackling e-waste. Up to three FabLabs would be established, criteria for selection will be defined in the project operational manual. The FabLabs will need to develop cost recovery mechanisms and to seek private sector support to ensure longer-term viability.

c. ICT regulatory scan and review

Under this activity, the MCIT, in cooperation with the TCRA and in consultation with the licensed operators and with the help of consultants, will conduct a scan of the legal and policy environment in order to identify possible gaps that might be hindering the development of the digital economy in Tanzania, and to review possible responses. This will target broadband implementation and provide recommendations on any new initiatives that may be necessary to create an enabling regulatory, legal and fiscal environment for the Digital Economy. Under this activity, the Ministry will also convene with the TCRA, the Ministry of Health, Community Development, Gender, Elders and Children, to ensure that gender considerations are integrated into this regulatory scan of the digital economy. The results of this regulatory scan should provide inputs to the implementation of the project as a whole, especially the rural connectivity subcomponent. Activities to be funded under this sub-component will include consultants and the costs associated with stakeholder consultations.

(ii) Infrastructure to support National ICT Development and e-Commerce

a. Enhancing the national addressing and postcode system

This is an ongoing activity which will scale up the pilot projects for the National Spatial Data Infrastructure (NSDI), already started and managed by TCRA, which currently covers 66 wards (http://www.address.go.tz/). This initiative is expected to cover 711 wards from 37 Councils which includes Capital Cities, Strategic areas, Central Business Districts and other high revenue generating areas. The activities under this initiative involves development of digital maps; naming of roads/streets and installation of Signage and house number plates; data collection; enhance/update of the national Address Database; Prepare/review of policies and regulations; ICT works; awareness and capacity building. The NSDI, or digitized map with multiple different layers, will provide a platform on which information can be layered to support key activities such as the national digital ID, and spatial maps for national development. The fieldwork for the mapping would be carried out by government officials working under the guidance of the Ministry (TCRA and Tanzania Post). Ground mapping and photography would be supplemented by commercial firms recruited competitively to assist with digital mapping using remote sensing data from satellites and aerial photography. Activities to be funded would include supply of good, services and coverage of operational costs.

b. Development of a national ICT statistical management information system

This activity aims to provide complete, accurate and current statistical data for ICT in the country to support policy decisions for national development. This data would be collected, for instance, by carrying out household ICT surveys, building on the survey carried out in 2017 by the WBG in conjunction with the National Bureau of Statistics (NBS), with funding from the Digital Development Partnership (DDP)23 will be used by the NBS for national reporting. In addition, it will facilitate investment growth in the ICT sector by providing useful data to potential investors. The funding will be used to support development of electronic management system, establishment of necessary frameworks for enhancing ICT statistics availability and to commission further surveys for key ICT indicators under the guidance of NBS.

c. E-Commerce initiatives for Tanzania Post

This activity is intended to assist Tanzania Post to catch up with recent technological developments and participate more actively in the delivery of e-Commerce. The initiative will later allow integration with Global e-commerce including the Universal Postal Union's (UPU) Ecom@Africa initiative. The Initiative seeks to make Tanzania a hub for e-Commerce in the region, and will enhance e-business growth and the participation of citizens in the digital economy.

While specific priority activities have been identified, the design of the component is intended to remain flexible, allowing the project to respond to new challenges and opportunities as they arise in this fast-changing sector. There may be a requirement for some additional enabling legislation to promote the development of e-Commerce in Tanzania, and this will be tracked under the regulatory scan in ICT Regulatory Scan and Review Activity. The primary costs to be borne under this sub-component are the use of consultants for the development of the national e-commerce platform, to assess the country's e-com readiness and a scan of legal and regulatory environment (to complement the scan mentioned above).

Component 2. Digital Connectivity

This component's aim is to ensure that all Tanzanians can access high speed broadband connectivity. Widespread, affordable and reliable connectivity is an essential pre-requisite to providing and accessing digital services for socio-economic development. In addition to the measures to boost sector competitiveness and private network investment under Component 1, there is a need for more direct investment to meet the connectivity needs of government and the private sector and also to create incentives for the private sector to close the digital divide in internet service provision between urban and rural populations, under a mobilizing finance for development (MFD) approach. This component will support the Government's agenda for industrialization and equitable spatial development, ensuring that all Tanzanians, including those in rural areas, have equivalent access to digital services and opportunities. This will be supported through two sub-components.

Sub-component 2.1 Enhancement of Government ICT Connectivity

This sub-component will support the connection to high-speed broadband of those Ministries, Departments and Agencies (MDAs), Local Government Authorities (LGAs) and other Government Institutions that are current unconnected, or have only slow speed connections to the Government Network (GovNet). This sub-component will build on the successful connectivity program, initiated under RCIP-TZ, under which some 72 MDAs and 77 LGAs were connected to GovNet. This sub-component aims to connect a further 200 institutions including LGAs, Regional Office, Regional Hospitals, District Hospitals; and other MDAs to high-performance internet services. Given that the extension of digital connectivity within the country is paramount, a reliable and robust ICT backbone Infrastructure is a necessity. In view of this, the project will support enhancement of GovNet to provide resilience routes as well as extending coverage of the national backbone to areas needed by telecom operators and other communication service providers for provision of services to citizens and businesses.

Furthermore, Digital Tanzania will fund the pre-purchase of bulk internet capacity of at least 1.5 Gbps per location for ten years (i.e. as an "indefeasible right of use" (IRU) contract,

sometimes called "dark fiber"). The capacity will be used by MDAs and LGAs to facilitate government service delivery. The pre-purchase of bulk international bandwidth is targeted at priority user groups such as schools, universities, hospitals, e-Government use etc. By supporting these targeted user groups to access cheaper capacity, it will allow them to grow their consumption in line with their actual demand (currently constrained by the prohibitive cost of capacity). This in turn will increase the viability of international infrastructure and in particular increase the usage of submarine cable infrastructure, The pre-purchase of bandwidth would be carried out through competitive tendering for IRU contracts which would be carried out in lots, with one lot covering the provision of international internet bandwidth and other lots covering different regions of the country (for instance, four zones, to be awarded in phases). The preferred technology to connect the government institutions would be fiber optic cable, but where this is not immediately available, temporary solutions using microwave, satellite or 4G mobile broadband could be considered. The bandwidth contracts on offer from government should provide an incentive for operators to upgrade their networks to fiber, over time. Companies winning the contracts funded by IDA would be required to apply relevant WBG environmental and social framework standards for all construction works carried out to extend their networks in the zones served under the project.

Sub-component 2.2 Rural Broadband for Development

This sub-component will build on the successful rural connectivity program supported under RCIP-TZ by extending data-enabled (4G or higher) network coverage to the three million people currently living in areas of the country that are currently unserved by any mobile cellular signal and will upgrade existing 2G networks to 4G and above. This will encourage participation in digital economy development and will help those rural areas that have previously been unable to participate in online learning or remote meetings to do so. This program will be conducted in collaboration with the Universal Communication Service Access Fund (UCSAF) and will draw upon lessons learned from the RCIP-TZ program, for instance to refine the delivery mechanisms for incentives to encourage private sector investment in rural areas by using network roaming. The activity will also make use of "TV white spaces" spectrum for enhancing broadband coverage in the underserved areas. This will require a consultant study to provide a thorough spectrum analysis to visualize the scope for using TV white spaces spectrum in rural areas and thus to provide policy and regulatory guidance on the use of this spectrum.

The mechanism proposed to be used in this intervention is a "reverse auction subsidy", similar to the one used under RCIP-TZ, and as used in multiple WB programs, such as Niger Smart Villages (P167543) and Digital Malawi (P160533). UCSAF would designate geographical zones (in clusters, or lots) where interested bidders (such as mobile operators, cell tower companies,

high-altitude platform services etc.) would be invited to bid competitively for the lowest viable subsidy to capital expenditure that would be required for them to provide, or upgrade, service in the designated zones. Thus, IDA funding would be used to leverage funds from UCSAF (using funds contributed to the Universal Service Fund) and from the private sector, under a mobilizing funds for development (MFD) approach. Under the RCIP-TZ program, an IDA contribution of US$30m leveraged private sector investment of around US$70m and brought some 2.5 million people under mobile signal coverage for the first time. This would be a significant contribution to mobilizing finance for development (MFD) from the project, but these sums are not included in the data sheet because the sum will only be known once the bidding process is completed and because there is no commitment, nor requirement, from the private sector to contribute a specific amount. A further challenge to extending rural broadband is the fact that mobile phone use is generally in advance of rural electrification. Under RCIP-TZ, solar power arrays were used, with battery storage. A similar approach will be used, taking advantage of the huge advances in solar power technology that have taken place in the last decade, and collaborating closely with the IFC programs for Scaling Solar and Lighting Africa.

Activities to be funded under this sub-component includes a) a study on the scope for using TV White Spaces spectrum; b) a study to define the modality to be used for the reverse subsidy auctions, and to define a program operational manual to govern awards, and to monitor the implementation of awards; c) a series of reverse subsidy auctions, open to competitive bidding, in areas designated by UCSAF. Winning bidders benefitting from capital expenditure subsidies under the project would be obliged to abide by relevant WB safeguards standards in any civil works carried out (e.g., construction of cell towers).

Component 3. Digital Platforms and Services

Component 3 seeks to enhance the core infrastructure and capacity necessary to support digital public service delivery, enhance the efficiency of the Government's internal operations and to rollout priority digital productivity platforms and public services. Progress has been made in recent years in developing digital services and elements of a shared services platform (mobile services portal, SMS gateway, government e-payment gateway, etc.), strengthening of the e-Government Authority (eGA) and deployment of digital productivity tools for government (first phase of e-Office, introduction of one-stop government digital service delivery centers (Huduma Centers), initial digitalization of records, revenue management, etc.). However, various MDAs and LGAs still operate stand-alone IT systems and infrastructure, spending considerable financial and human resources to develop, implement, and operate each separate digital service. This creates significant financial, operational and security liabilities for institutions ill-suited to cope with them. In addition, the Government lacks sufficient human resources to meet increasing IT demands, and adequate policies, practices and an effective IT infrastructure to deploy high quality digital services in a fast, secure, reliable

and cost-effective manner, under a "whole-of-government" approach. ICT skills development under this sub-component is intended to service government institutions and industrial sectors that are in need of high skills for operations underway in the country.

Increased access to affordable, high-quality connectivity will create an opportunity to enhance the way the government conducts its business and provides services to citizens using digital technologies. Offering public services through mobile and online platforms can create significant benefits to citizens who might otherwise need to travel long distances and spend significant time and resources to access those services. This is particularly important for Tanzania's rural residents who may lack access to public transport and quality roads but are much more likely to have access to a mobile phone. Likewise, digital platforms offer opportunities to deliver new categories of services and transactions such as digital cash transfers under social protection or payroll schemes, lower administrative and logistical barriers to service delivery, and reduce scope for corruption. This Component will include the following three sub-components.

Sub-component 3.1 Digital Services and Productivity Platforms

a. One Stop Service Centers (Huduma Jamii Centres)

This activity will seek to improve existing processes and procedures for offering government services to citizens and small businesses by establishing 31 One Stop Service Centers (OSSC, or Huduma Jamii in Swahili), of which up to 10 will be implemented in the first two years of the project (8 on mainland and 2 in Zanzibar).These centers will be designed for citizens to access public services in a simple, speedy and seamless manner in one location which may be operated, for instance by a post office, a community association or a local entrepreneur. A feasibility study was completed in November 2020, with funding from the African Development Bank, and provided recommendations for the implementation of the activity and the location of the OSSCs. The study notes that, currently, to establish a business, an entrepreneur would need to visit five separate parts of Government (BRELA, TRA, relevant ministry and LGA and MITI), and visit a bank to make payments at each stage. The aim would be to facilitate the process through a single visit to a single government portal, facilitated by an OSSC. The OSSC will provide both informational and transactional services. By the end of the project, it is planned that up to 32 Government services will be provided. The feasibility study proposes to use a processing fee (less than 5 per cent of the cost of a given service) as a means of financing the OSSC. While these services could also be accessed from a website, the OSSC would provide an intermediary service to assist citizens in navigating the relevant steps, would accept payments and provide printing and additional services.

In line with the draft budget presented in the feasibility study, the activities to be funded under this activity will include consultant fees, in particular for business process improvement. Other

activities to be funded include Supply of ICT goods and services, and rehabilitation of the existing buildings (for instance, internal wiring and repartitioning of rooms). Training of operational staff will also be required, notably for cybersecurity awareness and good practice. The project will work with existing government buildings and any civil works conducted will be subject to World Bank environmental and social safeguards standards.

b. Digital Economy

This activity, under the Ministry of Finance and Planning (MoFP), and the Tanzania Revenue Authority (TRA), a semi-autonomous body under the MoFP), will focus on enhancement of financial/payment systems by strengthening regulations pertaining to digital financial transactions, in collaboration with the Bank of Tanzania (BoT), and enhancing the National Payment System (NPS). By establishing skills and systems that better serve the digital economy, this activity should contribute to increasing revenue for the Government. This activity will require consultant services and purchase of ICT goods and services, including software development and cybersecurity consultancy.

Sub-component 3.2 Data Center Infrastructure

This activity aims to enhance the National Data Centre Infrastructure by acquiring storage, networking equipment, and computing resources for the government shared platform. It also seeks to enable cost effective sharing of resources, increasing the reliability of electronic services offered by government and enhancing the storage of government data as well as creating efficiency in sharing and accessing government applications through shared cloud infrastructure. This activity will require consultant services, purchase of ICT goods and services and additional training, notably on cybersecurity awareness and good practice, with a focus on good practice on energy efficiency and use of renewable energy. For highly sensitive government data and confidential private data, local data storage hosting on a government cloud may be required. For this purpose, an existing government data center, recently constructed, will be used and enhanced with additional security and data storage capacity.

Sub-component 3.3 Digital Literacy and Capacity-Building

a. Government ICT cadre training program

This activity seeks to build the capacity of the ICT professionals within Government for managing and supporting existing and future government ICT systems (supply side) based on an ICT skills gap assessment conducted in all Ministries in 2018. The project foresees the training of specialized ICT skills for up to 500 ICT experts from the Ministries and will also include longer courses (master's degrees) at top-level universities. Synergies will be sought with the National Center for ICT Professional development supported under subcomponent 1.1 to make sure the appropriate programs are developed to support ICT professionals in the public sector or with interest in government jobs. Civil servants benefitting from training

overseas will be required to have worked already for the government for several years and to sign contracts to stay within government for a certain minimum length of time, or to commit to repaying part of the costs of the training. The selection framework will be prepared and included in the Project Implementation Manual (PIM). This is intended to reduce the level of brain drain from government. Training for e-service operation will be provided in the specific activities of the sub-project.

b. Citizen Digital Literacy

An awareness program intended to raise the level of utilization of online government services will run for the entire duration of the Digital Tanzania project. It will include, but not be limited to, social media, TV and radio programming to promote e-Government services; TV adverts and short video clips; print media campaign; dissemination of publicity materials; workshops and seminars (for media and the public). Other activities that will be supported are digital forums, conferences, exhibitions and different digital competitions among youth in order to strengthen digital involvement and contribution in innovations and creativity. The activity intends to increase digital literacy in terms of increased awareness and usage of digital services by citizens, with specific consultations with Government and local stakeholders to ensure that women's engagement with citizen services are accounted for. Activities to be supported under this sub-component include workshops, consultant services and training.

Component 4: Project Management

This component will support essential project management functions, covering primarily staff costs and operational costs. The Government, through MCIT and PO-PSMGG, will establish a single project implementation unit (PIU) which will be responsible for supervising operations. The PIU will comprise an overall project coordinator, a digital government services specialist, an ICT technical specialist/technical assistance officer and specialists in procurement and financial management as well as safeguards specialists. It will also include funding for strategic communications, monitoring and evaluation, internal audit, logistics and operational overhead, gender inclusion and diversity. Further to this it will include capacity building for beneficiary agencies, such as UCSAF and eGA, on the preparation of bidding documents and contracts specifically for procurement of ICT, which often includes both goods and services in a single contract. The activities of the PIU will be defined within the project implementation manual (PIM) which has been developed for this project.

Component 5: Contingent Emergency Response Component

The project includes a Contingent Emergency Response Component (CERC) with an initial zero value, which may be financed during project implementation to allow for an agile response to eligible crises and emergencies. Establishing this component at the program outset provides flexibility to respond to crises as they arise. These could include, for instance,

humanitarian crises which require the provision of emergency communications services to replace facilities that have been damaged, or to facilitate emergency humanitarian payments using mobile money. The primary issue at the time of writing is the Coronavirus (COVID-19) pandemic which requires an urgent response, for example in the form of additional broadband internet capacity for Government offices, especially health centers and hospitals, and for Government employees working from home. Eligible situations, scope and modalities of the CERC will be defined in the Project Implementation Manual.

3. Project Activities and Safeguards

The DTP will support subprojects and activities that are likely to generate some unfavorable and site-specific environmental and social impacts. However, the exact nature of sub-projects, their location, and core areas of impacts, extent, magnitude, and duration of impacts caused by the various types of investments are yet to be specified to a detailed level where an Environmental and Social Impact Assessment (ESIA) and or an Environmental and Social Management Plan (ESMP) can be developed for approval under the national regulations.

The WB Environmental and Social Framework institute a requirement for appraisal prior to approval of funding. The World Bank Environmental and Social Standards relevant for the by DTP are ESS 1: Assessment and Management of Environmental and Social Risks and Impacts, ESS 2: Labor and Working Conditions, ESS 3: Resource Efficiency and Pollution Prevention and Management, ESS 4: Community Health and Safety, ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement, ESS 6: Biodiversity Conservation & Sustainable Management of Living Natural Resources and ESS 10: Stakeholder Engagement & Information Disclosure. Against this backdrop, this ESMF establishes a mechanism to conduct environmental and social screening. In addition, it intends to develop compliance tools in the form of ESIAs and ESMPs to ensure that the requirements of the national obligations and World Bank Environmental and Social Standards that are relevant to the DTP are addressed.

Furthermore, consistent with the applicable Tanzanian legislations, the ESMF sets procedures and methodologies for the environmental and social planning, review, approval and implementation of interventions to be financed under the DTP, identifying roles and responsibilities and determining capacity needs for effective implementation. In order to address all the project related activities and safeguards, the environmental, social experiences, and lessons learnt from the implemented RCIP-TZ are fully taken into consideration in this ESMF for the DTP.

4. General Environmental and Social Impacts of DTP

The implementation of the DTP will potentially result into positive and negative impacts as outline below:

a. Potential biophysical impacts such as:

- Alteration of protected areas;
- alteration of terrestrial and aquatic habitats;
- disruption of avian migration, injuries and/or fatalities;
- lighting strikes on the cell towers;
- landscape and visual impacts;
- air emissions;
- electronic wastes and hazardous substances management;
- Non-hazardous Waste
- noise emission and vibrations;
- electric and magnetic fields;
- contaminations (water and soil resources) from spills, leakages, and accidental release of fuels;
- Sanitary wastewater from the constructed/rehabilitated IT facilities and the workers working in these facilities
- increased energy consumption and
- Land Destabilization and Erosion.

b. Potential socio-economic impacts

- disturbance on vulnerable communities;
- physical and/or economic displacement and land use change;
- impacts and/or disturbances on cultural and archaeological sites;
- public safety concerns;
- occupational health and safety concerns during both construction and operational phases; and
- aircraft safety in relation to erecting of new cell towers under the project.

c. Positive impacts

- Direct and indirect employment opportunities and business opportunities for both rural and urban dwellers;
- economic growth and livelihoods diversification from increased and secured e-economy;
- improved public service delivery and efficiency from improved ICT infrastructure and connected government institutions;
- expanded rural and urban connectivity to ICT and access to services;
- shared towers allowing price and service advantages to consumers through competition, unlike many other public utilities;
- capacity building and skills development;
- greatly extended geographic and socio-economic range of non-voice or data services; and
- declining costs for access to various public services.

Moreover, integration of environmental enhancements in the design of DTP can also result into environmental benefits. Potential enhancements may include:

- increased recycling of waste materials;
- reduced carbon emissions by avoiding unnecessary travels for meetings and other activities;
- investment in new technology that does not contain hazardous materials; and
- environmental awareness regarding the use of local material supply in a sustainable manner.

5. Stakeholders Engagement

During the development of this ESMF, the Consultant conducted thorough stakeholders' consultations with key implementing agencies that will be directly responsible for the DTP. Although DTP was expected to cover the whole country from the national to local levels, but given the limited duration of the assignment, consultations were done in Dar es Salaam and Dodoma, mainly with the implementing, coordinating, and operating public and private institutions at national level.

The main stakeholders consulted included:

(i) Ministries
- President's Office, Regional Administration and Local Government (PO-RALG);
- President's Office, Public Service Management and Good Governance (PO-PSMGG);
- Vice President's Office, Division of Environment (VPO-DoE);
- Ministry of Communication and Information Technology (MCITs);
- Ministry of Industry, Trade and Investment (MITI);
- Ministry of Education, Science and Technology (MOEST); and
- Ministry of Lands, Housing, and Human Settlement Development (MLHHSD)

(ii) Government agencies and/or authorities
- Information and Communications Technology Commission (ICTC);
- Universal Communications Services Access Funds (UCSAF);
- e-Government Authority (eGA);
- Tanzania Telecommunications Corporation (TTC);
- Public Procurement Regulatory Authority (PPRA);
- Registration, Insolvency and Trusteeship Agency (RITA);
- Tanzania Revenue Authority (TRA);
- Tanzania Communications Regulatory Authority (TCRA); and
- Tanzania Postal Corporation (TPC)

(iii) Environmental regulator
- National Environment Management Council (NEMC);

(iv) Higher learning institutions
- University of Dodoma (UDOM);
- University of Dar es Salaam (UDSM); and

- Dar es Salaam Institute of Technology (DIT)

(v) National hospital
- Muhimbili National Hospital (MNH)

(vi) Private companies providing network
- Vodacom, Airtel, Tigo/MIC, and Halotel

(vii) Registered e-waste dealers
- Chilambo General Trade Company Ltd

a. Stakeholders' Key Concerns

In general, stakeholders have a positive attitude towards the DTP and have promised supporting development and implementation of the program. However, their key concerns registered during consultation meetings include:

- timely provision of permits;
- incorporation of lessons learnt from RCIP-TZ;
- construction of supporting infrastructure;
- land take/acquisitions and compensation modalities;
- e-waste generation and management;
- stakeholder engagement and awareness creation;
- project sustainability;
- improvement of government services and communications;
- ICT and industrialization;
- environmental pollution (air and land); and
- Occupational health and safety hazards.

b. Environmental and Social Management Tools and Procedures

In order to ensure that the planned DTP's sub-projects have a mitigation effect on impacts that may be generated during implementation phase. The DTP-PIU and respective direct implementing agency shall deploy these tools to ensure that environmental and social concerns are integrated into a decision-making process and fosters desirable project outcomes in all spheres.

The tools are mainly:

i. Environmental and Social Screening;
ii. Environmental and Social Management Plans (ESMP); and
iii. Environmental and Social Impact Assessment (ESIA).

6. Implementing Agencies

The MCIT and PO-PSMGG are overall coordinating and implementing agencies. The direct implementation of the proposed sub-projects resides with the respective institutions. Furthermore, it is recommended that an Environmental and Social Specialists be assigned to the executing agency to undertake a thorough screening of the project(s) and oversee implementation of the ESMPs.

a. Screening and Review Process

The screening of sub-projects to be implemented within the DTP a dedicated screening procedure as follows.

i. Application of the Exclusion Criteria
ii. Determining the Environmental and Social Risk Rating which will involve.
    a. Identifying the Scale of the Works
    b. Assessing Site Sensitivity
    c. Identifying the Environmental and Social Risk Level
iii. Definition of required level of effort

b. Assessment and classification of impacts
c. Identifying alternatives to sub-project design

7. Appraisal and Monitoring Process

a. Appraisal and Approval

For High risk sub-projects requiring an EIA: The Client (PIU) must review the EIS prior sending to the bank for approval. The PIU will then submit a copy of the EIS to the relevant authority (that is, NEMC) including WB for review and approval. For sub-projects that may result into involuntary resettlement or displacement, the Proponent is also required to submit a RAP to the relevant authority including WB for approval.

For Substantial Risk, Moderate Risk and Low Risk sub-projects that require an ESMP
The Client will submit a copy of the ESMP to the relevant environmental authorities and to the executing agencies (MCIT and PO-PSMGG) and World Bank. activities will encompass all

Criteria for Approval

- For those EIAs that have been reviewed by the PIU and approved by NEMC that meet the country's EIA requirements an environmental permit can be granted.
- For those EIAs that do not meet the country's EIA requirements an environmental permit is rejected, and the relevant environmental authority may choose to carry out an audit.

b. Disclosure of Sub-Project Information

In compliance with World Bank's ESF and national EIA and Audit Regulations, before a sub-project is approved, the applicable documents (EIA, ESMP, and/or RAP) must be made available to the public for review at a place accessible to local people (e.g. at a district council office, relevant environmental authority) in a form, manner, and language they can understand.

c. Annual Monitoring Reports

Monitoring and Evaluation (M&E) of the ESMF is an integral part of the overall M&E programme developed for DTP. The overall programme (M&E) developed for the DTP will include indicators for monitoring impacts and evaluating outcomes against the PDO. In addition, M&E of subprojects will be carried out by PIU staff or consultants. The direct implementing institutions all have a responsibility mandated to monitor and evaluate their operations as set out in the DTP.

Therefore, each implementing agency will monitor and evaluate its sub-project activities as well as ensure that impact monitoring and management set out in ESMP and ESIA as developed in their areas are complied with. Nevertheless, M&E of the sub-projects and related activities will be performed periodically, at least twice a year, with an annual report submitted to the MCIT, PO-PSMGG, NEMC and the WB. Depending on the nature of the project activities and availability of funds, and or need for close follow ups, more frequent monitoring visits can be made to projects that show any signs of risks or negative impacts.

In order to achieve a smooth implementation plan, the PIU at the MCIT in collaboration with the direct implementing agencies will develop terms of reference and cost and include M&E for any additional surveys or assessments proposed prior to conduct an ESIA and or ESMP.

The PIU shall hire an independent firm which have a Supervision Engineer, Environmental Specialist, Social Specialist, Occupational Health and Safety Specialist to monitor and review on-site implementation of the E&S measures.

a. Environmental and Social Impact Assessments (ESIAs)

For High-Risk sub-projects requiring an EIA:

The Client will submit a copy of an Environmental Impact Statement (EIS) to the relevant authority (that is NEMC) for review. The EIS should include all relevant information as per Tanzania's EIA and Audit regulations and WB ESF and ESS requirements for ESIA. For sub-projects that may result into involuntary resettlement or displacement, the proponent is also required to submit a RAP to the relevant authority for approval. This is explained in more detail in the DTP's RPF prepared alongside this ESMF.

b. Environmental and Social Management Plans (ESMPs)

For Substantial and Moderate Risk sub-projects that require an ESMP:

The Client will submit a copy of the ESMP to the relevant environmental authorities and to the executing agencies (MCIT and PO-PSMGG) and World Bank. The objective of the ESMP is to cater for the environmental and social needs of the project in a simple, responsive, and cost-effective manner that will not unnecessarily overload or impede the project cycle. The ESMP is supposed to outline the measures needed to address the issues identified during the EIA study. Moreover, a good ESMP should demonstrate that the proposed monitoring activities will encompass all major impacts and identify how they will be integrated in the project supervision.

The ESMP, therefore, should address the following issues as a minimum for projects that require ESMP clearance:

- Main environmental and social mitigation measures;
- Environmental training and capacity program; and
- Environmental and social monitoring program.

The ESMP should include the following typical contents:

- Potential environmental, social and Health and Safety impacts related to siting, construction, and operation of the sub-project;
- Mitigation and monitoring measures to address potential impacts;
- Responsibilities for monitoring ESMP requirements;
- Training and capacity-building requirements for project workers, officers and communities; and
- Estimated budget.
- Environment and Social requirements incorporated into sub-project bids and contracts

c. Capacity Needs to Implement the ESMF

Experience from the completed RCIP-TZ suggests that there is a need to ensure that adequate capacity is put in place to implement and monitor the performance of the ESMF (and RPF) for DTP. In view of this, the following are strongly recommended:

i. An Environmental Specialist and a Social Specialist be recruited in the PIU by the MCIT as part of DTP. The Specialists will report to the main bodies responsible for execution of the Project. In order to contribute to the realization of the project's objectives, the Specialist will have the following roles:
    - Preparing, together with the implementing entities, annual work programs and budgets;
    - Screening subprojects in relation to E&S aspects
    - Review and approve of C-ESMP
    - Provide training to subproject Contractor E & S personnel on the overall management of ESHS risks in the project implementation

- Monitoring project progress as it relates to compliance with the ESMF guidelines, resolving implementation bottlenecks, and ensuring that overall project implementation proceeds smoothly;
- Collecting and managing information relevant to the project and accounts (i.e. environmental monitoring and audit reports); and
- Ensuring that the implementing bodies are supported adequately and that they adhere to the principles of the project and specific compliance with ESMF requirements.

ii. The MCIT should conduct a Training Needs Assessment (TNA) and develop a training plan to ensure the effectiveness of the DTP implementation in various implementing partner institutions/agencies and LGAs. Primary focus of the TNA should be placed to all Environmental and Social Specialists/Focal Persons who will be involved in and/ or have responsibilities in the implementation of the DTP sub-projects, particularly for ESIAs and or ESMPs. This has to be integrated into an overall DTP's institutional capacity building aspect.

iii. The Environmental and Social Specialists from implementing agencies (MCIT, PO-PSMGG) should be provided with a training on implementation and monitoring of the ESMF. This training will ensure that the specialists are able to manage and monitor the Environmental, Social and Health & Safety aspects of the DTP sub-project activities.

iv. MCIT should consider appointing an 'on-call' archaeological monitor (the "DTP archaeologist") who will advise on "chance finds" and any other cultural heritage issues arising from the implementation of activities under the DTP.

v. The PIU shall hire an independent firm which have a Supervision Engineer, Environmental Specialist, Social Specialist, Occupational Health and Safety Specialist to monitor and review on-site implementation of the E&S measures.

d. Training Needs Assessment

The MCIT will conduct a Training Needs Assessment (TNA) and develop a training plan to ensure effectiveness of the DTP implementation in various implementing partner institutions/agencies and LGAs. Primary focus of the TNA should be placed on all those will be involved in and or have responsibilities in the implementation of the DTP sub-projects, particularly for ESIAs and or ESMPs. It is proposed that NEMC or an experienced national private or public environmental and social practitioner carry out the environmental management/EIA training needs assessments. This has to be integrated into an overall DTP institutional capacity building aspect.

e. Budget for ESMF Implementation

The proposed budget for implementation of the measures and recommendations outlined in this ESMF for DTP is currently estimated at US$ 970,000 as a ballpark figure.

1. INTRODUCTION

1.1 Project Background

The Government of the United Republic of Tanzania (URT) through the Ministry of Communication and Information Technology (MCIT) is preparing the proposed Digital Tanzania Project intended to be financed by a support from the World Bank (WB). The programme aims to assist the country to harness its digital potential by ensuring that all citizens have access to high quality and low-cost connectivity, ensuring that public services are easily accessible online and that the digital economy is driving growth, innovation, and job creation. The project development objective (PDO) of the first phase - the *Digital Tanzania Foundations Project* – is to **increase access to affordable, high quality internet services for government, businesses and citizens and to improve the government's capacity to deliver digital public services and create jobs.**

The proposed DTP builds on the very successful Regional Communications Infrastructure Programme – Tanzania (RCIP-TZ) that has been completed. The RCIP-TZ development objectives were to: (i) lower prices for international capacity and extend the geographic reach of broadband networks; and (ii) improve the government's efficiency and transparency through eGovernment applications.

The overall PDO for the two phases of the Digital Tanzania Project series of projects is to contribute to universal access to the internet and digital public services and to facilitate private sector led digital investment, services and job creation. The project will be implemented in two phases with a five-year period for each phase. Phase I will commence in 2021 to 2025 and Phase II will run through 2024 to 2029. The project is envisioned to equip citizens and businesses with the capability to use technology for livelihoods improvement and thrive in the current and future digital economy.

As part of the preparations for DTP, and in compliance with the World Bank's Environmental and Social Standards, the existing Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) for RCIP-TZ have been updated and used appropriately for DTP. The ESMF provides guidelines for the management, assessment and mitigation of environmental and social concerns that meet National and World Bank's requirements such as Environmental and Social Impact Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs). An updated RPF intended to address the needs of the environment and communities who may be affected by the DTP has been prepared alongside this ESMF.

This ESMF is complimented by the following instruments which have been prepared prior to appraisal of the project:

- Resettlement Policy Framework (RPF);

- Stakeholder Engagement Plan (SEP); and
- Environmental and Social Commitment Plan (ESCP).

Which are to be prepared prior to project effectiveness:

- Vulnerable Groups Planning Framework (VGPF); and
- Labour Management Procedures (LMP).

1.2 Objectives and Rationale of the ESMF

The objective of this ESMF is to ensure that the implementation of DTP is carried out in an environmentally and socially sustainable manner. ESMF aims to provide clear guidelines and mitigation measures so as to avoid, manage or minimize potentially negative environmental and social impacts associated with DTP activities. Therefore, specific objectives include:

- Identifying and assess the potential Environmental, Social and Health & Safety impact of the proposed DTP on different livelihood sources;
- Specifying appropriate roles and responsibilities and outline the necessary reporting procedures for managing and monitoring Environmental, Social and Health & Safety concerns related to sub-projects;
- Establishing clear procedures, directives and methodologies for the environmental and social screening, planning, review, approval and implementation of sub-projects that will be supported under the DTP; and
- Determining the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF.

This ESMF is a mechanism that is meant to establish a process of environmental and social screening which will permit the MCIT to identify, assess, mitigate, and monitor the environmental and social impacts of interventions under the DTP. It is also sought to prepare the required safeguard instruments. The frameworks will include criteria for the selection of sites for the construction/modification/rehabilitation activities of the projects under the Programme and for the design of environmental and social impact mitigation measures. The Environmental and Social Management Plans (ESMPs), Environmental Monitoring Plans (EMPs) and Resettlement Action Plans (RAPs) will be required for any sub-project as per the applicable Environmental and Social Standards (ESSs) and, in accordance with the relevant local legislation for Tanzania. In this regard, therefore, this ESMF provides a mechanism for ensuring that environmental and social concerns are addressed in the course of selection and implementation of the DTP activities.

1.3 Approach and Methodology

1.3.1 Desk survey

Updating of the ESMF relied on an analysis based on available information – under RCIP-TZ, including the recent Audit Report for Environmental and Social Compliance for project

activities implemented under the RCIP-TZ. The content and structure of the ESMF have been updated to reflect the DTP requirements. The update also addressed the national and World Bank requirements for environmental and social standard documents that might have been introduced since the RCIP-TZ safeguard documents were prepared in 2009. A list of such new requirements has been included in the reference list of this updated ESMF for DTP.

In addition, relevant national policies, legislation, national development strategies and plans were reviewed to understand the policy, legal and institutional context. WB Environmental and Social Standards (ESSs) were also consulted to establish what ESS would be applicable and its implications.

1.3.2 Stakeholders consultations

The DTP covers a wide range of stakeholders across the country from national to local levels. This includes government Ministries, Departments and Agencies (MDAs), Local Government Authorities (LGAs), private sector and academic institutions, villages and communities across the country. Given the time limitation for the assignment, high level stakeholders' consultations primarily focusing on MDAs and implementing partners responsible for coordination, support and implementation of DTP as presented in *Table 1* was undertaken.

Chapter 6 presents further details on stakeholders' consultations and public involvement. Minutes of meetings among the relevant institutions and of consultations were recorded and annexed to this ESMF as appropriate (see *Annex II & III*). Also, signatures of all consulted stakeholders are included in *Annex IV*.

1.3.3 Public Disclosure of Updated ESMF

The MCIT disclosed the updated ESMF in print media and websites as per the requirements of the World Bank. Another role played by MCIT was a disclosure of draft documents, sending out of invitations, organization of venues for public hearings, and being present as discussant in all public hearings.

1.4 Structure of the ESMF

This ESMF is organized into nine substantive chapters and annexes as follows:

- Chapter 1: Introduction;
- Chapter 2: Project Description and Organization;
- Chapter 3: Principles Guiding Action: ESF Standards, Legislations and Institutional Framework;
- Chapter 4: Potential Environmental and Social Impacts;

- Chapter 5: Sub-projects Screening, Review, Approval and Implementation;
- Chapter 6: Stakeholders Engagement and Public Disclosure;
- Chapter 7: Capacity to Implement the ESMF;
- Chapter 8: References; and Annexes.

2. PROJECT DESCRIPTION AND ORGANIZATION

2.1 Rationale of the DTP

The proposed DTP will follow on, scale up and complete some of the pilot programmes that begun under RCIP Tanzania. This also may introduce some new areas of work that embraces the enabling aspects of industrialization, employment, provision of government services to citizens and steady economic growth.

The proposed DTP is geared to address the existing challenges that include, but not limited to, Information and Communication Technology (ICT) infrastructure deficiency, systems integration impediments, scope for e-services, inadequate infrastructure to secure transactions, increasing electronic waste products and technical capacity for MDAs/LGAs to customize electronic systems. In addition, the project intends to broaden the achievements realized in other initiatives done by the government that include National ICT Broadband Backbone (NICTBB), RCIP, TANZICT, and Public Service Reform Programme (PSRP)-II.

In addition, the government has decided to move its operations to Dodoma (around 450km from Dar es Salaam) at the central part of the country. The move imposes several requirements in area of ICT infrastructure, platform and applications that will ensure reliable communication between the capital city and business city (Dar es Salaam). Thus, there is a need for a well digitized platform that will enable sustainability of government communications and service delivery offered through ICT. In order to support the government and its agencies, the Digital Tanzania is geared to establish the necessary ICT infrastructure for connecting Government institutions and deployment of several information systems for enhancing service provision.

2.2 Project Components, Subcomponents and Implementing Agencies

The Digital Foundations Project contributes to three core enablers of digital development: (i) Digital Ecosystem: strengthening the laws, policies, regulations, institutional and human capacity needed to promote ICT infrastructure investment, market competitiveness, digital engagement, job creation, and innovation; (ii) Digital Connectivity: ensuring access to affordable, high quality internet services for all citizens, including in rural areas, and for critical government institutions; and (iii) Digital Platforms and Services: building the technical capacity, skills, institutions, and local digital infrastructure for the Government to deliver services to citizens and conduct its own business digitally.

Component 1: Digital Ecosystem

The aim of this component is to make Tanzania a more attractive and competitive place for digital investment and innovation, ensuring that the benefits of digital technology are reaching all citizens and helping lay the groundwork for growth of the digital economy. This will be accomplished by strengthening the many interrelated elements that characterize a thriving digital ecosystem—helping the Government in drafting forward-looking laws, regulations and policies; building digital skills and capacity of Government institutions and youth; prioritizing gender inclusivity, developing a critical mass of innovators, entrepreneurs, and support services; developing a robust local ICT industry that is founded on private investment and is able to deliver e-Commerce services, and working toward closing the digital divide ensuring that all citizens and businesses benefit from digital development in the long term, especially the poor, women, the elderly and rural areas. These goals will be supported through two subcomponents:

Sub-component 1.1: Digital Enabling Environment

a. Establishment of a National Center for ICT Professional Development and Innovation

The objective of this activity is to develop a national center for ICT professional development and a series of four "soft centers", or tech hubs for youth, entrepreneurs and small and medium-sized enterprises (SMEs) in five zones of the country, to promote local innovation in the country. The implementation of this activity will be carried out in collaboration with higher learning institutions, vocational training institutions and the industry, as well as with the Ministry of Education, Science and Technology (MEST) and the Commission for Science and Technology (COSTECH). This sub-component will require close collaboration with the private sector to assure that newly trained ICT professionals are ready to enter the workforce and have the qualifications and soft skills demanded by private sector companies, including cybersecurity awareness and skills. The project will specifically track the involvement of women in benefitting from the training provided, and promoting internships for young women under the Government-funded program for youth employment. Direct collaboration with the private sector will be sought, including by way of specific on-the-job training programs or internships provided by the soft centers. It is planned that a national center would be established at the ICT Commission in Dodoma and four soft centers will be established, to be housed in training institutions or universities. In principle, the soft centers will be located in four zones namely Northern, Southern, Coastal and Western zones. Criteria for selection of the centers, modalities to coordinate and support the softeners and for monitoring, will be defined in the project implementation manual. The manual would also cover also the FabLabs (see below). The soft centers would be assisted in developing cost-recovery mechanisms for the

services they offer and will need to establish good relations with private sector clients in order to establish longer term sustainability, once the project funds are fully used.

b. Establishment of FabLabs

This activity aims to establish three Fabrication Labs (Fab Labs) for the refurbishment of ICT hardware, and updating of software, to enable the reuse and increased lifetime of ICT equipment, and to complement efforts to distribute ICT equipment to educational institutions. This will contribute towards the acquisition of low-cost ICT equipment for learning purposes. In addition, establishing FabLabs will reduce e-waste and build capacity in Tanzania for reusing and prolonging the lifespan of ICT equipment, which is an important future strategy to tackling e-waste. Up to three FabLabs would be selected through a competitive bidding process. Criteria for monitoring will be defined in the project operational manual. Like the soft centers described above, the FabLabs will need to develop cost recovery mechanisms and to seek private sector support to ensure longer-term viability.

c. ICT regulatory scan and review

Under this activity, the MCIT, in cooperation with the TCRA and in consultation with the licensed operators and with the help of consultants, will conduct a scan of the legal and policy environment in order to identify possible gaps that might be hindering the development of the digital economy in Tanzania, and to review possible responses. This will target broadband implementation and provide recommendations on any new initiatives that may be necessary to create an enabling regulatory, legal and fiscal environment for the Digital Economy. Under this activity, the Ministry will also convene with the TCRA, the Ministry of Health, Community Development, Gender, Elders and Children, to ensure that gender considerations are integrated into this regulatory scan of the digital economy. The results of this regulatory scan should provide inputs to the implementation of the project as a whole, especially the activity on Rural Connectivity subcomponent (2.2). Activities to be funded under this sub-component will include consultants and the costs associated with stakeholder consultations.

Sub-component 1.2: Infrastructure to support National ICT Development and e-Commerce

a. Enhancing the national addressing and postcode system

This is an ongoing activity which will scale up the pilot projects for the National Spatial Data Infrastructure (NSDI), already started and managed by TCRA, which currently covers 66 wards (http://www.address.go.tz/). This initiative is expected to cover 711 wards from 37 Councils which includes Capital Cities, Strategic areas,

Central Business Districts and other high revenue generating areas. The activities under this initiative involves development of digital maps; naming of roads/streets and installation of Signage and house number plates; data collection; enhance/update of the national Address Database; Prepare/review of policies and regulations; ICT works; awareness and capacity building. The NSDI, or digitized map with multiple different layers, will provide a platform on which information can be layered to support key activities such as the national digital ID, and spatial maps for national development. The fieldwork for the mapping would be carried out by government officials, digital interns and students (who would receive expenses and a per diem), working under the guidance of the Ministry (TCRA and Tanzania Post). Ground mapping and photography would be supplemented by commercial firms recruited competitively to assist with digital mapping using remote sensing data from satellites and aerial photography. Activities to be funded would include supply of good, services and coverage of operational costs.

b. Development of a national ICT statistical management information system

This activity aims to provide complete, accurate and current statistical data for ICT in the country to support policy decisions for national development. This data would be collected, for instance, by carrying out household ICT surveys, building on the survey carried out in 2017 by the WBG in conjunction with the National Bureau of Statistics (NBS), with funding from the Digital Development Partnership (DDP)23 will be used by the NBS for national reporting. In addition, it will facilitate investment growth in the ICT sector by providing useful data to potential investors. The funding will be used to support development of electronic management system, establishment of necessary frameworks for enhancing ICT statistics availability and to commission further surveys for key ICT indicators under the guidance of NBS.

c. E-Commerce initiatives for Tanzania Post

This activity is intended to assist Tanzania Post to catch up with recent technological developments and participate more actively in the delivery of e-Commerce. The initiative will later allow integration with Global e-commerce including the Universal Postal Union's (UPU) Ecom@Africa initiative The Initiative seeks to make Tanzania a hub for e-Commerce in the region, and will o enhance e-business growth and the participation of citizens in the digital economy.

While specific priority activities have been identified, the design of the component is intended to remain flexible, allowing the project to respond to new challenges and opportunities as they arise in this fast-changing sector. There may be a requirement for some additional enabling legislation to promote the development of e-Commerce in Tanzania, and this will be tracked under the regulatory scan in sub-component 1.1. The primary costs to be borne under this sub-component are for the development of the national e-commerce platform, to assess the country's e-com readiness, a scan of legal and regulatory environment (to complement the scan under sub-component 1.1).

Component 2. Digital Connectivity

This component's aim is to ensure that all Tanzanians can access high speed broadband connectivity. Widespread, affordable and reliable connectivity is an essential pre-requisite to providing and accessing digital services for socio-economic development. In addition to the measures to boost sector competitiveness and private network investment under Component 1, there is a need for more direct investment to meet the connectivity needs of government and the private sector and also to create incentives for the private sector to close the digital divide in internet service provision between urban and rural populations, under a mobilizing finance for development (MFD) approach. This component will support the Government's agenda for industrialization and equitable spatial development, ensuring that all Tanzanians, including those in rural areas, have equivalent access to digital services and opportunities. This will be supported through two sub-components.

Sub-component 2.1: Enhancement of Government ICT Connectivity

This subcomponent will support the connection to high-speed broadband of those Ministries, Departments and Agencies (MDAs), Local Government Authorities (LGAs) and other Government Institutions that are current unconnected or have only slow speed connections to the Government Network (GovNet). This sub-component will build on the successful connectivity program, initiated under RCIP-TZ, under which some 72

MDAs and 77 LGAs were connected to GovNet. This sub-component aims to connect a further 200 institutions (the exact details on the kms to be covered above or below the ground shall be determined at the Environmental and Social Assessment stage) including LGAs, Regional Office, Regional Hospitals, District Hospitals; and other MDAs to high-performance internet services. Given that the extension of digital connectivity within the country is paramount, a reliable and robust ICT backbone Infrastructure is a necessity. In view of this, the project will support enhancement of GovNet to provide resilience routes as well as extending coverage of the national backbone to areas needed by telecom operators and other communication service providers for provision of services to citizens and businesses.

Furthermore, Digital Tanzania will fund the pre-purchase of bulk internet capacity of at least 1.5 Gbps per location for ten years (i.e. as an "indefeasible right of use" (IRU) contract, sometimes called "dark fiber"). The capacity will be used by MDAs and LGAs to facilitate government service delivery. The pre-purchase of bulk international bandwidth is targeted at priority user groups – schools, universities, hospitals, e-Government use etc. By supporting these targeted user groups to access cheaper capacity, it will allow them to grow their consumption in line with their actual demand (currently constrained by the prohibitive cost of capacity). This in turn will increase the viability of international infrastructure and in particular increase the usage of submarine cable infrastructure, The pre-purchase of bandwidth would be carried out through competitive tendering for IRU contracts which would be carried out in lots, with one lot covering the provision of international internet bandwidth and other lots covering different regions of the country (for instance, four zones, to be awarded in phases). The preferred technology to connect the government institutions would be fiber optic cable, but where this is not immediately available, temporary solutions using microwave, satellite or 4G mobile broadband could be considered. The bandwidth contracts on offer from government should provide an incentive for operators to upgrade their networks to fiber, over time. Companies winning the contracts funded by IDA would be required to apply relevant WBG environmental and social framework standards for all construction works carried out to extend their networks in the zones served under the project.

Sub-component 2.2: Rural Broadband for Development

This sub-component will build on the successful rural connectivity program supported under RCIP-TZ by extending data-enabled (4G or higher) network coverage to the three million people currently living in areas of the country that are currently unserved by any mobile cellular signal and will upgrade existing 2G networks to 4G and above. This will encourage participation in digital economy development and will help those rural areas that have previously been unable to participate in online learning or remote meetings to do so. This program will be conducted in

collaboration with the Universal Communication Service Access Fund (UCSAF) and will draw upon lessons learned from the RCIP-TZ program, for instance to refine the delivery mechanisms for incentives to encourage private sector investment in rural areas by using network roaming (Cell towers and land line (fiber cables). The activity will also make use of "TV white spaces" spectrum for enhancing broadband coverage in the underserved areas. This will require a consultant study to provide a thorough spectrum analysis to visualize the scope for using TV white spaces spectrum in rural areas and thus to provide policy and regulatory guidance on the use of this spectrum.

The mechanism proposed to be used in this intervention is a "reverse auction subsidy", similar to the one used under RCIP-TZ, and as used in multiple WB programs, such as Niger Smart Villages (P167543) and Digital Malawi (P160533). UCSAF would designate geographical zones (in clusters, or lots) where interested bidders (such as mobile operators, cell tower companies, high-altitude platform services etc.) would be invited to bid competitively for the lowest viable subsidy to capital expenditure that would be required for them to provide, or upgrade, service in the designated zones. Thus, IDA funding would be used to leverage funds from UCSAF (using funds contributed to the Universal Service Fund) and from the private sector, under a mobilizing funds for development (MFD) approach. Under the RCIP-TZ program, an IDA contribution of US$30m leveraged private sector investment of around US$70m and brought some 2.5 million people under mobile signal coverage for the first time. This would be a significant contribution to mobilizing finance for development (MFD) from the project, but these sums are not included in the data sheet because the sum will only be known once the bidding process is completed and because there is no commitment, nor requirement, from the private sector to contribute a specific amount. A further challenge to extending rural broadband is the fact that mobile phone use is generally in advance of rural electrification. Under RCIP-TZ, solar power arrays were used, with battery storage. A similar approach will be used, taking advantage of the huge advances in solar power technology that have taken place in the last decade, and collaborating closely with the IFC programs for Scaling Solar and Lighting Africa.

Activities to be funded under this sub-component includes a) a study on the scope for using TV White Spaces spectrum; b) a study to define the modality to be used for the reverse subsidy auctions, and to define a program operational manual to govern awards, and to monitor the implementation of awards; c) a series of reverse subsidy auctions, open to competitive bidding, in areas designated by UCSAF. Winning bidders benefitting from capital expenditure subsidies under the project would be obliged to abide by relevant WB safeguards standards in any civil works carried out (e.g., construction of cell towers).

Component 3. Digital Platforms and Services

Component 3 seeks to enhance the core infrastructure and capacity necessary to support digital public service delivery, enhance the efficiency of the Government's internal operations and to rollout priority digital productivity platforms and public services. Progress has been made in recent years in developing digital services and elements of a shared services platform (mobile services portal, SMS gateway, government e-payment gateway, etc.), strengthening of the e-Government Authority (eGA) and deployment of digital productivity tools for government (first phase of e-Office, introduction of one-stop government digital service delivery centers (Huduma Centers), initial digitalization of records, revenue management, etc.). However, various MDAs and LGAs still operate stand-alone IT systems and infrastructure, spending considerable financial and human resources to develop, implement, and operate each separate digital service. This creates significant financial, operational and security liabilities for institutions ill-suited to cope with them. In addition, the Government lacks sufficient human resources to meet increasing IT demands, and adequate policies, practices and an effective IT infrastructure to deploy high quality digital services in a fast, secure, reliable and cost-effective manner, under a "whole-of-government" approach. ICT skills development under this sub-component is intended to service government institutions and industrial sectors that are in need of high skills for operations underway in the country.

Increased access to affordable, high-quality connectivity will create an opportunity to enhance the way the government conducts its business and provides services to citizens using digital technologies. Offering public services through mobile and online platforms can create significant benefits to citizens who might otherwise need to travel long distances and spend significant time and resources to access those services. This is particularly important for Tanzania's rural residents who may lack access to public transport and quality roads but are much more likely to have access to a mobile phone. Likewise, digital platforms offer opportunities to deliver new categories of services and transactions such as digital cash transfers under social protection or payroll schemes, lower administrative and logistical barriers to service delivery, and reduce scope for corruption. This Component will include the following three sub-components.

Sub-component 3.1: Digital Services and Productivity Platforms

a. One Stop Service Centers (Huduma Jamii Centre)

This activity will seek to improve existing processes and procedures for offering government services to citizens and small businesses by establishing 31 One Stop Service Centers (OSSC, or Huduma Jamii in Swahili), of which up to 10 will be implemented in the first two years of the project (8 on mainland and 2 in Zanzibar). These centers will be established within the existing buildings in which the project will support enhancement of ICT infrastructure within the centers. These centers will be designed for citizens to access public services in a simple, speedy and seamless manner in one location which may be operated, for instance by a post office, a community association or a local entrepreneur. A feasibility study was completed in November 2020, with funding from the African Development Bank, and provided recommendations for the implementation of the activity and the location of the OSSCs. The study notes that, currently, to establish a business, an entrepreneur would need to visit five separate parts of Government (BRELA, TRA, relevant ministry and LGA and MITI), and visit a bank to make payments at each stage. The aim would be to facilitate the process through a single visit to a single government portal, facilitated by an OSSC. The OSSC will provide both informational and transactional services. By the end of the project, it is planned that up to 31 Government services will be provided. The feasibility study proposes to use a processing fee (less than 5 per cent of the cost of a given service) as a means of financing the OSSC. While these services could also be accessed from a website, the OSSC would provide an intermediary service to assist citizens in navigating the relevant steps, would accept payments and provide printing and additional services.

In line with the draft budget presented in the feasibility study, the activities to be funded under this activity will include consultant fees, in particular for business process improvement. Other activities to be funded include Supply of ICT goods and services, and rehabilitation of the existing buildings (for instance, internal wiring and repartitioning of rooms). Training of operational staff will also be required, notably for cybersecurity awareness and good practice. The project will work with existing government buildings and any civil works conducted will be subject to World Bank environmental and social safeguards.

b. Digital Economy

This activity, under the Ministry of Finance and Planning (MoFP), and the Tanzania Revenue Authority (TRA), a semi-autonomous body under the MoFP), will focus on enhancement of financial/payment systems by strengthening regulations pertaining to digital financial transactions, in collaboration with the Bank of Tanzania (BoT), and enhancing the National Payment System (NPS). By establishing skills and systems that

better serve the digital economy, this activity should contribute to increasing revenue for the Government. This activity will require consultant services and purchase of ICT goods and services, including software development and cybersecurity consultancy.

Sub-component 3.2: Data Center Infrastructure

This activity aims to enhance the National Data Centre Infrastructure by acquiring storage, networking equipment, and computing resources for the government shared platform. It also seeks to enable cost effective sharing of resources, increasing the reliability of electronic services offered by government and enhancing the storage of government data as well as creating efficiency in sharing and accessing government applications through shared cloud infrastructure. This activity will require consultant services, purchase of ICT goods and services and additional training, notably on cybersecurity awareness and good practice, with a focus on good practice on energy efficiency and use of renewable energy. For highly sensitive government data and confidential private data, local data storage hosting on a government cloud may be required. For this purpose, an existing government data center, recently constructed, will be used and enhanced with additional security, partitioning of rooms within the existing buildings and data storage capacity.

Sub-component 3.3: Digital Literacy and Capacity-Building

a. Government ICT cadre training program

This activity seeks to build the capacity of the ICT professionals within Government for managing and supporting existing and future government ICT systems (supply side) based on an ICT skills gap assessment conducted in all Ministries in 2018. The project foresees the training of specialized ICT skills for up to 500 ICT experts from the Ministries and will also include longer courses (master's degrees) at top-level universities. Synergies will be sought with the National Center for ICT Professional development supported under subcomponent 1.1 to make sure the appropriate programs are developed to support ICT professionals in the public sector or with interest in government jobs. Civil servants benefitting from training overseas will be required to have worked already for the government for several years and to sign contracts to stay within government for a certain minimum length of time, or to commit to repaying part of the costs of the training. The selection framework will be prepared and included in the Project Implementation Manual (PIM). This is intended to reduce the level of brain drain from government. Training for e-service operation will be provided in the specific activities of the sub-project.

b. Citizen Digital Literacy (US$0.5m)

An awareness program intended to raise the level of utilization of online government services will run for the entire duration of the Digital Tanzania project. It will include, but not be limited to, social media, TV and radio programming to promote e-Government services; TV adverts and short video clips; print media campaign; dissemination of publicity materials; workshops and seminars (for media and the public). Other activities that will be supported are digital forums, conferences, exhibitions and different digital competitions among youth in order to strengthen digital involvement and contribution in innovations and creativity. The activity intends to increase digital literacy in terms of increased awareness and usage of digital services by citizens, with specific consultations with Government and local stakeholders to ensure that women's engagement with citizen services are accounted for. Activities to be supported under this sub-component include workshops, consultant services and training.

Component 4: Project Management

This component will support essential project management functions, covering primarily staff costs and operational costs. The Government, through MCIT and PO-PSMGG, will establish a single project implementation unit (PIU) which will be responsible for supervising operations. The PIU will comprise an overall project coordinator, a digital government services specialist, an ICT technical specialist/technical assistance officer and specialists in procurement and financial management as well as safeguards specialists. It will also include funding for strategic communications, monitoring and evaluation, internal audit, logistics and operational overhead, gender inclusion and diversity. Further to this it will include capacity building for beneficiary agencies, such as UCSAF and eGA, on the preparation of bidding documents and contracts specifically for procurement of ICT, which often includes both goods and services in a single contract. The activities of the PIU will be defined within the project implementation manual (PIM) which has been developed for this project.

Component 5: Contingent Emergency Response Component

The project includes a Contingent Emergency Response Component (CERC) with an initial zero value, which may be financed during project implementation to allow for an agile response to eligible crises and emergencies. Establishing this component at the program outset provides flexibility to respond to crises as they arise. These could include, for instance, humanitarian crises which require the provision of emergency communications services to replace facilities that have been damaged, or to facilitate emergency humanitarian payments using mobile money. The primary issue at the time of writing is the Coronavirus (COVID-19) pandemic which requires an urgent response, for example in

the form of additional broadband internet capacity for Government offices, especially health centers and hospitals, and for Government employees working from home. Eligible situations, scope and modalities of the CERC will be defined in the Project Implementation Manual. ESMF for Component 5 may need to be modified/enhanced to reflect the full final PIM scope and modalities

Table 1: *DTP Components, Subcomponents and Implementing Agencies*

Component	Subcomponent	Description	Amount (US$)	Category	Implementing Agency(ies)
1: Digital Ecosystem	1.1 - Digital Enabling Environment	a) Establishment of the National ICT Professional and Innovation Center: (i) Establishment of a center for ICT Professional Development (ii) Establishment of Dedicated Zonal Soft-centers for Youth, Entrepreneurs and SMEs b) Establishment of ICT equipment refurbishment centers	$11,000,000 $3,000,000	Goods/Services, and Consultancy	MCIT/Higher Learning Institutions
		c) Scanning of ICT Regulatory (Policy, Legal and Infrastructure) Environment	$300,000	Services & Consultancy	MCIT/TTC/TCRA
	1.2 – Infrastructure to Support National ICT Development and E-Commerce	a) Enhancing the National Addressing and postcode system	$13,000,000	Goods and Services	MCIT/PO-RALG/MOFP/TCRA/TPC
		b) Development of National ICT statistical Information Management System (NISMIS)	$2,000,000	Goods , Services and Consultancy	MCIT / PO-PSMGG/eGA/TCRA/NBS/MOFP
		c) Tanzania Postal e-Commerce initiatives	$1,300,000	Services And Consultancy	MCIT /TCRA/TPC/PO-PSMGG/eGA

Component	Subcomponent	Description	Amount (US$)	Category	Implementing Agency(ies)
Component 1 Subtotal:			**$30,600,000**		
Component 2: Digital Connectivity	2.1 - Connected Government	a) GovNet Connectivity (Expansion of GovNet to all MDAs and LGAs + International Connectivity), Enhancement of resilience Network Infrastructure focusing on optimization of existing Networks (i.e. NICTBB & Consortium Network etc.)	$35,000,000	Goods and services	PO-PSMGG /eGA/MCIT/TTC
	2.2 - Rural Broadband for Development	a) Rural broadband connectivity and Rural ICT Development	$30,500,000	Non consultancy services	MCIT/UCSAF
Component 2 sub-total			**$65,500,000**		
Component 3: Digital Platforms and Services	3.1 - Digital Services and Productivity platforms	a) One-Stop-Shop Centres	$23,300,000	Goods and services	PO-PSMGG /MCIT/TPC
		b) Digital Economy.	$8,000,000	Goods and services	PO-PSMGG /MoFP/MCIT/TRA/ eGA
	3.2 – Data Center Infrastructure	a) Enhancing Data Centre Infrastructure	$14,000,000	Goods	PO-PSMGG /eGA/MCIT
	3.3 - Digital Literacy and Capacity Building	a) Government ICT Cadre Training Program	$4,600,000	Training/ Non-Consultancy	MCIT /PO-PSMGG/eGA
		b) Citizen Digital Literacy/Awareness Program/Feed backing mechanism	$500,000	Training	PO-PSMGG/eGA, MCIT
Component 3 sub-total			**$50,800,000**		

Component	Subcomponent	Description	Amount (US$)	Category	Implementing Agency(ies)
Component 4: Project Management		Project management functions (project coordination, procurement, FM, Safeguards, Communications, Diversity Inclusion, Monitoring and Evaluation etc.)	$3,500,000	Consultancy, services	PO-PSMGG/MCIT
Component 4 Sub-total			**$3,500,000**		
SUB TOTAL [USD] [COMPONENTS 1, 2, 3 & 4]			**$150,000,000**		

2.3 Proposed Specific Projects for DTP

In summary, the following tentative specific projects have been proposed for implementation:

2.3.1. Digital Enabling Environment

a) Establishment of the National ICT Professional and Innovation Center:

The objective of this activity is to develop a center of ICT professional development and "soft centers" to promote local innovation in the country. The implementation of this activity will be carried out in collaboration with academic institutions, vocational training institutions and the industry. This activity will include the following sub-activities: -

(i) Establishment of a center for ICT Professional Development

The objective of this sub-activity is to collaborative on the development a center for ICT professional development in Tanzania. The centers will be developed within the existing academic (Universities) and vocational training institutions. This will cater for skills development and mentorship, identification and recognition of ICT academics/professionals. Also, the center will allow easier recruitment of skilled professionals by local companies and foreign investors, including the export of skills outside Tanzania.

ii) Establishment of Dedicated Zonal "soft-centers" for Youth, Entrepreneurship and SME development

This sub-activity aims to establish five dedicated "soft-centers" within the existing academic and vocational training institutions to raise the local software industry, capacitate youths nationwide and enhance gender participation in digital development. Soft-centers will be established in five zones to provide software developers with resources and tools countrywide.

b) Establishment of Fab Labs.

This activity aims to establish ICT hardware refurbishment centers that will enable the reuse and increased lifetime of ICT equipment to complement on efforts to distribute ICT equipment to educational institutions. This will contribute acquiring ICT equipment for learning purposes at low costs. Secondly the initiative will provide mechanisms for linkages between disposal service providers and refurbishment centres for easy management and control. This will be done through collaboration of vocational and technical training institutions. Activities to be supported include establishing three Fabrication Labs - FabLabs and Technical Hubs - TechHubs - in one of selected existing technical training institution and enhancing capacity to support the development of the refurbishment centres for repair, recycling and distribution of ICT equipment.

c) Scanning of ICT Regulatory (Policy, Legal and Infrastructure) Environment

Under this activity, the MCIT, in cooperation with the TCRA and in consultation with the

licensed operators, will conduct a quick scan of the legal and policy environment in order to identify possible gaps that might hinder the development of the digital economy in Tanzania especially broadband implementation.

2.3.2. Infrastructure to Support National ICT Development and E-Commerce

a) Enhancing the National Addressing and postcode system

This is an ongoing activity which will focus on scale up of the National Spatial Data Infrastructure (NSDI), managed by TCRA, which currently covers 67 wards (http://www.address.go.tz/), to cover the full territory and population of Tanzania. The NSDI, or digital map, will provide a platform on which a variety of layers of information can be laid, for various purposes, including national digital ID and spatial maps for national development.

b) Development of National ICT statistical Information Management System (NISMIS)

This activity aims to provide complete, accurate and current statistical data for ICT networks and services in the country so as to support policy-making decisions for National Development. ICT statistics play a vital role to support ICT investment growth and important and strategically for economic growth in the country. Appropriate ICT applications will achieve efficient statistical undertakings with reliable and accessible data when need arises.

c) Tanzania Postal E-Commerce initiatives

The Tanzania Postal Corporation, in collaboration with the Universal Postal Union's Ecom@Africa initiative, will join other countries in Africa and globally, to engage in digital commerce for the new emerging markets across the World.

2.3.3. Digital Connectivity

2.3.3.1. Connected Government.

This sub-component will support the provision of broadband internet to currently unconnected Ministries, Departments and Agencies (MDAs), Local Government Authorities (LGAs) and other Government Institutions in rural areas, as part of the Government Network (GovNet). This will build on the successful GovNet program under RCIP, which connected some 186 MDAs, LGAs, Regional Hospital and Regional Secretaries. Benefits includes lowering communication/collaboration costs, affordable international bandwidth, improving efficiency in service provision and revenue collection by Government through shared electronic platforms which are enabled by GovNet and providing them with low-cost internet bandwidth. Activities that will be implemented include: - (a) a feasibility study to identify priority institutions for connection based on projected bandwidth demands, location (digital mapping), cost and overall impact (b) incentives to the private sector to connect the identified institutions through commercial tendering; and (c) enhancement of Government internet bandwidth through long-term supply agreements.

2.3.3.2. Rural Broadband for Development

The aim of this sub-component is to significantly reduce Tanzania's digital gap by providing universal connectivity access in rural areas, digital underserved areas and areas that would not otherwise be viable for mobile service providers to invest. As is the case in both developed and developing countries across the world, there are many areas with low population density and/or very low average incomes in Tanzania that do not provide sufficient returns to drive affordable broadband services. This sub-component will build on the successful rural connectivity program under RCIP to extend data-enabled (3G or higher) network coverage to the three million or so people currently living in areas that are unserved by any mobile cellular signal and through the upgrading of areas that currently have only 2G networks to provide mobile broadband (3G or higher). This will increase volume of data usage and hence encourage participation in digital economy development.

2.3.4. Digital Platforms and Services

2.3.4.1. Digital Services and Productivity platforms

a) One Stop Service Centers (Huduma Pamoja Centres-- OSSCs)

This activity aims to establish One Stop Service Centers (OSSC) at Central and Local Government service delivery points so that citizens access various government services from a single location. The OSSC, which are referred to in Swahili language as "*Huduma Pamoja*" will be a key platform for public service delivery, collection and payments of various fees, taxes/levies that citizens and businesses pay to the Government through the Government electronic Payment Gateway (GePG) and other platforms. Tasks to be implemented under this activity include feasibility study; design review for the integration of service delivery platforms; capacity building and revision of legal frameworks; public awareness; rehabilitation of infrastructure & face lifting; construction of last mile connectivity and interconnection with backend systems of service delivery; purchase of ICT equipment; establishment of procedures and processes for OSSC operations; and undertaking of supervision, monitoring and evaluation of OSSC performance

b) Digital Economy upgrades for the Ministry of Finance and Planning

This activity intends to address the digital economy aspect in public financial management. In the Digital Era, the traditional economy is transformed by application of the Digital services which simplify ways of doing work by having accessible, reliable and secure services. It is characterized by a more digital connectivity, digital financial inclusion, more skilled labor and marginalizing the operational technologies. This activity will focus on enhancement of the financial/payment systems by having institutional modern rules and regulations pertaining to digital financial transactions that is, the mobile financial technologies, banking systems, operators and regulator of the financial industry (Bank of Tanzania), and enhancement of the National Payment System-(NPS).

2.3.4.2. Data Center Infrastructure

Eenhancing the Data Center Infrastructure by acquiring storage, networking equipment and computing resources for the Government shared platform will enable the cost-effective sharing of resources, increase reliability of electronic services offered by Government, enhance storage of Government data as well as creating efficiency in sharing and accessing Government applications through the shared infrastructure. The shared infrastructure will be hosted in the existing Data Centers operated by eGA and the National Internet Data Center (NIDC). Project financing will be used to strengthen the support environment for the data center; and the installation of additional ICT hardware (computer, storage and networking equipment) and software tools for the shared computing infrastructure in the existing data centers.

2.3.4.3. Digital Literacy and Capacity Building

In order to ensure that the improved public services through ICT (e-Services) already available, are well supported, promoted and utilized by the consumers (Citizens, Businesses and other Stakeholders at large), the Government intends to build capacity of ICT cadre for managing and supporting existing Government ICT Systems (supply side) and also implement a promotion and awareness program on what services are available, where they can be accessed and how they can be utilized (demand side).

a) Government ICT Cadre Training Program

This activity is intended to address recommendations presented following an ICT skills gap assessment conducted in all Ministries in 2018. The project covers training of specialized ICT skills up to 500 ICT Experts from the Ministries. This will also include long Courses at the level of Master's degrees in specialized Universities worldwide, whereas the project is intending to train in specialised skills especially in emerging technologies and areas of need and that addresses government focuses in Digital Economy and industrialization. This will help to have in place ICT professionals capable of developing and supporting Government ICT systems and capacitating other Youth persuading ICT in the future.

b) Citizen Digital Literacy

The awareness programs intended to be carried for the entire period of the program include, but are not limited to, e-Government Services social media, TV and Radio programs; TV adverts and short video clips; print media campaign; dissemination of publicity materials; workshops and seminars (for media and the public). Other activities that will be supported are conducting digital forums, conferences, exhibitions and different digital competitions among youth, so as to strengthen digital involvement and contribution in innovations and creativity.

2.4 Project Activities

Activities to be involved in individual projects will vary from one project to another, depending on the stage of the project, of whether is a new project or extension, the nature of the project and its complexity and specific requirement of users. However, the general activities will include, but not limited to the following:

- Feasibility study and detailed design;

- Procurement of ICT equipment and software, installation (cell towers, landlines etc);
- Rehabilitation and modification of the existing buildings
- Systems design, development, testing and commissioning;
- Development of guidelines, regulation, laws and policies for enforcement and better use;
- Capacity building for trainers and users, creation of public awareness and sensitization; and
- Monitoring and evaluation.

2.5 Environmental and Social Standards Applicable to DTP

The DTP will support the sub-projects and activities that are likely to generate some site-specific Environmental, Social and Health and Safety impacts. However, the exact nature of sub-projects, their location, core areas of impacts, extent, magnitude and duration of impacts caused by the various types of investments are yet to be specified to the extent that a detailed ESIA and or an ESMP can be developed for approval under the national regulations.

The World Bank Environmental and Social Standards (ESS) are grouped in the World Bank Environmental and Social Framework (ESF) which establish the responsibilities of the Borrower countries to plan, evaluate, screen, manage and monitor environmental and social risks and impacts during each stage of the Project implementation. These Standards seek to avoid or mitigate adverse impact to people and the environment; conserve or rehabilitate natural habitat; promote efficient and equitable use of natural resources; promote workers and community health and safety; and to maximize stakeholders' engagement through enhanced consultation, participation and accountability.

The sub projects to be implemented by DTP will adhere to the requirements of the ESF and all of the Environmental and Social Standards (ESS), with emphasis in the following ESSs that might be triggered by the Project activities:

- ESS1 on Assessment and Management of Environmental and Social Risks and Impacts;
- ESS2 on Labor and Working Conditions;
- ESS3 on Resource Efficiency and Pollution Prevention and Management;
- ESS4 on Community Health and Safety;
- ESS5 on Land Acquisition, Restrictions on Land use and Involuntary Resettlement;
- ESS6 on Biodiversity Conservation and Sustainable Management of Living Resources
- ESS7 on Indigenous People/Historically Underserved Traditional Local Communities
- ESS8 on Cultural Heritage; and
- ESS10 on Stakeholder Engagement and Information Disclosure.

The implementation of each of the ESSs will be enabled through five instruments which will be developed based on the respective ESSs:

i) Environmental and Social Management Framework (ESMF) for the application of the ESS1, ESS2, ESS3, ESS4, ESS6 and ESS8.

ii) Stakeholders Engagement Plan (SEP) for the application of ESS10;
iii) Resettlement Framework (RF) for the application of ESS5;
iv) Vulnerable Groups Planning Framework (VGPF) for the application of the ESS7; and
v) Environmental and Social Commitment Plan (ESCP) which will describe the obligations of the borrower to apply the above instruments and other actions.

Other Instruments applicable for DTP

- Environmental and Social Framework - Guidance Notes for Borrowers;
- WB guideline for covid-19 considerations in construction/civil works projects;
- General World Bank Environmental, Health, Safety (EHS) Guidelines; and
- Environmental, Health, and Safety Guidelines for Telecommunications

So, the exact network routing and specific location of the project activities that may result into involuntary resettlement is not known at this time. Nevertheless, it is expected that some of project activities may require tree cutting for aerial installation or trenching for underground installation of cables. In some cases, small pieces of land may be required to install towers, plant repeater stations, energy solutions and other telecommunication network equipment. In certain situations, the installation might require the acquisition of land. Moreover, the project may also require construction or remodeling of data center facilities. Mitigation measures have been proposed to ensure that all sites are reinstated to their original conditions as far as possible after aerial cable installation or trenching or other project activities.

On the other hand, environmental considerations for enhanced applications of digital technologies will need to be looked into in order to safeguard the quality of the environment. An assessment of capacity to handle waste arising from obsolete technologies as well as the governing policy and institutional frameworks is crucial in determining whether the available upstream and downstream measures put in place to prevent and control environmental degradation are adequate. Integrated e-waste management strategies have the potential of minimizing adverse health and environmental effects of improper management of such wastes. These include: establishing and promoting appropriate electronic product standards at national level for imported products; establishment of e-waste management systems; promoting environmentally sound management practices of e-waste at all levels. Furthermore, it also includes development of e-waste management infrastructure such as recovery on pilot scale; promoting private sector participation in e-waste management; and enhancing public information dissemination and awareness, to mention just a few.

Considering the potential impacts of the project and with due regards by World Bank's environmental and social Framework, the proposed DTP has been assigned a *Moderate Risk category*. In view of the fact that an ESMF was prepared for the RCIP in 2009 under the WB Safeguard Policies, the same has been updated to be used under the DTP. The updating process has taken into account the changes in the regulatory environment, the adaptation of WB ESF and ESS requirements, lessons learnt and the scope of activities under DTP which may be different from RCIP in some cases.

2.6 DTP Institutional and Implementation Coordination

The primary implementing agency for DTP will be the MCIT in close collaboration with the President's Office-Public Service Management and Good Governance (PO-PSMGG). The MCIT will coordinate the overall project implementation through a project coordination set up, that is, Project Implementation Unit (PIU). A project coordinator, reporting to the Director of ICT, will coordinate and support various institutions in the execution of the project. The PIU will comprise members from both Ministries. The MCIT has set up a Steering Committee to oversee the project and a Technical Team for project implementation. The technical team is composed of Permanent Secretaries, Chief Executives or Directors from relevant sectors and stakeholders. These will be meeting regularly to discuss and help resolve project's implementation issues.

However, the direct implementation of the proposed project will be overseen by the relevant aforementioned institutions in *Table 1* above. Each participating institution will appoint an Institutional Project Coordinator (IPC) who will chair the project implementation group - where the coordinators of the various end-users are represented.

The institutional and implementation arrangement will involve the following key MDAs:

- Ministry of Communication and Information Technology (MCIT) - in collaboration with TCRA/ICTC and UCSAF. These bodies will be responsible for coordination of *National Public Key Infrastructure (NPKI), Enhancing the Web based Spatial Database for the National Addressing and Postal System as well as projects under MCITs*;

- President's Office-Public Service Management and Good Governance (PO-PSMGG) in collaboration with eGA will be responsible for implementation of components 2 and 3. Furthermore, PO-PSMGG will have responsibility of executing component 1 and component 4 activities related to support e-Government implementation;

- President's Office-Regional Administration and Local Government (PO-RALG) - in collaboration with LGAs and eGA will implement GOVNET (component 2) and will have responsibility to support component 1, 2 and 3 activities implemented at Local Government level;

- Ministry of Industry Trade and Investment (MITI); and

- Public Procurement Regulatory Authority (PPRA).

3. PRINCIPLES GUIDING ACTION: ENVIRONMENTAL AND SOCIAL STANDARDS, LEGISLATIONS, INSTITUTIONAL FRAMEWORK

This ESMF provides guidelines for the implementation of the DTP in compliance with the WB Environmental and Social Framework and complements international obligations of Tanzania. Furthermore, this section provides a general overview of the applicable legal frameworks in Tanzania, including the laws and regulations for environmental management and related sector laws and requirements.

3.1 World Bank Environmental and Social Standards

The physical components of the DTP will mostly be limited to the rollout of access networks in rural areas and of construction of government network. The risks associated with this kind of infrastructure are generally low, and the DTP, therefore, is rated as Moderate Risk under World Bank's ESF. Land acquisition for terrestrial facilities (if any) might be needed for facilities. However, these are likely to be existing telecom-related buildings and therefore not likely to require involuntary resettlements. These are also the type of facilities that are continually being developed in Tanzania by the existing operators and therefore fall within the existing environmental protection framework for network development. Based on the foreseen set of activities under DTP, are relevant for the application of ESS 6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources; and ESS 8 - Cultural Heritage might not be expected. The potential application of these standards will be reviewed again during the implementation of the specific sub-project prior to rolling-out of the activities and if likely to be triggered, appropriate measures will be carried out in line with those defined in *Table 5.1* of this ESMF.

The project will apply nine out of ten World Bank Environmental and Social Standards (ESS) as described in the Environmental and Social Framework (ESF). The World Bank Environmental and Social Standard triggered are the ESS 1 to ESS 9 as described in Table 2 below.

Table 2: World Bank Standards Triggered

Yes	If applicable, how might it apply?
Yes	**ESS1 Assessment and Management of Environmental and Social Risks and Impacts** The project aims to finance structures such as the construction of ducts for laying the fiber optic networks or from the construction of ancillary infrastructure, notably; access roads, associated with towers for microwave links and rural wireless systems. Financing of submarine cables is not foreseen. The potential negative impacts and risks associated with this kind of infrastructure are generally low to moderate, so the project is assigned to moderate risk as per the ESF. An ESMF (this document) was prepared. Specific budgets for Environmental and Social Management Plans (ESMP) will be prepared as necessary for the terrestrial facilities in line with this document, once the exact locations of those facilities have been identified. This document was reviewed by

Yes	If applicable, how might it apply?
	the World Bank and will be publicly disclosed in Tanzania and Info Shop prior to appraisal.
Yes	***ESS2 Labor and Working Conditions*** Although the exact labor use (including the number of project workers, their characteristics and timing of workforce mobilization) is to be determined during the implementation of each subproject, screening conducted showed that the project will involve: (i) Direct workers working for the project implementation agencies, MCIT and PO-PSM at the headquarters; (ii) Contracted workers which include supervision consultants, contractors and where needed sub-contractors; and (iii) Migrant workers which may include professional international staff of the supervision consultants and contractors for large works contracts and also local Tanzanians moving from other regions seeking employment. Also the project may involve other workers, under sub-component 1.1 (a) covering the Establishment of a National Center for ICT Professional Development and Innovation. The project may result in labor related risks and impacts which include but not limited to: (i) Lack of compliance with national employment and labor and occupational health and safety laws and regulations; (ii) Unsafe and unhealthy working conditions, and the health of workers; (iii) Gender and disability discrimination in provision of employment opportunities; (iii) Gender Based Violence/Sexual Exploitation and Abuse (GBV/SEA) and harassment at workplace and / or within the project host communities; and (iv) child labor.
Yes	***ESS3 Resource Efficiency and Pollution Prevention and Management*** The project activities will generate an increase of energy consumption and consequently increase of GHG emissions due to the expanded use of ICT equipment and increased use of the internet. The project present Risks/Impacts linked to generation of electronic wastes. The ESMF assess all these risks/impacts and proposed measures to mitigate them through an e-waste management plan. Implementation of activities to be financed under sub-components may generate dust, erosion, sediments, solid and liquid wastes including oils, which are likely to pollute water bodies and the air and land if not properly managed. Site specific environmental and social assessments will determine the significance of the likely impacts and risks and mitigation measures will be included in the ESMPs. Mitigation measures will be adopted for both construction purpose and in any construction camp to ensure surface/ground water use efficiency. Appropriate measure will be observed to manage solid and liquid waste from the construction site and camps.
Yes	***ESS4 Community Health and Safety*** The implementation of some of the project components will involve civil and structural works that may pose risks to the community during construction and operations. The project will further evaluate the risks and impacts of investments that have not been identified at this stage but could have on the health and safety (H and S) risks and impacts to the local communities during construction and

Yes	If applicable, how might it apply?
	operation stages and propose and implement appropriate mitigation measures. The project will identify community H and S risks and impacts and propose mitigation measures in accordance with the mitigation hierarchy and the ESS4 and the project's ESMF. The ESMF defines the procedures to prepare site specific Environmental and Social Impact Assessment (ESIA) that will need to include an Environmental and Social Management Plan (ESMP) for sub-projects. The sub-projects might require environmental licenses (certificates issues by NEMC) and construction permits.
Yes	***ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement*** For the implementation of sub-component 2.2 which may involve the planned improvement of network infrastructure involving the laying of fiber optic cables, construction of masts and associated impacts with their operation, construction of access roads and structures for housing equipment and energy sources will likely require land to be acquired. This may result in physical and / or economic displacement. To ensure that these impacts are avoided and / or managed, the borrower has prepared a Resettlement Policy Framework (RPF) which will be revised to reflect requirements of the ESF prior to its review, approval and disclosure. The RPF will be revised to meet the ESF standard requirement prior to appraisal of the project. The RPF will provide guidance to the preparation of site-specific RAPs.
Yes	***ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources*** Due to the fact that there are 540 forest reserves covering 132,000 km2 across the country and that the actual sites of some of the infrastructure development is still unknown this standard is considered relevant at this point. This will be confirmed during preparation of safeguards documents, or when sites are identified during project implementation and through related planning, feasibility and design processes and studies.
Yes	**ESS7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities** The project will be carried out nationwide, with exact site selection not known at this stage. In this case, the project could be implemented in areas with the presence of vulnerable groups. Therefore, a Vulnerable Groups Planning Framework (VGPF) will be prepared to guide the preparation of Vulnerable Groups Plans (VGPs) as required for each of the sub-projects as required. The Risks and impacts associated with project implementation include: exclusion of vulnerable communities in design and selection of impact mitigation measures; selection of inappropriate alternative livelihoods options for the communities in the event of project impacts and/or employment in the project; impacts on land and natural resource use; and involuntary physical and / or economic displacement of persons; introduction of

Yes	If applicable, how might it apply?
	new lifestyle due to project related labor influx; inappropriate conflict or grievance redress mechanisms
Yes	**ESS8 Cultural Heritage** The construction of the planned network may involve movements of earth in areas that may contain sites of physical cultural importance to communities along the network (e.g. graves, holy sites such as sacred groves, sacred forests, etc.). To ensure due diligence, Chance Find Procedures are included in the ESMF and will be included in ESIA/ESMP and all contractor contracts. The subprojects ESA will also assess possible impacts on intangible cultural heritage. The requirements of adoption and implementation of chance find procedures will form part of the bidding documents and be part of contractual obligation of the contractors implementing the project.
Yes	**ESS10 Stakeholder Engagement and Information Disclosure** Implementing agencies will provide stakeholders with timely, relevant, understandable and accessible information, and consult with them in a culturally appropriate manner, which is free of manipulation, interference, coercion, discrimination and intimidation. The SEP developed for RISE must be followed.

3.2 WBG's Environment, Health and Safety (EHS) Guidelines

The WBG's EHS Guidelines are technical reference documents that address expectations regarding the industrial pollution management performance of projects. They are designed to provide relevant industry background and technical information. This information supports actions aimed at avoiding, minimising, and controlling EHS impacts during the construction, operation, and decommissioning phase of a project or facility. For DTP, the most relevant EHS Guidelines that would apply are summarized in Table 3 below.

Table 3: Applicable WBGs EHS Guidelines

EHS Guideline	Content & Relevance
WBG EHS Guidelines: General EHS Guidelines: Construction and Decommissioning (2007)	• The Guidelines provide additional specific guidance on prevention and control of community health and safety impacts that may occur during new project development, at the end of the project life-cycle, or due to expansion or modification of existing project facilities. The key issues in construction and decommissioning addressed by the guideline include (a) environment: noise and vibration, soil erosion, air quality, solid waste, hazardous materials, wastewater discharges, and contaminated land; (b) occupational health and safety; and (c) community health and safety: general site hazards, disease prevention, and traffic safety.
WBG General EHS Guidelines (2007)	• The EHS general guideline section 2 to 4 provides guidance on prevention and control of occupational health and safety, community health and safety, as well as on construction and decommissioning impacts that may occur during new project development, at the end of the project life-cycle, or due to expansion or modification of existing project facilities. As some of the DTP subprojects consist of building modification and telecommunication sector related construction activities which will involve manual labor work activities, section 2.0 and 4.0 of the EHS general guidance provides some appropriate strategies and recommendations useful to minimize occupational health and safety hazards and demolition waste management. It describes the sources of hazards and recommended strategies for the prevention of risks associated with over-exertion, slips and falls, work in heights, struck by objects, and working in confined spaces and excavations in construction and decommissioning sites. These recommendations of the EHS guidance are highly applicable for the DTP subprojects and would need to be considered during course of subproject implementation.
WBG EHS guidelines for Telecommunications	• The EHS guideline exhaustively covers the major EHS risks associated with the construction activities of the Telecommunications sector. As the DTP is going to finance (directly or indirectly) subproject activities that would increase access to affordable, high quality internet services for government, businesses and citizens and to improve the government's capacity to deliver digital public services across the country, the EHS guideline becomes directly relevant to address the EHS risks that may arise during subproject implementation. Again, the scope and coverage of these EHS guidelines are very

EHS Guideline	Content & Relevance
	broad and addresses environmental and safety issues commonly encountered in the telecommunications sector construction activities.
WBG General EHS Guidelines 3 Community Health and Safety (2007)	• These address project activities taking place outside of the traditional project boundaries, but that are nonetheless related to the project operations, including water quality and availability, traffic safety, transport of hazardous materials, disease prevention, and emergency preparedness and response.

3.3 Applicable National Policies and Regulatory Framework

*Table 4 belo*w presents a summary of the pertinent national policies, legislations, regulations, and development strategies that have direct influence on the DTP design, development and commissioning. It is recommended that the project-specific ESIA should perform a thorough review of legislative framework and requirements underpinning specific interventions to be implemented. The table contains general new national policies, legislations and regulations that came after 2009 when the ESMF for RCIP-TZ was prepared. For the Project subprojects, it is recommended that the PIU ES specialists together with the Contractor E&S specialists perform a review of the polices, legislations and regulations and prepare a list of specific regulatory requirements for the specific sub-projects. This could be done at the start of Project implementation. This list should then be included in the subproject ESMP and also in subproject bids and contracts. This would also include a list of any specific environment or OHS permit or regulatory reporting that would be needed for a sub-project (e.g, construction work permit, tower in protected area, waste generation manifests/reporting, worker OHS accident reporting, etc.)

Table 4: Applicable National Policies, Legislations and Plans

Name of Policy/Legislation/Plans	Applicable sections of Policy/ Legislation	Applicable DTP Component(s)
Policies		
National Environmental Policy, 1997	Sections 28, 29, 56, 57 and 58	Components1, 2, 3
National Energy Policy (2003)	Sections 2, 3	Components 2, 3
National ICT Policy (2016)	Sections 2.1-2.4, 3, 4	Components 1, 2, 3
National Investment Policy, 1996	Section 5(d)	Components 1, 2, 3
National Postal Policy, 2003	Section 4	Components 1, 3
National Telecommunications Policy, 1997	Section 2.2, 3.1, 3.6, 3.10	Components 1, 2, 3
National Water Policy, 2002	Sections 3.3, 4.1, 2.8 and 2.9	Components 2, 3
National Land Policy, 1997	Sections 2.4, 2.8, 3(iii), 4, 6.10.1, 7.1.1 and 7.6.1	Components 2, 3
National HIV and AIDS Policy, 2001	Section 5.8	Component 2
National Health Policy, 2003	Sections 2.4, 3.7, 3.8	Components 2, 3
National Employment Policy, 1997	Sections 10.1-10.5, 10.8	Component 2
National Water Policy, 2002	Section 5 (iv), (v)	Component 2
Legislations		
The Environmental Management Act No. 20 of 2004	Part VI, Article 7 (1) Sections 49, 50-58, Cap 191	Components 1, 2, 3
Electronic Transactions Act, 2015	Parts II, III and VII	Components 1, 2, 3
Tanzania Communications Regulatory Authority Act, 2003	Part II (4-6), Part XII (59)	Components 1, 2, 3
Cybercrimes Act, 2015	Part III	Components 1, 2, 3

Name of Policy/Legislation/Plans	Applicable sections of Policy/ Legislation	Applicable DTP Component(s)
Electronic and Postal Communications Act, 2010	Part II	Components 1, 3
Universal Communications Service Access Act, 2006	Part IV	Components 1, 3
Tanzania Communication Act, 1993	Part IV, IX	Components 1, 2, 3
Occupational Health and Safety Act No 5 of 2003	Parts IV, V and VI, Article 39, Sections 21, 43(1), 60, 61, 63(1), 73-75, 96	Components 2, 3
Water Resources Management Act No. 11 of 2009	Sections 9, 23, 52, 63(1), Article 39	Component 2
Industrial and Consumer Chemicals (Management and Control) Act, 2003	Part IV Articles 43, 44, 45, and 46	Components 2, 3
Water Supply and Sanitation Act No 12 of 2009	Section 20 and 29	Components 2, 3
Public Health Act No 1 of 2009	Section 168 and 169	Components 1, 2, 3
HIV and AIDS (Prevention and Control) Act No 28 of 2008	Section 9 and 33	Components 2, 3
Employment and Labour Relations Act, No. 6 of 2004	Parts II and III, Sections 6 (1), 7(1), 9, 10 and 75-85	Components 2, 3
Wildlife Conservation Act 2013	Section 22(7), Section 22 (8) and Section 37	Component 2
The Roads Act No 13 of 2007	Sections 15 and 16	Components 2, 3
Land Act No 4 of 1999	Section 6, 156	Components 2, 3
Village Land Act No 5 of 1999	Section 7 and 8	Components 2, 3
Land Acquisition Act, No 47 of 1967	Sections 4 to 10	Component 2
Fire and Rescue Act, 2007	Sections 6, 7	Components 2, 3
The National Parks Act No 11 of 2003	Section 25	Components 2, 3
Valuation and Valuers Registration Act, 2016	Part IV (a), (b), Parts V, VII	Component 2
Regulations		
EIA and Audit Regulations No. 349 of 2005	Regulations 4, Part IV, V, X and XI	Components 2 & 3

Name of Policy/Legislation/Plans	Applicable sections of Policy/ Legislation	Applicable DTP Component(s)
Cybercrimes (General) Regulations, 2016	Part II	Components 1, 2, 3
Environmental Management (Soil Quality Standards) Regulations, 2007	Regulation 16 (4)	Components 2, 3
Environmental Management (Standards for the Control of Noise and Vibration Pollution) Regulations, 2011	Schedule 1	Components 2, 3
Environmental Management (Solid Waste Management) Regulations, 2009	Regulation 53, Schedule 1	Components 2, 3,
Environmental Management (Hazardous Waste Management) Regulations, 2009	Part III, Regulation 7, 8, 11, 12, 13, 35, 37, 44, Schedules 1, 8	Components 2, 3
Environmental Management (Air Quality Standards) Regulations, 2007	Regulation 8 (1), Schedules 1, 2, 3 and 4	Components 2, 3
Environmental Management (Water Quality Standards) Regulations, 2007	Regulations 6(1), 18 (1)	Components 2, 3
Environmental Management (Control of Ozone Depleting Substances) Regulations, 2007	First Schedule	Components 1, 2, 3
Land (Assessment of the Value of Land for Compensation) Regulations, 2001	Sections 9, 10 and 11	Component 2
Electronic and Postal Communications (Consumer Protection) Regulations, 2011	Part II - 4, 6, 9, 10	Components 1, 2, 3
Electronic and Postal Communications (Access, Co-location and Infrastructure Sharing) Regulations, 2011	Part II (b), Part IV (f), (g), (h), Part VI(a)	Components 1, 2, 3
Electronic and Postal Communications (Electronic Communications Equipment Standards) Regulations, 2014	Part III	Components 2, 3
National Development Plans, Strategies & Guidelines		
Tanzania Development Vision (TDV), 2025	Section 4.2(iv)	Components 1, 2, 3

Name of Policy/Legislation/Plans	Applicable sections of Policy/ Legislation	Applicable DTP Component(s)
Five Year Development Plan (FYDP II 2016/17-2020/21)	2.11, 2.17, 3.41, 3.5.1(ii), 4.2.4(i), 4.2.8, 4.3.1(iv), 4.3.2(iii), 4.4, 6.3.7(i) and Table B7	Components 1, 2, 3
Environmental Impact Assessment Guidelines and Procedures, 1997	Entire guideline	Components 2, 3
Guidelines for Management of Hazardous Wastes, 2013	Sections 2.5, 2.6, 5, 6, 7	Components 2, 3
Ministry of Health Waste Management Guidelines	Section 5	Components 2, 3
Guidelines for Management of Environmental Emergencies, 2014	Sections 5.1, 5.2, 5.5, 5.8, Appendix II	Components 2, 3
Guidelines on Management of Liquid Wastes, 2013	Sections 5, 6, 7, 8	Components 2, 3
National Environmental Action Plan (NEAP), 2013-2018	Sections 2, 4, 5	Components 2, 3
eGA Strategic Plan 2016/2017-2020/2021	Sections 2.5, 3.4.3, 3.4.4, 3.4.5 and 3.4.6, 4.2 and 4.4	Components 1, 2, 3
Guidelines for Appropriate, Proper and Safe Use of Information and Communication Technology Systems, 2012	Sections 2.3, 2.4, 4.0, 6.2, 8	
Tanzania National eHealth Strategy 2013-2018	Sections 2.3, 3	Component 3
International Conventions		
The Kyoto Protocol 1997 to the United Nations Framework Convention on Climate Change	Article 2 (1) (a) i, ii, vii, viii Article 10, d	Components 1, 2, 3
Convention on Biological Diversity (CBD), 1996	Article 14	Components 2, 3
The United Nations Framework Convention on Climate Change (UNFCC), 1992	Articles 3, 4, 5 and 8	Components 1, 2, 3
Bamako Convention on Ban of the Import into Africa and Control of Transboundary Movement and Management of Hazardous Wastes within Africa, 1991	Article 4	Components 1, 2, 3
Basel Convention on Control of Trans-Boundary Movement of Hazardous Wastes and their Disposal, 1989	Article 4	Components 1, 2, 3

3.4 INTERNATIONAL BEST PRACTICES

This inventory of international best practice for managing potential environmental and social impacts in the telecommunications sector is designed to serve as a guideline for sustainable solutions that telecommunications operators can implement to avoid, minimize, and mitigate potential environmental and social impacts caused by the telecommunications' facility construction, operation, and maintenance.

The inventory covers the following areas:

- Management measures for preventing, minimizing, and mitigating potential environmental, health, and safety impacts associated with the telecommunications sector (i.e. impacts to natural habitat, migratory birds, and landscape aesthetics);
- Management of the telecommunications facilities and their potential effects on the environment (i.e. air emissions, hazardous materials management, and waste); and
- An overview of the potential risks of electromagnetic waves to human health

3.4.1 Site Selection for Towers

The site selection process provides the greatest opportunity to prevent or minimize potential environmental impacts from telecommunications towers. Locating towers on steep slopes or ridges that require access roads in very steep slopes should be avoided because of potential erosion risks associated with the roads. Consideration should also be given to the visual impact of towers on the landscape and efforts should be made in selection of site towers so as to reduce visual impacts. This can be achieved through use of existing infrastructure to install transmission and reception devices (e.g. antennae).

Similarly, site selection process should endeavor to avoid sites that are important and/or protected natural areas or habitats (e.g. wetlands, nature reserves, and national parks). Tower siting is typically permitted in Protected Areas; however, such sittings are generally subject to special approval by the relevant ministries and must comply with strict conditions. Two case studies from Australia and France that illustrate how telecommunications facilities are managed in protected areas are provided in Box 1.

Geography and topography greatly influence the locations of bird migration routes and the movements and habitats of other species. Bird migration paths typically follow major landscape features such as coastlines, mountain ridges, and river corridors. The USFWS Guidelines recommend that towers should not be sited in or near wetlands, other known bird concentration areas, known migratory or daily movement flyways, or the habitat of threatened or endangered species. In addition, towers should not be located in areas with a high incidence of fog, mist, and low cloud cover because the migratory birds typically travel at night; hence they are far more likely to crash into towers under foggy or low cloud ceiling conditions (see Lighting below).

Transformer equipment may potentially contain Polychlorinated Biphenyls (PCBs) while cooling equipment may contain refrigerants (potential Ozone Depleting Substances [ODSs]).

These can pose serious health risks to humans from prolonged or repeated exposure to small amounts of them. Moreover, microwave and satellite system antennas transmit and receive highly concentrated directional beams at even higher power levels. Although there is public and scientific concern over the potential health effects associated with exposure to EMF (not only high-voltage power lines and substations or radio frequency transmissions systems, but also from everyday household uses of electricity), there is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmissions lines and equipment. However, while the evidence of adverse health risks is weak, it is still sufficient to warrant limited concern.

Box 1: Managing Telecommunications Facilities in Protected Areas

France, National Charter on Environmental Recommendations between State and Mobile Phone Operators

A National Charter on Environmental Recommendations was signed by the government and the three national operators in July 12, 1999). It divides the country into four distinct categories:

- 'Regular areas' with no special attributes, regulated by common law;
- 'Areas under surveillance' (e.g., with protected historical sites, vulnerable species)
- 'Landscape areas,' some parts of which are of high environmental value and may be protected by the State; and
- 'Protected areas.'

The Charter assigns different levels of obligation for each of the above-mentioned categories to operators that want to site towers. Towers in protected areas can only be installed on an exceptional basis and are highly regulated. Their environmental footprint must be minimal and they must be integrated into the scenery.

Reference: National Charter on Environmental Recommendations between the State and Mobile Phone Operators (July 12, 1999), France.

Australia, National Parks and Wildlife Act

The National Parks and Wildlife Act of 1974 states that the Minister for the Environment, Heritage and Local Government may authorize installation of telecommunications facilities in National Parks, provided that the following conditions are met:

- "There is no feasible alternative site for the proposed telecommunications facility concerned on land that is not reserved under this Act;
- The site of any proposed above ground telecommunications facility covers the minimum area possible;
- The proposed telecommunications facility is to be designed and constructed in such a manner as to minimize risk of damage to the facility from bushfires;
- The site and construction of the proposed telecommunications facility have been selected, as far as is practicable, to minimize the visual impact of the facility;
- If feasible, an existing means of access to the proposed site of the lease, license, easement or right of way is to be used;
- The proposed telecommunications facility is essential for the provision of telecommunications services for land reserved under this Act or for surrounding areas to be served by the facility;
- The telecommunications facility is to be removed and the site of the facility is to be restored as soon as possible after the facility becomes redundant (for example, due to advances in technology);
- The site of the proposed telecommunications facility has been selected after taking into account the objectives set out in any plan of management relating to the land concerned;
- The proposed telecommunications facility is, if feasible, to be co-located with an existing structure or located at a site that is already disturbed by an existing lease, license, easement or right of way on the land concerned."

Reference: National Parks and Wildlife Act, Australia, 1974.

3.4.2 Tower Co-location/Sharing and Sitting

The first principle to be applied by operators when considering the siting of new telecommunications tower facilities is to locate the new equipment on existing structures. Co-location of antennae on existing towers or other structures is standard practice in the United States and Europe. This is adapted in order to reduce the need for new towers and minimize environmental and visual impacts. In France, 80% of the new antennae in 2004 were situated on existing structures and only 20% of antennae necessitated construction of new infrastructure. Co-location is preferred because it is in the business interests of operators, as it reduces costs and maintenance burden.

The most common existing support structures for antennae and related equipment are billboards, water towers, utility poles, and buildings. In certain U.S. and Canadian cities, operators must prove that a new tower is needed and that there are no suitable co-location options. For example, the Policy for Telecommunications Towers for the City of Surrey, Canada, requires all applicants for freestanding telecommunications structures to "identify any other structure within a radius of 1,640 feet of the proposed location and to provide reasons why other existing structures within that radius are not acceptable for use." Due to this factor, carriers build new towers only when there are no other suitable options.

In the United States and Canada, certain zoning laws require future co-location options for new antennae. It is, therefore, best practice for local authorities to require every new freestanding tower to be designed and constructed to optimize future co-location functionality. It should be noted, however, that there may be complexities in applying such a requirement given the potential range of technical requirements that must also be met (e.g. distance requirement between each antenna on the same tower).

3.4.3 Tower Design and Landscaping Criteria

New technologies and materials can minimize the visual impacts of towers, antennae, and supporting structures. For new freestanding towers, the following best practice is recommended:

- The visual impact of the lower portions of towers can be mitigated by either building shelters in the local architectural style or establishing plant screens. In cases where plant screens are to be installed, attractive native species should be utilized.
- In rural areas, towers and antennae can be camouflaged or disguised by constructing masts or towers that look like trees, as well as "hidden" in architecture (e.g. church steeples and bell towers).

For new antennae, the following best practice used by the French Association of Mobile Phone Operators (AFOM) is relevant:

- Using colors and materials that resemble that of the existing structure on which the antennae is being built helps harmonize the antennae with its surrounding environment;

- Preserving the local architecture style;
- Taking into account the existing shapes and buildings in the area where the antennae will be built (e.g. respecting vertical lines in a city);
- Operators should avoid using mechanical "tilts" to direct radio waves towards the zones to be covered (that are visible), instead using electrical 'tilts' to direct the radiation, minimizing visual impacts; and
- When constructing new antennae on water towers, the three main operators in France have agreed to either place the new antennae on the side wall so that the new antennae merge with the side of the water tower; or install the new antennae on a mast placed on the top center of the water tower. This unique approach minimizes the visual impact to the maximum extent possible.

3.4.4 Tower Height

Several studies in the U.S. positively correlate the greater height of freestanding towers to higher bird mortality. The results by Gehring (2004) in particular, document this relationship. The USFWS Guidelines recommend that: "If co-location (e.g. the installation of antennae on existing structures) is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet (or 60.70 meters) Above Ground Level (AGL)."

In some cases, however, various technical and service factors may call for towers in excess of 60 meters. These factors include population density in the service area; propagation characteristics of radio signals at different frequencies on the radio spectrum; and the size of the target service area. It should be noted, however, that different types of wireless services have different technical and construction requirements. For instance, the United Kingdom Policy Guidance on Telecommunications states that "Authorities will need to ensure that they have before them all the relevant planning information, including details of any related mast proposals and of how the proposal is linked to the network, to enable applications to be properly considered."

In a number of countries, local legislation regulates the maximum height authorized for new freestanding towers in cities. For example, Telecommunications policies, protocols, or general development policies in Canada set maximum tower height (e.g. 12 meters in the case of the City of Surrey, Canada, and 30 meters in the City of Guelph, Canada). The new freestanding telecommunications tower proposals that exceed the maximum height are required to apply for a variance, which may or may not be granted.

3.4.5 Guy Wires

Guyed towers cause higher mortality among birds than guy less towers due to increased surface area for potential collisions. The study by Gehring reports that guyed towers kill close to ten time more birds than non-guyed towers. The USFWS Guidelines encourage "using construction techniques which do not require guy wires (e.g. a lattice structure, monopole)."

The USFWS recommends that "Tower designs using guy wires for support which are proposed to be located in known raptor or water bird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species." Daytime wire marking devices include marker balls, swinging plates, bird flight diverters, spiral vibration dampers, or other visible devices placed in various configurations depending on the line design and location.

3.5 ESMF Institutional Arrangements

All environmental issues in Tanzania are regulated, controlled and guided through the Minister for Environment and Union Affairs under the Vice President's Office (VPO). Under the Ministers' command is the Division of the Environment (DoE), which is the authority that oversees all environmental management matters. It also issues all environmental certificates based on technical advice rendered by the office of the Director of Environment based on advice from the Technical Advisory Committee (TAC) convened by the National Environment Management Council (NEMC).

In addition, an EIA report including ESMP are reviewed and approved by the NEMC. Other ministries' sectors and departments are also involved as stakeholders in EIA reports such as central and local government, district and village authorities, Non-Governmental Organizations (NGOs), private and non-private institutions.

The VPO-DoE is responsible for overall policy guidance and advance on the development of strategic environmental vision, including formulation, analysis and appraisal of broad environmental goals. In the course of executing its responsibility for the protection of the environment, the office is supported by a cross-sectoral technical committee of the major ministries with portfolios that have environmental implications, that is, the National Environmental Advisory Committee (NEAC) provided under the Environment Management Act. The NEMC is the secretariat to this committee.

Similarly, NEMC plays an advisory role for the ministry and is responsible for enforcing environmental compliance, including pollution control and review of environmental impact assessments. The comprehensive regulations for the preparation and implementation of EIAs are contained in the Environmental Impact Assessment and Audit Regulations, 2005 and its amendments of 2018. NEMC follows these guidelines in the review and approval process for the EIAs.

Table 5: below presents an overview of the key institutions and administrative framework for environmental management during implementation of the DTP.

Table 5: Institutional Arrangement for the ESMF

Institution / regulatory agency	***Roles***
Vice President's Office - Division of Environment (VPO-DoE)	• Provides legal and policy direction and leadership in all environmental matters • Provides overall co-ordination of all environmental management issues in Tanzania • Provides National Focal Point for all multilateral environmental agreements • Approves and sign the EIA certificates, enforce and ensure compliance with the national environmental quality standards
National Environment Management Council (NEMC)	• An arm of the VPO-DoE, the regulatory body • Responsible for environmental enforcement, compliance, monitoring, supervision, coordination, evaluation of government policies • EIAs, ESMPs, EMPs and environmental audits review and approval • Implementation of the environmental legislations and regulations
Ministry of Communication and Information and Technology (MCIT) President's Office-Public Service Management (PO-PSMGG)	• Primary coordinating and implementing agencies for the DTP • Coordinate the overall implementation of the DTP including ESMF, RPF, other ESF standard documents and overseeing project specific EIAs • Execute environmental monitoring and compliance audit • Review and approve all safeguards instruments (ESMF, C-ESMP, Screening forms) for DTP • Provide safeguards implementation assistance and training when required • Ensures that policies are followed •
World Bank (WB)	• Review and approve project related E and S risk documents. • Offer technical assistance through guidance in implementation support missions.
Occupational Safety and Health Authority (OSHA)	• Control and monitor occupational safety and health at various workplaces including appropriate management of modification and rehabilitation of existing buildings, e-wastes and other hazardous substances

Institution / regulatory agency	*Roles*
Implementing agencies such as MNH, RITA, PPRA, eGA, TCRA, ICTC and UCSAF, TPC, TTC, DHs, HLIs and LGAs	• Direct implementation of the specific sub-project(s) including contract procurement bidding and contract supervision process • Ensure ESMF and RPF compliance • Monitor development and implementation of the EIAs/ESMPs/EMPs • Provide project monitoring and audit
Local communities	• Provides project monitoring (as watchdogs) • Provides assistance and advice on the implementation of project • Part of the project beneficiaries through employment opportunities, income generation and CSR projects

In addition to the set-up presented in *Table 5* above, the ESMF recommends that an Environmental Specialist should be deployed in the implementation team of the Client as per RCIP compliance audit recommendations (Section 4.1). The environmental specialist will be a key link and a focal person in ensuring that the implementing agency and the MCIT in general comply with the Safeguards, ESMPs and EMPs implementation.

3.6 Gap Assessment on Legislative Framework

To ensure that the ESMF will be effectively implemented in Tanzania, it is important to determine whether the legislative structures are adequate for effective environmental management and whether these legislative structures support the World Bank's ESF standards.

It is evident that the legislation in Tanzania provides sufficient basis for EIAs and ESMPs to be completed for proposed activities under DTP. It is also apparent that the relevant institutions are in place to ensure effective implementation and monitoring of the required environmental measures, in compliance with national law and World Bank ESF standards.

The World Bank requires that all projects comply with national law, but where there is conflict and gaps exist, World Bank standards take precedence, except in cases where national standards are more stringent (e.g. air emissions or effluents).

4. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

4.1 Experiences and Lessons from the RCIP Compliance Audit

In 2017, the MCIT in collaboration with the World Bank commissioned a compliance environmental audit for the RCIP which was at the final stages of completion. The objective was to assess compliance with Safeguard Policies of the World Bank as per requirements outlined in the ESMF and RPF that were prepared for the project. A total of 118 tower station sites in 26 regions; 63 Govnet sites; and 24 LGA sites in 6 regions were sampled and audited. The key audit findings and conclusions have been taken into consideration in this ESMF. Furthermore, the environmental experience will be fully considered during design, construction and operation of the proposed DTP which is a continuation of RCIP.

4.1.1. Audit Key Findings and Conclusions

i. The project has increased communication connected to many parts in Tanzania. In remote areas, communities are very happy about the project. Moreover, it has increased money transactions.
ii. The RCIP implementation adhered to environmental and social standards by following national policies and legislation on environment. ESIA was conducted for most communication towers and environmental certificates are in place. Since it was envisaged at the beginning that the implementation of the Govnet project would cause minor impacts from the fact that the optical fiber cables were laid along existing road reserves or telephone ducts. No ESIA was conducted.
iii. There was no Environmental Specialist in the implementation team of the client, which to a large extent; affected follow up on adherence to ESIA related issues.
iv. Service providers or project operators were not acquainted with ESMF and RPF documents and their requirements. Nor did they have any contractual obligation to adhere to the ESMF and RPF. However, through ESIA the contractors committed themselves to sound environmental practices as a condition of Environmental Certificates.
v. Major impacts that are common to many sites visited include: vegetation clearance; soil erosion; noise pollution; sanitary land and water pollution; land speculation; dominance within surroundings (visual intrusion); poor waste management, and locational impacts.
vi. Land speculation was rampant to sites implemented by MIC, VODACOM and Airtel. This is a serious observation that must be followed up.
vii. All but one service provider has a provision for constructing toilets for guards at the communication towers. A decent sanitary facility is essential to every person in modern times.
viii. Poor signal or connectivity is being experienced in many remotely located areas. This frustrates the users as some complained of spending more airtime due to poor signal reception.

4.1.2. Audit Recommendations

i. An Environmental Specialist should be deployed in the implementation team of the client.
ii. A special contract clause should be included to ensure all contractors or service providers implement the recommendations of the ESMP and/or adhere to the requirements of the ESMF and RPF.
iii. Adequate community awareness should be ensured before project implementation commences in the respective areas.
iv. All land leases should be endorsed by respective village leadership or office. The service provider should be directed to have a contractual obligation to give a copy of the purchase or lease agreement to the land owner.
v. The project should intentionally include a contractual clause for obligation to provide toilet facilities for guards at all communication towers.
vi. The project design should revisit its protocols on environmental monitoring during construction phase, where most of the environmental and social impacts occur. Inadequacy in this aspect is among the main cause of the observed impacts.

4.2 Impact Categories

Identification and assessment of potential environmental and social impacts associated with the proposed DTP program is based on IFC's EHS Guidelines for Telecommunications and the European Bank for Reconstruction and Development (EBRD)'s Sub-sectoral Environmental Guidelines for Telecommunications. It is also recommended that these guidelines should be used as guidance notes when preparing the impact assessment and mitigation plans for the sub-projects 'specific ESMPs and EMPs.

The potential impacts associated with development and implementation of the DTP can be divided into three broad categories:

i. Impacts associated with manufacture and procurement of equipment and other facilities;
ii. Impacts associated with construction and installation of the systems equipment and facilities (e.g. antenna/mast erection, cable laying, telephone pole erection, construction of exchange buildings);
iii. Impacts associated with operation and maintenance of the systems (e.g. energy consumption, maintenance of telephone exchange systems and cables, generation of hazardous wastes, radiations); and
iv. Impacts associated with decommissioning of the equipment, infrastructure and facilities.

Sections 4.3, 4.4 and 4.5 present generic potential environmental and socio-economic impacts related to the proposed DTP project. It is recommended that each specific sub-project should undergo a thorough context-specific impacts assessment and development of the ESMP where relevant.

4.3 Potential Biophysical Impacts

4.3.1. Protected Areas

Infrastructure installation must be avoided in natural protected areas. In cases where modification and or enhancement/rehabilitation of infrastructure in protected areas is necessary, it is recommended that a payment for environmental services be required. This payment should be used to strengthen the management and protection of natural protected areas or protect an area with similar environmental characteristics in another location. The revenues for this type of project must be administered by the entity in charge of protected areas and involve academic and research entities.

4.3.2. Terrestrial and Aquatic Habitats Alteration

Terrestrial and aquatic habitats may be altered primarily during the modification and/or rehabilitation of communications infrastructure depending on the type of infrastructure component and proposed location. Potential impacts to habitat may be more significant during rehabilitation and installation of linear infrastructure such as long-distance fiber optic cables, construction camps (Waste Water) as well as access roads to other types of infrastructure along previously undeveloped land. Owing to the nature of the rehabilitation activities which is mainly anticipated to involve land clearing for installation of facilities such as cell towers, the terrestrial habitat alteration is predicted to be small scale. As the DTP is going to be implemented throughout the Country, sensitive habitats like National Parks, sanctuaries, protected areas as well as wetland areas could be slightly affected during the construction activities. Moreover, historical and cultural heritage sites could also be affected. Recommended measures to prevent and control impacts to terrestrial habitats during construction of the right-of-way include:

- 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 sensitive habitats and heritage sites through use of existing utility and transport corridors, whenever possible;
- Avoidance of construction/rehabilitation activities during the breeding season and other sensitive seasons or times of day;
- Revegetation of disturbed areas with native plant species;

4.3.3. Avian Migration, Fatalities, and/or Injuries

The height of some transmission towers can pose potentially fatal risk to birds, mainly through collisions. The likelihood of avian collisions is thought to increase with the height and design of the communications tower (e.g. guyed towers represent a higher potential for collisions); the presence of tower lighting (attracts some species of birds at night or during low light conditions); and, most importantly, the tower location with regard to flyways or migration corridors.

4.3.4. Lighting

Lights on towers and supporting infrastructure are likely to be the most important factor in bird mortality. Most migratory birds fly at night to avoid predators and are attracted to and/or disoriented by the lights, resulting in greater mortalities. This phenomenon is exacerbated on foggy or very low cloud ceiling nights because the fog/mist further diffuses the light.

The USFWS recommends that "If taller (>60 meters of 199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the Federal Aviation Administration (FAA) should be used." Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night. These should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied."

Lighting towers are necessary when the towers are close to airports. Another impact avoidance strategy is to avoid or minimize the construction of new towers near airports or other areas where aviation activities would require lighting for public safety. - The strategy in such locations should be to install necessary antennae on existing towers or other existing infrastructure.

4.3.5. Landscape and Visual Impacts

Viewshed marring may result from non-natural landscape developments. The visual impacts of tower and antennae equipment may depend on the perception of the local community as well as the aesthetic value assigned to the scenery (e.g., scenic and tourism areas).

4.3.6. Air Emissions

Emissions from telecommunications projects may be primarily associated with the operation of vehicle fleets, dust from construction works (buildings, access roads, vegetation clearings), use of backup power generators, and use of cooling and fire suppression systems. Generally, the backup generators used are small and air emissions is low; however, the use of a generator as a permanent source should be avoided.

Regarding the cooling and fire suppression systems, the best international practice recommends against the use of chlorofluorocarbons (CFCs) and halons. If the substitution is not possible, CFCs and halons should be managed by trained and certified personnel.

4.3.7. Electronic Wastes and Hazardous Materials Management

Hazardous materials and waste: Telecommunications processes /infrastructures for broadband connectivity/ do not normally require the use of significant amounts of hazardous materials. However, the operation of certain types of switching and transmitting equipment may require the use of solar power and backup power systems consisting of a combination of

batteries (typically lead-acid batteries) and diesel-fueled backup generators for electricity. Operations and maintenance activities may also result in the generation of electronic waste (e.g. nickel-cadmium batteries and printed circuit boards from computer and other electronic equipment as well as backup power batteries). The operation of backup generators and service vehicles may also result in the generation of used tires, and waste oils and used filters. The Potential for asbestos containing materials and lead based paint from building rehabilitation works should also be considered. Transformer equipment may potentially contain Polychlorinated Biphenyls (PCBs) while cooling equipment may contain refrigerants (potential Ozone Depleting Substances [ODSs]).

E-waste handling and disposal also exposes people to non-dioxin-like polychlorinated biphenyls (PCB), polycyclic aromatic hydrocarbons (PAH), polychlorinated dibenzo-p-dioxins (PCDD), polychlorinated dibenzofurans (PCDF) and dioxin-like polychlorinated biphenyls (DL-PCB). Most of these compounds are endocrine disrupters, and most are neuro-and immune-toxic as well. E-waste-related toxic elements can enter living organisms through air (e.g. open burning), soil (e.g. disposal), water via ingestion (e.g. food chains contamination due to disposal and primitive recycling processes), inhalation, and dermal absorption (e.g. dust and direct exposure of workers who labor in primitive recycling areas and their families). E-waste is resistant to biodegradation with strong tendency to bio-accumulate in agricultural lands and be available for uptake by grazing livestock. Elevated levels of e-waste pollutants in water, air, soil, dust and human matrices (blood, urine, breast milk) indicate that not only are e-waste workers at risk from exposure to e-waste, but the general population and future generations as well.

Recommended hazardous materials management actions include:

- Implementing procedures for the management of lead acid batteries, including temporary storage, transport and final recycling by a licensed facility;
- Ensuring that new support equipment does not contain PCBs or ODSs. PCBs from old equipment should be managed as a hazardous waste;
- Purchasing electronic equipment that meets international phase out requirements for hazardous materials contents

Consultation held with VPO-DoE, Department of Pollution Prevention and Control, revealed that there are only four registered/certified e-waste collectors in Tanzania, namely, Chilambwa General Trade Company Ltd., Game Metal, JBR and Phoenix Group of Companies. The consulted e-waste collector revealed that the main sources of the e-waste producers in Tanzania are telecommunications companies (mainly Vodacom, Tigo, Airtel, Zantel, Halotel, Helios Towers (HTT), and Huawei). Others are gas company (Songas), financial institutions (NMB, CRDB, NBC, Barclays, etc.), European embassies as well as local communities. Communications companies have been reported to be the major e-waste producers followed by financial institutions in the country (see *Annex III* for further details on e-waste).

Figure 1: Lithium Batteries (Left) and Communication Equipment (Large Bts) (Right) Source: Fieldwork, May 2018

4.3.8. Noise Emission and Vibrations

The principal source of noise in telecommunications/infrastructures for high speed internet connectivity/ construction and operation activities is associated with the operation of backup power generators. Recommended noise management action includes the use of noise suppression shields and mufflers, as well as the location of noise generating sources away from residential or other noise-sensitive receptors to meet the noise emission.

4.3.9. Electric and Magnetic Fields

Electric and Magnetic Fields (EMF) are invisible lines of force emitted by and surrounding any electrical device, such as power lines and electrical equipment. Electric fields are produced by voltage and increase in strength as the voltage increases. Magnetic fields result from the flow of electric current and increase in strength as the current increases.

Radio waves and microwaves emitted by transmitting antennas are one form of electromagnetic energy. Radio wave strength is generally much greater from radio and television broadcast stations than from cellular phone communication base transceiver stations. Microwave and satellite system antennas transmit and receive highly concentrated directional beams at even higher power levels. Although there is public and scientific concern over the potential health effects associated with exposure to EMF (not only high-voltage power lines and substations or radio frequency transmissions systems, but also from everyday household uses of electricity), there is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmissions lines and equipment. However, while the evidence of adverse health risks is weak, it is still sufficient to warrant limited concern.

4.3.10. Contaminations from Spills, Leakages, and Accidental Release of Fuels

Project construction and operation activities may contribute to contamination of the soil, surface, and groundwater resources. This is primarily due to improper management of hazardous wastes, spills, leakages, and accidental release of hydrocarbons during construction

and operation of various facilities and infrastructure. Spill prevention control, countermeasure plans, and procedures are required to ensure safe management of fuel and other hydrocarbon and chemical storage associated with the operation of backup generators. To address this, the best practice recommends implementing fuel delivery procedures and spill prevention and control plans applicable to the delivery and storage of fuel for backup electric power systems, preferably providing secondary containment and overfill prevention for fuel storage tanks.

4.3.11. Increased Energy Consumption

Installation of new facilities and equipment will need more energy to operate in particular. In this case, the demand for electricity might increase and trigger pressure on the resources.

4.3.12. Land Destabilization and Erosion

Land destabilization and soil degradation (in form of erosion, compaction, sealing and/or waterlogging) from construction works (road grading, small access roads, vegetation clearance and cut-and-fill) especially with slopes > 7% gradient may contribute to destabilization of the land and facilitation of the erosion. Cumulative effect will be land degradation though at a small scale.

4.4 Potential Socio-economic Impacts

4.4.1. Vulnerable Groups/ Communities

The development of infrastructure in vulnerable groups' territories may constitute a risk for the customs and cultural traditions of these populations. The construction projects and the presence of workers in their territories can affect their customs and lifestyle, with a subsequent loss of identity. Project activities, construction phase in particular, may contribute to the disturbance of local community's social dynamics due to migrant work force, e.g. unplanned pregnancies. The project may also increase access to mobile networks and data for communities which have been underserved with mobile services.

4.4.2. Physical and/or Economic Displacement and Land Use Change

Potential impact is associated with land acquisition for the construction of telecommunications and ancillary infrastructure, such as access roads, which could prompt the need for involuntary resettlement of the affected populations. This is particularly the case in the implementation of Rural Connectivity sub-project across 350 villages throughout the country. However, given the fact that most of the proposed telecommunications facilities are expected to be constructed alongside existing infrastructure and ROWs (such as roads and power transmission lines), then the potential impact will be minimal.

Constructing/rehabilitation of access roads in rural, undeveloped, or remote lands will involve converting land use (i.e. from agricultural to transport) and facilitating access to previously non-colonized areas (i.e. clearing of forests for colonization).

4.4.3. Cultural and Archaeological Sites

During construction works, archaeological findings may be encountered and potentially damaged or disturbed. Culturally sensitive areas (where cultural practices occur) may become affected by both construction and operation works, by modifying the religious or cultural value of a certain area.

4.4.4. Public Safety

Communities may be exposed to structural safety risks in the event of structural failure of masts or towers, especially in vulnerable areas such as those prone to earthquakes, flooding, or landslides and traffic related incidents as a result of vehicle movements and construction activities.

4.4.5. Occupational Health and Safety

Occupational health and safety hazards may occur during construction, maintenance, and operation of the facilities, and must be carefully managed. The occupational health and safety hazards include the following:

- Electrical safety;
- Electromagnetic fields (EMFs);
- Optical fiber safety;
- Elevated and overhead work;
- Fall protection;
- Covid 19 pandemic;
- Asbestos containing materials;
- Traffic related incidents;
- Dust;
- Noise;
- Confined space entry; and
- Motor vehicle safety.

Prevention and control measures must ensure that only trained and certified workers access the facilities or any area that could present occupational health and safety hazards, with the necessary safety devices and respect for minimum setback distances. Injuries related to electric shock should also be prevented, minimized, and controlled.

Furthermore, workers in proximity to electric power lines are more likely to be affected by EMFs than the general population. The best practice recommends that an appropriate EMF safety programme be developed and implemented. This should include:

- Identification of EMF exposure levels at various work sites;
- Provision of training to workers;
- Establishment of safety zones where potential levels of exposure would be higher than those acceptable for the general population and that only trained workers should be allowed to enter; and

- Development of plans to limit exposure levels within admissible levels developed by organizations such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

4.4.6. Aircraft Security

Antenna towers located near airports or known flight paths can pose a risk to aircraft navigation security through collision with masts or towers or through radar interference.

4.4.7. Risk of Gender Based Violence / Sexual Exploitation and abuse

The construction industry remains one of the most male dominated sectors. Women are under-represented in all construction occupations and professions. Workplace harassment and discrimination negatively affect the wellbeing of workers. Due to cultural interference resulting from movement of many people to the project area seeking for jobs, gender-based violence has high risk to occur. Some of the violence or abuse are caused by drugs.

Most of the infrastructure projects attracts people from different areas with different races and manners. Due to emergency of employment opportunities a number of people both men and women apply for the jobs and are employed by the projects. Most of them are moving to the project without their wives/husbands. All these people are renting the houses/rooms at the project area where they are living in groups. This interaction and living conditions pause risk of sexual exploitation and abuse.

Sexual Exploitation and Abuse (SEA) can be defined as any actual or attempted abuse of a position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another. Sexual abuse is further defined as "the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions." Women, girls, boys and men can experience SEA by either the project staff to staff or members of external host community. This represents a risk at all stages of the Project, especially when employees and community members are not clear about prohibitions against SEA in the Project.

4.4.8. Labor influx

The project will attract labor into the project area. Like any other project with significant recruitment, the influx of labor heightens the risks associated with sexual exploitation and abuse of community members by project workers, gender-based violence at the community level and sexual harassment between project workers. In addition, labor influx into this project area could be source of conflict between workers and the local population. The impact of conflicts because of influx of labor, though localized, temporary, reversible and noncumulative, can be severe in magnitude.

4.4.9. Violation of children rights by contractor and child labor on site.

Risk of violation of child rights and abuse by contractor workforce. The sub-project may also risk employment of children to work in the project either by the contractor or its sub-contractors.

4.5 Potential Positive Impacts

Overall, the proposed DTP will play a pivotal role in economic, social, cultural growth and development. The main socio-economic benefits of improved services include:

- Direct and indirect employment opportunities and business opportunities for both rural and urban dwellers;
- Economic growth and livelihoods diversification from increased and secured e-economy;
- Improved public service delivery and efficiency from improved ICT infrastructure and connected government institutions;
- Expanded rural and urban connectivity to ICT and access to services;
- Shared towers allowing price and service advantages to consumers through competition, unlike many other public utilities;
- Capacity building and skills development;
- Greatly extended geographic and socioeconomic range of non-voice or data services; and
- Declining costs for access to various public services.

Moreover, integration of environmental enhancements in the design of the project can also result into environmental benefits. Nevertheless, potential enhancements may include:

- Recycling of waste materials;
- Reduced carbon emissions by avoiding unnecessary travels for meetings and other activities;
- Investment in new technology that does not contain hazardous materials; and
- Environmental awareness regarding the use of local material supply in a sustainable manner.

4.6 Proposed Mitigation Measures

The proposed general mitigation measures in *Table 6* for the negative impacts are to be reviewed and defined to the specific DTP sub-project prior to approval for implementation. It is expected that each Construction Contractor engaged in the DTP will need to implement the site-specific mitigation measures in order to minimize or avoid negative impacts on the area of influence of their activities. As specified in this report, in each individual project, the implementing agency or authority shall be required to prepare and implement project-specific Environmental and Social Management Plan (ESMP) and Environmental Monitoring Plan (EMP), describing the specific mitigation measures, providing details about specific responsibilities, and monitoring and follow-up.

In addition to the general mitigation measures reflected in *Table 6* overleaf, and for all types of construction, operation and decommissioning works, the World Bank's General Environmental, Health and Safety (EHS) Guidelines and WB's Environmental , Health and Safety Guidelines for Telecommunications will need to be applied. The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP), which serve as a technical source of information for the implementation of activities. These guidelines will need to be adequately incorporated in each subproject specific ESMP as highlighted above. Further, recommendations from RCIP Compliance Audit (Section 4.1 above) shall be taken onboard by the implementing agencies (as Client) and contractors and/or any other service providers throughout the DTP.

Table 6: Generic Environmental and Social Management Plan for the DTP

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Biophysical Impacts			
Protected areas	• Infrastructure installation must be avoided in natural protected areas • In cases where construction of infrastructure in protected areas is necessary, it is recommended that a payment for environmental services be made.	MCITs, PO-PSMGG, Implementing Agency, Contractor	Construction
Terrestrial habitats alteration	• 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. • Avoid construction activities during the breeding season and other sensitive seasons or times of day. • Revegetate disturbed areas with native plant species • Manage construction site activities as described in relevant sections of IFC's General EHS Guidelines.	MCITs, PO-PSMGG, Implementing Agency, Contractor	Construction
Aquatic habitats	• Site power transmission towers and substations to avoid critical aquatic habitat such as watercourses, wetlands, and riparian areas, as well as fish spawning habitat and critical fish over-wintering habitat whenever possible. • Maintain fish access when road crossings of watercourses are unavoidable by utilizing clear span bridges, open-bottom culverts, or other approved methods. • Minimize clearing and disruption to riparian vegetation; • Manage construction site activities as described in the relevant sections of IFC's General EHS Guidelines.	Implementing Agency, Contractor	Construction

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Avian migration, fatalities, and/or injuries	• Site towers to avoid critical habitats such as nesting grounds, heronries, rookeries, foraging corridors, and migration corridors. • Avoid the cumulative impact of towers by co-locating antennae on existing towers or other fixed structures (especially cellular telephone communication antennae), design new towers structurally and electrically to accommodate future users, and remove towers no longer in use. • To the extent feasible, limited tower height and give preference to non-guyed tower construction designs (e.g., using lattice structures or monopoles). • If guy wired towers are located near critical bird habitats or migratory routes, installing visibility enhancement objects such as marker balls, bird deterrents, or diverters on the guy wires. • Consult with Tanzania Civil Aviation Authority (TCAA) on flight routes and, guidelines. • Ensure that the infrastructure/towers do not traverse Important Bird Areas (IBAs). • Limited the placement and intensity of tower lighting systems to those required to address aviation safety.	Implementing Agency, Operator, Contractor	Construction & Operation
Lighting effects	• Avoid or minimize the construction of new towers near airports or other areas where aviation activities would require lighting for public safety • Install necessary antennae on existing towers or other existing infrastructure • Install aviation safety measures and minimum amount of pilot warning and obstruction avoidance • Carefully select the type of lights to be used as per national guidelines, statutory requirements and Good International Industry Practices (GIIP)	Implementing Agency, Operator, Contractor	Construction & Operation

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Landscape and visual impacts	• Minimize construction of additional towers through co-location of proposed antennae in existing towers or existing structures such as buildings or power transmission towers. • Use tower and antennae camouflaging or disguise alternatives such as masts or towers designed to look like trees. • Landscape any salient construction mars and making rehabilitation efforts where possible. • Take into account public perception about aesthetic issues by consulting with the local community during the siting process of antenna towers. •	Implementing Agency, Contractor	Construction
Air emissions	• Implement vehicle fleet and power generator emissions management strategies as described in IFC's EHS Guidelines and avoiding the use of backup power generators as a permanent power source, if feasible. • Ensure that fire suppression systems use ozone-friendly technology. • Best international practice recommends against the use of chlorofluorocarbons (CFCs). • Carefully select equipment, machinery, and regular servicing.	Implementing Agency, Operator, Contractor	Construction & Operation

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Electronic wastes and hazardous materials management	• Implement fuel delivery procedures and spill prevention and control plans applicable to the delivery and storage of fuel for backup electric power systems, preferably providing secondary containment and overfill prevention for fuel storage tanks. • Implement procedures for the management and disposal of lead acid batteries, including temporary storage, transport, and final disposal. Lead-acid batteries should be managed as a hazardous waste as described in IFC's General EHS Guidelines. • Purchase electronic equipment that meets international phase-out requirements for hazardous materials content and implementing procedures for the management of waste from existing equipment according to the hazardous waste guidance in IFC's General EHS Guidelines. • Develop and implement Waste Management Plan (WMP).	Implementing Agency, Operator, Contractor	Construction & Operation
Noise emission and vibrations	• Use noise suppression shields and mufflers as well as the location of noise generating sources away from residential or other noise sensitive receptors to meet the noise emissions levels provided in IFC's General EHS Guidelines. • Regularly service equipment and machinery maintenance to minimize noise emissions. • Generator noise to meet Tanzanian noise limits indicated in the Regulations and TBS standards. • Locate the equipment in non-residential areas and sensitive receptors.	Implementing Agency, Operator, Contractor	Construction & Operation

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Electric and magnetic fields	• Evaluate potential exposure to the public against the reference levels developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). • Make sure that average and peak exposure levels remain below the ICNIRP recommendation for General Public Exposure. • Limit public access to antennae tower locations by erection of fences. • Follow good engineering practice in the siting and installation of directional links (e.g., microwave links) to avoid building structures. • Take into account public perception about EMF issues by consulting with the local community during the siting process of antenna towers.	Implementing Agency, Operator, Contractor	Construction & Operation
Contaminations from spills, leakages, and accidental release of fuels	• Storage of oil containers/drums to be located in an enclosed area with a non-permeable floor. • Activities to be carried out at least 60m from water bodies. • Secondary containment and overfill prevention. • Oversee equipment management and material handling to avoid leakage/wet-spray and spillage of contaminants into water courses. • Development and implementation of Spill Prevention and Response Plan (SPRP).	Implementing Agency, Operator, Contractor	Construction & Operation
Increased Energy consumption	• Design with minimum ecological footprint by integrating recycling and renewable energy technologies.	Implementing Agency, Operator	Operation
Land destabilization and erosion	• Erosion control measures to minimize in-stream turbidity and deleterious siltation upon the construction. • Site rehabilitation/reinstatement after construction works. • Landscape any salient construction mars and make rehabilitation efforts where possible.	Implementing Agency, Contractor	Construction
Socioeconomic Impacts			

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Vulnerable groups	• If a tower/mast is installed in an vulnerable groups reserve or territory, the sub-project must comply with the VGPF that has been prepared according to ESS 7. • Prepare an Vulnerable Groups Plan and implement specific measures to mitigate impacts and increase socioeconomic benefits of projects in a culturally appropriate way. • Establish culturally appropriate Grievance Mechanism (GM). • Conduct culturally appropriate consultations. This will be defined in the DTP VGPF.	MCIT, PO-PSMGG, PO-PSMGG/LGAs, Implementing Agency, Contractor	Construction
Physical and/or economic displacement and land use change	• Develop project-specific RAP and payment of compensation as defined in the DTP RPF. • Develop and implement Livelihoods Restoration Plan (LRP) to mitigateon the impacts caused by economic displacement. • Establish a Community Grievance Mechanism (CGM) to address land acquisition and compensation related grievances.	MCIT, PO-PSMGG, PO-RALG, LGAs, Implementing Agency, Contractor	Construction
Cultural and archaeological sites	• Towers should not be constructed on sites with high probability of existing critical archaeological findings. • Assess the potential for existence of physical cultural resources during site selection. • If physical cultural resources may be lost, implement full site protection. • Make provisions for managing chance finds, salvage, and documentation. • In other sensitive sites, have experts supervise construction works and stop work for removal in case findings are encountered. • Train personnel to recognize findings and notify supervisor. • Protect finding prior to removal and immediately report to supervisor for coordination with expert from local cultural heritage authority. and • Control access to site where finding occurred.	Implementing Agency, LGAs, Contractor	Construction

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Public safety	• Assess risk of erosion during site selection (i.e., soil characteristics, topography, climate, etc.). • Do not site towers in areas with high risk of natural disasters: (landslides, earthquakes, flooding, or slopes >30^{o}). • If location in residential area is necessary, respect the required distance between mast and closest residential building. • Design and install tower structures and components according to good international industry practice.	Implementing Agency, Contractor	Construction & Operation
Occupational Health and Safety	• Proactive risks and hazards assessment. • Develop and implementation the project specific HSSE Plans. • Develop and implementation the project specific HSSE Policy. • Workers training and awareness creation.	Implementing Agency, Contractor, Operator	Construction & Operation
Aircraft security	• Avoid sites that fall within the area ruled by Aviation Agency regulations. • If siting within the aviation agency area is required, comply with the agency's design and construction requirements. • Consultation with aviation agency prior to installation and adherence to national air traffic safety regulations. • Use strobe lights and other safety devices as required by the Aviation agency guidelines. • Maintain of security devices.	Implementing Agency, Contractor, Operator	Construction & Operation

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Violation of child rights by contractor and Child labor force on site.	• Develop and implement a Children Protection Strategy that will ensures minors are protected against negative impacts associated by the Project. • All staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behavior • Children under the age of 18 years shall not be hired on site as provided by Employment and Labor Relations Act, 2004 Part II Sub-part A Child Labor. • Wherever possible, ensure that another adult is present when working in the proximity of children. • Not invite unaccompanied children to workers home, unless they are at immediate risk of injury or in physical danger. • Refrain from physical punishment or discipline of children). • Refrain from hiring children for domestic or other labor, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury. • Comply with all relevant local legislation, including labor laws in relation to child labor.	Implementing Agency, Contractor, Operator	Construction & Operation

Sexual Exploitation and abuse	Gender Based Violence/Sexual Exploitation and Abuse (GBV/SEA) action plan with an Accountability and Response Framework as part of the C-ESMP. The GBV/SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018). The GBV/SEA action plan will include how the project will ensure necessary steps are in place for: • Prevention of GBV/SEA: Integrate provisions related to sexual harassment and sexual exploitation and abuse in the employee Code of Conducts (COCs) and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials. • Response to GBV/SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management. • Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of Prevention of Gender Based Violence/Sexual Exploitation and Abuse (PGBV/SEA) awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights. • Management and Coordination: including integration of GBV/SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to GBV/SEA, including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PGBV/SEA focal points in the project and trained community liaison officers.	Implementing Agency, Contractor, Operator	Construction & Operation

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
	• Ensure clear human resources policy against sexual harassment that is aligned with national law. • Ensure appointed human resources, environmental, social and health and safety personnel is well trained on PGBV/SEA. • Mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women; • Informing workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted; • Introducing a Worker Code of Conduct as part of the employment contract, and including sanctions for non-compliance (e.g., termination), and • Contractor to adopt a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence.		

Potential Impacts	Mitigation Measures	Implementation	
		Responsible Institution	Time frame (Phase)
Risk of Gender Based Violence	– The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including: o effective and on-going community engagement and consultation, particularly with women and girls; o review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women; etc. – Specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; etc. • The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation	Implementing Agency, Contractor, Operator	Construction & Operation
Labor influx	• The Contractor will develop and implement a labor influx management plan	Implementing Agency, Contractor, Operator	Construction & Operation

Note: The costs for implementation of the ESMP will vary based on the nature of impacts in each specific subproject.

4.7 Environmental and Social Monitoring

Environmental monitoring program for the DTP should be implemented so as to address all activities that have potentially significant impacts on the environment, occupational health and safety, and social during normal operations and upset conditions. ESHS monitoring activities should be based on direct or indirect indicators of emissions, effluents, and resource use applicable to the particular project.

The ESIA for subprojects will be prepared following the provision and requirements of this ESMF and subsequent subproject ESMP will be prepared. The Contractor will be required to prepare C-ESHSMPs. This will include the requirement for monitoring of ESHS in the sub-projects.

Monitoring frequency should be sufficient to provide representative data for the parameter being monitored. The monitoring should be conducted by trained individuals, following monitoring and record-keeping procedures and using properly calibrated and maintained equipment. The monitoring data should be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken (IFC, 2006).

In addition, environmental and social monitoring should address all possible effects that the specific DTP project could have on the environment. The monitoring, therefore, should encompass vegetation loss, effects on natural terrestrial and aquatic habitats, erosion, air and water quality, EMFs, and bird mortality as well as social surveys, impacts on vulnerable groups, traffic safety and health, and other occupational health and safety issues.

To monitor the impact of towers and masts on migratory birds, the USFWS in the United States requests that operators allow USFWS personnel or researchers to access the site to evaluate bird presence and search for dead birds. Researchers are authorized to set up radar and other necessary equipment to assess and verify bird movements to gather information on the effects of the towers on birds.

5. SUB-PROJECT SCREENING, REVIEW, APPROVAL AND IMPLEMENTATION

This section presents the screening, review, and approval process for activities to be financed under DTP. Since the locations for the sub-projects are not clearly identified at this stage, it is important to have the appropriate environmental and social management tools and procedures in place to assist DTP implementing agencies in screening these activities for potential impacts and to provide guidelines for implementing measures to effectively address them. Furthermore, this section provides a "harmonized" approach to the screening and appraisal process for sub-projects so that it can be applied to DTP. Once the sub-projects have been identified and locations selected, DTP should use this section as the guideline to screening sub-projects and implementing the appropriate measures while ensuring adherence to all respective legislative requirements for screening and EIAs.

5.1 Implementing Agencies

As presented in *Sections 2.2 and 2.6* above, the MCIT and PO-PSMGG are overall coordinating and implementing agencies. The direct implementation of the proposed sub-projects resides with the respective aforementioned institutions presented in *Section 2.2*. Furthermore, it is recommended that an Environmental and a social Specialists be assigned to the executing agency to undertake a thorough screening of the project(s) and oversee implementation of the EMPs/ESMPs.

5.2 Environmental and Social Management Tools and Procedures

In order to ensure that the planned DTP's sub-projects have a mitigation effect on impacts that may be generated during implementation phase. The key tools to be used and steps are outlined in the following sections. The DTP-PIU and respective direct implementing agency shall deploy these tools to ensure that environmental and social concerns are integrated into a decision-making process and fosters desirable project outcomes in all spheres.

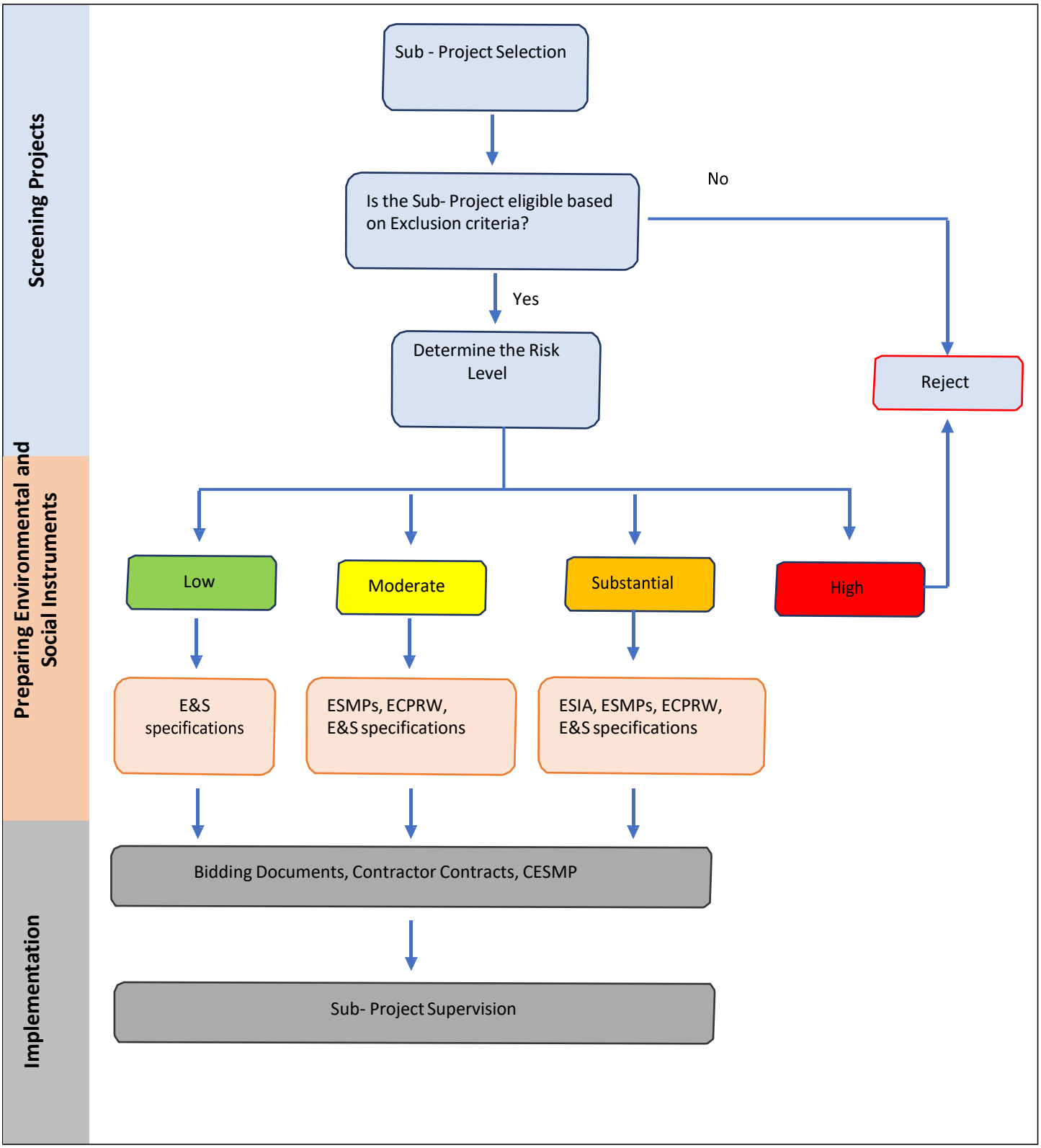
The tools are mainly:

i. Environmental and Social Screening;
ii. Environmental and Social Management Plans (ESMP); and
iii. Environmental and Social Impact Assessment (ESIA).

5.3 Screening and Review Process

Figure 2 below details the process that should be followed throughout the project cycle from sub-project selection to implementation.

Figure 2: The Environmental and Social Screening Process



a. Screening Sub-Projects

The screening of sub-projects to be implemented within the DTP a dedicated screening procedure is described below.

Step 1: Application of the Exclusion Criteria

This is the first step to be carried out by the PIU. Each proposed project should be screened based on the exclusion criteria given below. If the potential project meets any of the criteria given in the list, then it should be rejected

The projects will not:

- take place in protected areas or buffer zones of protected areas,
- lead to conversion or degradation of forest areas, natural habitats such as wetlands, and clearing of forests or forest ecosystems including dry tropical forests,
- involve land reclamation (i.e., drainage of wetlands or filling of water bodies to create land),
- take place in disaster prone areas.

Step 2: Determining the Environmental and Social Risk Rating

By cross referencing the scale of civil works to be carried out and the sensitivity of the site, the risk level of the sub-projects is determined. Based on the risk category of the sub-project the nature of the environmental and social effort required for managing the impacts during implementation can be identified. The process is described below and should be undertaken by the PIU.

i. Identifying the Scale of the Works

Based on the type of the works to be carried, the scale of the sub-project should be determined (Table 7).

Table 7: Scale of Proposed Works

Scope of DTP Works	**Hierarchy**
Construction of new building/facilities	I
Rehabilitation of existing buildings/facilities	II
Maintenance	III

ii. Assessing Site Sensitivity

Sites sensitivity is assessed based on the location of the sub-project. Using available information such as maps showing key features such as national parks, protected areas, forests, rivers, etc.; topographic maps; cultural heritage maps; planning records; literature review and site visits,

the PIU should determine the sensitivity of the proposed sub-project based on the criteria given in Table 8.

Table 8: Site Sensitivity of the Sub-projects.

Sensitivity	Description
Very Sensitive	1.1 High possibility of environment degradation taking place (deforestation, soil erosion, water resources depletion, hunting, etc.) due to the project 1.2 Project is within 1 km from ecologically sensitive habitats or critical ecosystems (significant wetlands, mangroves, protected areas, national parks, natural forests, wildlife sanctuaries, rivers and lakes) and with possibility of induced impacts on sensitive ecosystems and ecologically sensitive habitats 1.3 Mountainous topography (>35% of slope) 1.4 Located in areas vulnerable to natural disasters (floods, landslides, droughts, earthquake, etc.) 1.5 Presence of places of significant cultural and historical interest along the RoW or at the proposed material sites. 1.6 Land acquisition and physical and /or economic displacement of more than 10 affected persons per sub-project
Moderately Sensitive	2.1 Slight possibility of environmental degradation taking place (deforestation, soil erosion, water resources depletion, hunting, etc.) due to the sub-project 2.2 Sub-project is 1-5 km from ecologically sensitive habitats or critical ecosystems (wetlands, mangroves, protected areas, national parks, natural forests, wildlife sanctuaries, rivers and lakes) 2.3 Wavy topography (15-35% of slope) 2.4 Located in areas with moderate risk to natural disasters (floods, landslides, droughts, earthquake, etc.) 2.5 Suspected presence of places of significant cultural and historical interest near the RoW or at the proposed material sites 2.6 Possibility of induced impacts on sensitive ecosystems and ecologically sensitive habitats because they are located in the sub-project area of influence 2.7 Land acquisition and physical and /or economic displacement of between one and 10 affected persons per sub-project

Low Sensitivity	3.1 Low possibility of environmental degradation taking place (deforestation, soil erosion, water resources depletion, hunting, etc.) due to the sub-project 3.2 Sub-project is greater than 5 km from ecologically sensitive habitats or critical ecosystems (wetlands, mangroves, protected areas, national parks, natural forests, wildlife sanctuaries, rivers and lakes) 3.3 Flat topography 3.4 Located in zones at no risk to natural disasters (floods, landslides, droughts, earthquake, etc.) 3.5 Absence of places with cultural and historical significance in the area of influence 3.6 No induced impacts 3.7 No Land acquisition and or physical and /or economic displacement.

iii. Identifying the Environmental and Social Risk Level

The environmental and social risk level or category is a function of the (i) scale of the sub-project, and (ii) the site sensitivity. Based on *Table 9* below, the E&S risk category of the projects should be determined by the PIU. The Risk classification is based on the definitions provided in the World Bank Environmental and Social Directive for Investment Project Financing given in Annex III.

Table 9: Environmental and Social Risk Level or Category

Sub-Project Grade	Site Sensitivity		
	Very Sensitive	**Moderately Sensitive**	**Low Sensitivity**
I	H	S	M
II	S	M	L
III	M	L	L

H: High Risk; S: Substantial Risk; M: Moderate Risk; L: Low Risk

Step 3: Definition of required level of effort

Once the risk level has been identified, the level of environmental and social effort for managing the E&S risk for each sub-project should be determined based on *Table 10*. All sub-projects with impacts on land as detailed in the RPF document should prepare a RAP.

Table 10: Environmental and Social Efforts to be undertaken

Risk Level	Level of E&S Effort
High	Sub-projects to be rejected
Substantial	ESIA and ESMP will be prepared for the sub-project by independent consultants; MCIT to follow environmental and social specifications for contractors C-ESMP Annex XIV
Moderate	Site specific ESMP (based on scoping conducted on the sites and requirements for material sites and construction camps) MCIT to follow environmental and social specifications for contractors CESMP
Low	Environmental and social specifications for contractors will be prepared by MCIT

High Risk: Projects identified to be of High risk will be rejected.

Substantial risk: Projects should undertake an ESIA including assessment of induced impacts. For identified impacts, an ESMP should be developed for the Sub-projects. MCIT Should follow the E&S specifications for contractors as in Annex XIV. The ESMP and E&S specifications for Contractors should be included in the bidding documents. The contractor should prepare C-ESMPs based on the ESMP requirements. The contractor should follow the E&S specifications for Contractors during construction.

For Moderate risk Sub-projects: site specific ESMPs should be developed. Impacts can be identified during the scoping and avoidance and mitigation measures should be provided in the site specific ESMPs. During construction by following good practices using E&S specifications for contractors with oversight by the supervision engineer/consultant the impacts can be managed. The contractor should prepare C-ESMPs based on the requirements in the site specific ESMP.

For Low risk Sub-projects, the impacts can be managed through the E&S specifications for contractors with oversight by the Supervision engineer/consultant.

Preparation of ESIA and ESMP

An ESIA along with an ESMP shall be prepared by the registered Experts/Firms. ESIAs will address direct, indirect, induced and cumulative impacts. ESIA and ESMPs will have to be submitted to NEMC after World Bank approval for obtaining certification. In this situation environmental procedures (from registration, scoping, to preparation of ESMPs/ESIA, review,

to issuing of an EIA certificate) as provided by National Environment Management Council will apply. Apart from adhering to report structure and content, the ESIA shall have attachment on summary of public consultations carried out, Terms of Reference for which guided preparation of an ESIA and drawings for the project component.

The ESMP shall provide all mitigations with associated monitoring measures as well as responsible institution for particular action. The ESMP should be implemented during implementation and operations of all project components. Implementation of the ESMP will be solely the responsibility of MCIT. PIUs shall supervise and monitor all components implemented by the Contractor(s). The project shall provide the necessary supervisory oversight to ensure the mitigation measures are implemented. All aspects of the project development and operation will be managed to comply with this ESMF and NEMC regulatory requirements and standards. This will be done to minimize identified adverse environmental and social impacts to levels that will not have negative impact to the nearby surrounding or area of influence. The ESMP will be one of the crucial documents for submission during approval of the project component.

The Table of Content for the EIS report is presented in *Annex VIII* and ESMP formats are presented in *Annex IX.*

b. Assessment and classification of impacts

Based on the screening form and field appraisal, the impacts are classified based on their risk category and a decision is made as to whether the sub-project will:

a) Require an EIA study and/or RAP, since the impacts qualify as being high-risk and significant and may result into land acquisition and/or involuntary resettlement;

b) Require only an ESMP, since the impacts are not significant and can be easily addressed through the implementation of a mitigation and management plan during construction and operation of the sub-project; or

c) Not require any safeguard measures, as the impacts are considered minimal.

Table 11 below outlines the risk categories, based on the ESS 1 environmental categories (High, Substantial, Moderate and Low Risk)

While the risk rating below may be considered "in general" they do not represent specific subproject conditions and thus cannot be applied automatically.

Table 11: Environmental Risk Categories Associated with DTP Activities

Types of activity	High Risk	Substantial Risk	Moderate Risk	Low Risk
Installation of masts and towers		x		
Installation of fixed line cables and connectors			x	
Construction of landing stations			x	
Equipment housing (e.g., shelters, cabinets, auxiliary power units)			x	
Construction of access roads and ROWs on greenfield sites		x		
Maintenance of access roads or other existing linear infrastructure that does not require ROW expansion				x
Land acquisition and modification of land use		x		

c. Identifying alternatives to sub-project design

For sub-projects deemed high risk, as they may result into significant impacts, the Client will reassess the location and design of the sub-project to ensure that there are alternatives that might minimize or avoid these potential environmental and social impacts.

5.4 Appraisal and Monitoring Process

a. Appraisal and Approval

Environmental permitting requirements

For High risk sub-projects requiring an EIA:

The Client (PIU) must review the EIS prior sending to the bank for approval. The PIU will then submit a copy of the EIS to the relevant authority (that is, NEMC) for review and approval. The copy should include all relevant information as outlined in *Annex VIII* (ESIA table of contents) an ESMP, a set of environmental contract clauses, and a summary of public consultations carried out. *Annex VII* provides the Terms of Reference for preparation of an EIA. For sub-projects that may result into involuntary resettlement or displacement, the Proponent is also required to submit a RAP to the relevant authority including WB for approval. This is explained in more detail in the Project's Resettlement Policy Framework.

For Substantial Risk, Moderate Risk and Low Risk sub-projects that require an ESMP

The Client will submit a copy of the ESMP to the relevant environmental authorities and to the executing agencies (MCIT and PO-PSMGG) and World Bank. The objective of the ESMP is to cater for environmental and social needs of the project in a simple, responsive, and cost-effective manner that will not unnecessarily overload or impede the project cycle. The ESMP should outline the measures needed to address the issues identified during the assessment of subproject activities. Moreover, a good ESMP should demonstrate that proposed monitoring

activities will encompass all major impacts and identify how they will be integrated into project supervision.

The ESMP should address the following as a minimum:

- Environmental and social mitigation measures;
- Environmental training and capacity building programme; and
- Environmental and social monitoring and reporting programme.

This ESMP should include the following typical contents:

- Potential environmental and social impacts and risks related to siting, construction, and operation of the sub-project;
- Mitigation and monitoring measures to address potential impacts and risks;
- Responsibilities for monitoring ESMP requirements;
- Training and capacity-building requirements for project workers, officers and communities; and
- Estimated budget.

It is worth noting here that the content of the ESMP will depend strongly on the nature of risk associated with the sub-project being proposed. The impacts associated with digging a trench along an existing road to install cable lines can be easily addressed through mitigation and monitoring measures applied in the civil works and supervision contracts without any rigorous site-specific environmental analysis. Whereas, building a tower in an area where it is necessary to construct an access road and clear vegetation will require more rigor and site reconnaissance and ESMP that is specific to that sub-project location. The guidelines for an ESIA and ESMP attached as annexes provide a good reference for these measures. The Client, therefore, is required to include environmental contract clauses in the technical specifications and account for these measures in the sub-project implementation budget. *Annex VII* provides a set of recommended contract clauses to be included in contractor agreements.

Criteria for Approval

- For those EIAs that have been reviewed by the PIU and approved by NEMC an environmental permit can be granted.
- For those EIAs that do not meet the country's EIA requirements, an environmental permit is rejected, and the relevant environmental authority may choose to carry out an audit. The Client will be asked to re-submit the EIA based on recommendations of the audit.

As emphasized in the World Bank's guidelines, a sub-project should not be approved and funded until such reports are received, approved, and disclosed.

b. Disclosure of Sub-Project Information

In compliance with World Bank's ESF and national EIA and Audit Regulations, before a sub-project is approved, the applicable documents (EIA, ESMP, and/or RAP) must be made available to the public for review at a place accessible to local people (e.g. at a district council office, relevant environmental authority) in a form, manner, and language they can understand. Disclosure measures are prescribed in the project's SEP.

c. Annual Monitoring Reports

Compliance monitoring comprises of a site-inspection of construction activities to verify that measures identified in the ESMP and/or RAP are included in the clauses for contractors. This type of monitoring is similar to the normal tasks of a supervising engineer whose task is to ensure that the contractor achieves the required standards and quality of work. Once the implementation of the sub-project has started, periodic supervisory missions should be carried out (by the Environmental Specialist or contracted Consultant) and more frequent reporting to allow for correction of compliance issues or unmitigated impacts/risks. In addition to routine ES performance reports there must be reporting of significant ESHS incidents (WB requirement) by contractors, and then by PIU to WB.

Below are different types of ES reports:

- ES performance reports prepared by subproject contractors and send to PIU/implementing agency and any Supervision Consultant
- ES Performance reports prepared by Supervision Consultant
- ES performance reports prepared by PIU and sent to the World Bank

Monitoring Report submitted to MCIT's, PO-PSMGG, and to the World Bank for review (Quarterly). *Annex XI* provides a recommended format for the Report. Moreover, during project construction phase, environmental, social and health and Safety issues should feature into overall monthly progress report for each sub-project.

The purpose of these reports is to provide:

- A record of project and sub-project transactions;
- A record of experience and issues running from year to year throughout the pproject that can be used to identify difficulties and improve performance; and
- Practical information for undertaking an annual review.

5.5 Implementation and Monitoring Schedule

The executing agency should agree with the Client on supervision of the Environmental and Social Monitoring Plan (EMP) within the overall plan for the project. Accordingly, the supervision arrangements for the EMP should include all requirements on which supervision will focus. These areas include critical risks to implementation of the EMP, how such risks will be monitored during implementation, and agreements reached with the Client. It is vital that an appropriate environmental supervision plan be developed with clear objectives so as to ensure a successful implementation of an EMP.

Supervision of the EMP, along with other aspects of the project, covers monitoring, evaluative review, and reporting. Generally, it is designed to:

- Determine whether the Client is carrying out the project in conformity with Environmental and Social standards and legal agreements;
- Identify problems as they arise during implementation and recommend to the Client the means to resolve them;
- Recommend changes in project concept/design, as appropriate, as the project evolves or circumstances change; and
- Identify the key risks to project sustainability and recommend appropriate risk management strategies to the Proponent.

5.5.1. Monitoring and Evaluation and Audit

Monitoring and evaluation (M&E) of the ESMF is an integral part of the overall M&E programme to be developed for the DTP. The overall M&E programme developed for the DTP will include indicators for monitoring impacts and evaluating outcomes against the PDO. M&E of sub-projects will be carried out by PIU staff or consultants while the direct implementing institutions (refer *Section 2.2*) will have the responsibility mandated to monitor and evaluate their operations as set out in the DTP programme.

Each implementing agency will monitor and evaluate sub-project activities as well as ensure that impact monitoring and management, set out in the any ESMP and ESIA developed in their area, are complied with. In order to achieve positive results, M&E of the sub-projects and related activities will be performed periodically, at least twice a year, with an annual report submitted to the MCIT, PO-PSMGG and the WB. Depending on the nature of the project activities and availability and or need for close follow up, more frequent monitoring visits can be made to projects that show any signs of risks or negative impacts.

The PIU at the MCIT, in collaboration with the direct implementing agencies, will develop terms of reference and cost and will include M&E for any additional surveys or assessments proposed prior to conduct an ESIA and or ESMP.

The ESMF M&E outcome indicators should contribute to ensuring that:

- Safeguards issues identified in the screening are to be addressed. If not, the contractor/ service provider must develop and present for approval a plan to regain and/or maintain future compliance;
- Where an ESIA and or an ESMP was developed, that all the commitments with regard to impact mitigation, monitoring, training of workers, etc. have been implemented. If not, the proponent must develop and present for approval a plan to regain and maintain future compliance;
- New environmental or social concerns that may have arisen as a result of the sub-project activities implementation and operations are addressed and documented; and
- If the environmental and social concerns identified are deemed significant, the proponent may need to modify the ESMP to reflect a need for ongoing work to address the new impacts. Information on this new plan will be provided in the annual report and or be required shortly thereafter.
- Standard ES indicators will be developed by PIU for the main types of subprojects. These will be shared with implementation agencies, and enhance as needed based upon screening and subproject ESMP and/or ESIA and incorporated into subproject bids and Contracts

6. STAKEHOLDERS ENGAGEMENT AND PUBLIC DISCLOSURE

6.1 Public Consultations

Stakeholder engagement and disclosure are requirements in the national EIA regulations as well as World Bank ESF standards in particular ESS10. The process of stakeholder engagement is based on the following key principles: to provide information to all stakeholders through different media platforms (including interviews, seminars, print and digital media); promoting dialogue between all stakeholders and civil society players if needed; and promoting access to project information by availing it to all stakeholders at all levels. Stakeholder engagement and information disclosure in the DTP will be guided by the project's Stakeholder Engagement Plan (SEP).

6.2 Objectives and Scope of Consultations

During the development of this ESMF, the Consultant conducted thorough stakeholders' consultations with key implementing agencies that will be directly responsible for the DT project. The aim was to solicit their concerns, key issues, experiences and lessons learnt while implementing RCIP-TZ, and to use the results of the consultations to update the ESMF for the DTP. Given the limited duration of the assignment, consultations were only done in Dar es Salaam and Dodoma, mainly with the implementing, coordinating, and operating public and private institutions at the national level.

In-depth interviews and consultative meetings were held with various stakeholders in their offices, mainly with staff members/key informants depending on the type of data required and envisaged role in the implementation of the DTP sub-project(s). A checklist of guiding questions and/or themes was prepared beforehand.

The project footprint is not yet fully defined and thus consultations under the project were done with stakeholders at the national level on two (2) occasions. The first round of consultations was conducted during the preparation of the draft ESMF and draft RPF between April 23, 2018 to May 11, 2018 with government agencies, service providers, academic institutions and regulatory authorities. Additional consultations at the national level with Civil Society Organizations (CSOs) and members of the public were conducted on November 23, 2020. For the second round of consultation with CSOs: the draft ESMF and RPF were disclosed online by the then Ministry of Communication and Information Technology (Communication Sector) which is currently the MCIT; the consultations were advertised in two local dailies in both Kiswahili and in English languages; and targeted invitations were also sent to CSOs at a national level. Additional consultations were also conducted with vulnerable groups representative on the February 10, 2021.

A summary of engaged stakeholders is presented in *Table 12*. During consultations, several issues and concerns, some of which would and or may be addressed by the DTP as indicated in detailed minutes (see *Annex II*), were brought up by different stakeholders. Signatures of the consulted parties are found in *Annex IV*.

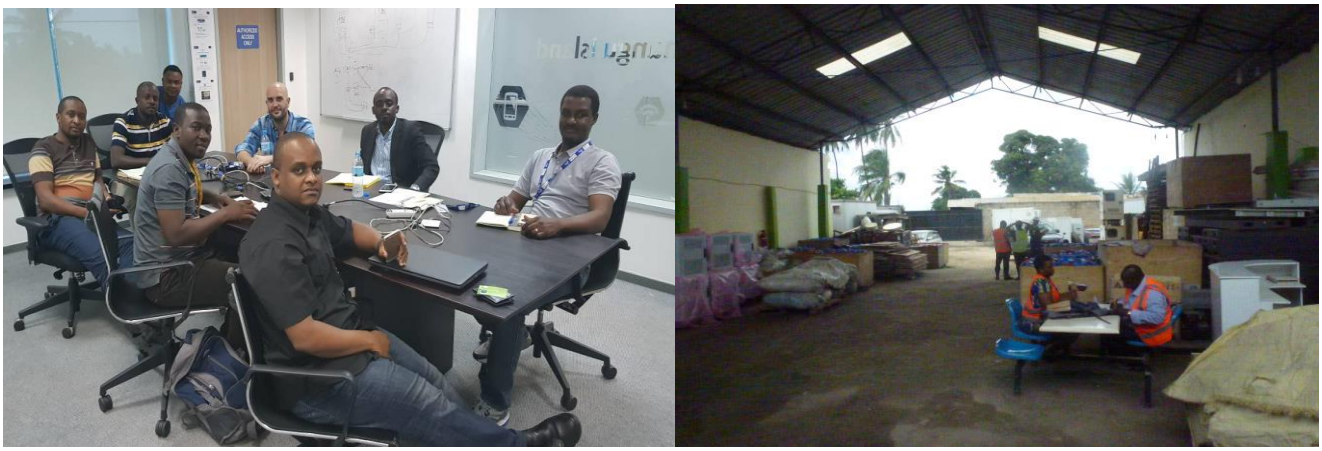


Figure 3: Stakeholders Consultative Meeting with TIGO/MIC (Left) and e-waste Collector (Right)
Source: Fieldwork, April/May 2018

Table 12: Summary of the Consulted Stakeholders

Consultation Date	Participant(s)	Designation	Department/Unit	Institution
23.04.2017	Sutte Masuha	Assistant Director, ICT	Directorate of ICT	PO-RALG
24.04.2018	Munaku, M	Director, ICT	Directorate of ICT	MWTCs
	Stephen Wangwe	Assistant Director, Communication Systems		MWTCs
24.04.2018	Jasson Ndaguzi	Coordinator of Telecom Engineer	Technical Services	Information and Communications Technology Commission (ICTC)
24.04.4.2018	Odilo J. Majengo	Director of Trade Promotion and Marketing	Directorate of Trade Promotion and Marketing	Ministry of Industry, Trade and Investment (MITI)
25.04.2018	Priscus Kiwango	Director ICT Systems	Directorate of ICT	PO-PSMGG
	Arnold Matoyo	Assistant Director of ICT		
25.04.2018	Justinian Anatory	Dean of Students	School of Informatics	University of Dodoma (UDOM)
	Mselle, L	Dean of Students	School of Virtual Education	UDOM
27.04.2018	Ally Mape	Assistant Director of ICT	ICT and Learning	Ministry of Education, Science and Technology (MOEST)
27.04.2018	Albert Richard	Head of Operations	Operations	Universal Communications

Consultation Date	Participant(s)	Designation	Department/Unit	Institution
				Services Access Funds (UCSAF)
27.04.2018	Suzan Nchulla	Principle Health Officer	Pollution Prevention and Control	Vice President's Office-Division of Environment (VPO-DoE)
02.05.2018	Cesil N. Francis	Chief Technical Officer	Technical Department	Tanzania Telecommunications Corporations (TTC)
02.05.2018	Peter Shilla	Director of Information System	Information System	Public Procurement Regulatory Authority (PPRA)
	Bernard Ntelya	Manager, System Support and Administration		
	Fanuel Yengayengwa	System Administrator		
02.05.2018	Shabani Pazi	Ag. Director, ICT	ICT	Ministry of Lands, Housing, and Human Settlement Development (MLHHSD)
	Alexander K. Kalaba	Principle, ICT	ICT	MLHHSD
02.05.2018	Benjamini Dotto	Director of Central Infrastructure and Operations	Central Infrastructure and Operations	e-Government Authority (eGA)
03.05.2018	Elvis Raphael	Infrastructure Manager	Infrastructure	Halotel Tanzania
	Benedict Amandus	Procurement Manager	Procurement	
04.05.2018	Charles Kossam	ICT Officer	ICT	Muhimbili National Hospital (MNH)
04.05.2018	Cuthibert Simalenga	Director of ICT	ICT	Registration, Insolvency and Trusteeship Agency (RITA)
	Cliff Marajali	Principle, ICT		
	Robby Otaigo	Senior, ICT Officer		
04.05.2018	Jerome Albou	Chief ICT Officer	Department of ICT	MIC Tanzania Limited/Tigo
	Revocatus Nkata	Senior Regulatory Affairs Officer	Regulatory	
	Nyamala Kachecheba	Network Programme Manager	Networking	
	Emanuel Manga	Site Roll Out Manager	Planning and Engineering	
	Semvua Kisenge	Senior Manager Planning		

Consultation Date	Participant(s)	Designation	Department/Unit	Institution
	Thomas Chang'a	Environmental Engineer		
04.05.2018	David Mbogela	Network Planning Engineer	Networking	Vodacom Tanzania
	Livingstone Kimaro	Network Planning Engineer		
07.05.2018	Ombeni Mzana	Head of ICT Services	ICT Services	Dar es Salaam Institute of Technology (DIT)
07.05.2018	Charles Palapala	Director of ICT	ICT	Tanzania Revenue Authority (TRA)
	Lazaro Swai	Management Officer Productivity Services		
	Violet Kazimoto	Ag. Management System and Production		
07.05.2018	David Mtake	Manager of Computerized Information Systems	Computing System	Tanzania Postal Corporation (TPC)
08.05.2018	Charles Tarimo	ICT Manager	ICT and Management	University of Dar es Salaam (UDSM)
	Bakari Rashid	Systems Administrator		
09.05.2018	Nchege Mazoya	Environmental and Regulatory Officer	Corporate, Communication and Regulatory	Airtel Tanzania
09.05.2018	Carlos Mbuta	Principal Officer	Information, Communication, and Outreach	National Environment Management Council (NEMC)
10.05.2018	Lucas Mwalongo	Deputy Director, Industry Analysis and Tariff Regulations	Consumers and Industrial Affairs	Tanzania Communications Regulatory Authority (TCRA)
11.05.2018	Gideon R. Chilambo	Managing Director	Management	Chilambo General Trade Co. Ltd

Source: Fieldwork, April-May, 2018

6.3 Summary of Key Issues Raised by Stakeholders

The overall project impacts are expected to be mostly positive, significant and widespread. From the environmental and social point of view, all consulted stakeholders indicated that the positive impact of the DTP outweighs the negative ones. This suggests that only minor to moderate negative impacts and risks are anticipated. In general, stakeholders have a positive attitude towards the DTP and have promised to work closely with the implementing agencies in all phases of the project implementation. *Table 13* below presents summary of the key concerns while detailed minutes are presented in *Annex II & III*.

Table 13: Summary of Key Issues raised by Stakeholders

SN.	Key Issues/Concerns	Proposed Responses
(i)	Provision of permits	The regulatory agencies responsible for the provision of permits/certificate (EIA, Aviation, building, e-waste collection etc.) should consider quick provision of permits to avoid delaying project implementation which can result into paying resultant penalties. For instance, NEMC may provide provisional environmental permit as is being done for industries to allow the project to continue while waiting for the EIA certificate
(ii)	Incorporation of lessons learnt from RCIPTZ	Despite of the recorded success, the RCIPTZ programme had a number of shortcomings including coordination and management challenges such as management of e-wastes, and inadequate stakeholders' engagement. It is recommended that past experience from RCIPT TZ be fully considered and incorporated into the decision-making process at all levels.
(iii)	Construction of supporting infrastructure	The government should consider creating an enabling environment, specifically in the remote/rural areas to construct infrastructure such as access road and supply of TANESCO/REA electricity. This will reduce operations cost for operators and, from environmental point of view, it will minimize air and land pollution as generators emit CO_2 and oil spills and solar panels contribute to the increasing of e-waste.
(iv)	Land take/acquisitions and compensation modalities	The DTP is not expected to result into resettlement i.e. relocating people but project activities can require land acquisition, which would result into loss of land and properties and loss of crops for locating ICT infrastructure such as telecommunication masts/towers and optical fiber cables. However, any land taken during project implementation should be duly compensated for, based on relevant national legislation and regulations as well as WB's ESS 5 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;).
(v)	E-waste management	The proposed DTP will contribute to the increase of e-waste in the country. DTP should have clear guidelines on e-waste disposal, recycling, and reuse. This should include engaging registered e-waste collectors in managing e-waste and raising public

SN.	Key Issues/Concerns	Proposed Responses
		awareness on the effects of e-waste to the human health and the environment.
(vi)	Stakeholders' engagement and awareness creation	There should be continuous and effective engagement and communication with stakeholders at all stages of the proposed project. This will involve awareness creation to the public on both positive and negative impacts of the DTP.
(vii)	Improvement of government services and communications	The DTP will enhance government services such as efficient government service delivery, healthcare service delivery, data integration and sharing programmes, enhancing government's abilities to collect and analyze information and tax collections as well as reduction of operating costs and integration and sharing of resources.
(viii)	Project sustainability	The government should find its own funding sources to sustain the project, including ICT capacity building to its employees, and involvement of all stakeholders, including the end users.
(ix)	DTP and industrialization	DTP should construct facilities to recycle and dispose e-waste as well as controlling an influx of fake products in the country. This will reduce the cost of exporting e-waste for disposal and ensure government income through tax collection.
(x)	Environmental pollution (air and land)	The project should adopt appropriate measures such as the use of an environmental-friendly source of power (electricity/solar panel), instead of using diesel generators (power supply) which emits CO_2 and spill oil. Appropriate sanitation facilities should be adequately provided in each tower.
(xi)	Occupational health and safety hazards	The project should develop a comprehensive Health, Safety and Environment (HSE) Plan to be adopted in each sub-project. The plan and/or guidelines will be used in all phases of the project.

Source: Fieldwork, April-May 2018

6.4 Stakeholder Consultations During DTP Implementation

During the course of the DTP, consultations should be carried out with all key stakeholder groups (see *Table 14* below). The MCIT and other implementing agencies will develop a Stakeholder Consultation and Disclosure Plan (SCDP) during the delivery of the DTP. The plan should provide guidance for the long-term participation of all stakeholders. Capacity building at systemic, institutional and individual level is one of the key strategic interventions of the DT project. This will target all stakeholders that have the potential to be involved in brokering, implementing and/or monitoring management agreements related to activities in and around the selected project areas.

For sub-projects that can be developed in vulnerable groups territories, a translator must be used so that the entire audience can be informed about the project. Concerns and suggestions must be included in the consultation process for the environmental and social evaluation so that they can be considered in the final evaluation.

Table 14: Key Stakeholder Groups in the DTP

	Level	Categories/Types
1.	Ministries, Departments and Agencies	Agencies outlined in Sections 2.2 and 7.2, as well as other relevant government and public sector agencies
2.	Local government authorities	Regional secretariats, Municipals, Township and District councils, district-level committees, Ward, *Mtaa* and village councils
3.	Public and private sector operators	Lead private sector companies such as major telecommunications operators
4.	Non-government organizations	International and local stakeholder groups, including environmental NGOs, Community-based Organizations (CBOs), Unions
5.	Academic, vocational training institutions and research institutions	Environmental research groups, universities, and technical institutes.
6.	Communities	Local communities, vulnerable and marginalized groups, and other local groups

6.5 Proposed Disclosure Plan

For projects such as DTP, the World Bank procedures require that an ESMF and RPF be prepared and publicly disclosed prior to project appraisal. This allows the public and other stakeholders to comment on the possible environmental and social impacts of the project. It also helps the appraisal team to strengthen the frameworks as necessary, particularly measures and plans to prevent or mitigate any adverse environmental and social impacts. Toward this end, this document will be publicly released through the World Bank's Info Shop and in public locations in Tanzania. The documents should be made available in English in compliance with the World Bank's *Public Consultation and Disclosure Policy.*

6.6 Disclosure of Sub-project EIAs/ESMPs/EMPs

The EIAs/ESMPs/EMPs prepared for sub-projects under DTP will also need to be disclosed to the public. Copies of the reports should be made available to communities and interested parties in accessible locations through local government authorities, (e.g. local councils, district offices), implementing agencies and the World Bank. This will ensure record keeping of all activities implemented under the DTP and ensure that third-party audits have adequate information when undertaking annual or compliance environmental audits.

7. CAPACITY TO IMPLEMENT THE ESMF

7.1 Strengthening of Project Capacity for Implementing the ESMF

In order to ensure that there is adequate capacity to implement and monitor performance, an Environmental Specialist and a Social Specialist with requisite qualifications and experience will be recruited to support and oversee compliance with the EMSF (and other ESF documents) throughout the project. The Specialists should report to the main bodies responsible for execution of the project.

The key roles that the MCIT Environmental and Social Specialists will play to contribute to the objectives of the project include:

- Preparing, together with the implementing entities, of annual work program and budgets;
- Monitoring project progress as it relates to compliance with the ESMF guidelines, resolving implementation bottlenecks, and ensuring that overall project implementation proceeds smoothly;
- Collecting and managing information relevant to the project and accounts (i.e., environmental monitoring and audit reports);
- Ensuring that the implementing bodies are supported adequately and that they adhere to the principles of the project, specific to compliance with ESMF guidelines.
- Ensure that the ESMF is implemented in compliance with National Legislation and the World Bank Group Environmental and Social Standards (ESSs) requirements;
- Oversee implementation of the ESMF by the partnering agencies implementing DTP;
- Ensure that the necessary environmental authorizations and permits are obtained; Send ESIAs and associated ESMPs to the National Environment Management Council (NEMC) for certification and to the World Bank for approval prior to commencement of any works on site;
- Determine the scope of environmental work,i.e., identify the magnitude, sensitivity and risk category of the sub-projects;
- Hire consultants to develop ESIA and environmental and social management plans (ESMPs) where needed and site-specific ESMPs (SSESMP) based on alignment walk;
- Facilitate public consultations with PAPs and other project stakeholders in preparation of ESIA/ESMP and oversee functionality of the project Grievance Mechanisms;
- Ensure the relevant elements of the ESIAs (including budget) are incorporated into final designs;
- Include the requirements and mitigation measures from site specific ESMPs in the bidding documents and contractor contracts;
- Provide site specific ESMPs to the design consultants to incorporate E&S measures identified;
- Ensure that contractors have an Environmental Health and Safety Officer (EHS), who are familiar with the compliance requirements, including WB EHS guidelines;
- Ensure supervision of the civil works either by hiring a supervision consultant or through designated environmental supervisors on the team of the supervision engineer;

- Review progress reports by the supervision engineer/consultant during civil works and conduct inspection of the sites;
- Send sub-project screening documents and site specific ESMPs to NEMC and the World Bank for approval;
- In case of any incident, notify the World Bank within 24 hours;
- Send progress reports every 3 months to the World Bank.

The MCIT, PO-PSMGG and the implementing partners will benefit from capacity building to facilitate effective implementation of the ESMF. The capacity building will enable improvement of the understanding and capacity for monitoring and evaluation reporting expected for DTP and compliance with the World Bank standards and procedures. Other project stakeholders' responsibility will include:

Implementing ESIA Consultants

- Work with the PIU to understand the requirements of the environmental and social assessment;
- Conduct initial site visits with the PIU to understand the sub-project setting and site-specific requirements;
- Prepare the ESIAs and ESMPs based on the procedures described in the ESMF including carrying out an alignment walk, alternatives analysis and baselines studies, identifying the E&S risks and impacts, developing mitigation measures and monitoring plans incorporating EHS requirements;
- Cost all the mitigation and management measures proposed in the ESMPs;
- Propose a capacity building plan for the implementation of the sub-projects for all actors involved with cost estimates and schedule;
- Carry out public consultations;
- Conduct trainings as needed;
- Assist the PIU in preparing documentation to obtain certification from NEMC for the ESIAs and ESMPs.

Design Consultants

- Understand the sub-project setting and site-specific requirements with discussions with in PIU;
- Incorporate the issues identified in the ESIAs and ESMPS into the design of the project (including necessary budget);
- Provide cost estimates for implementing the design requirements.

Supervision Engineer/Consultant

The PIU shall hire an independent firm which have a Supervision Engineer, Environmental Specialist, Social Specialist, Occupational Health and Safety Specialist to monitor and review on-site implementation of the E&S measures. The duties of the officer responsible for E&S supervision shall include the following:

- Assist the PIU to ensure that the necessary environmental, health and safety authorizations and permits have been obtained;
- Maintain open and direct lines of communication between the PIU and contractor(s) with regard to environmental matters;
- Review and approve the contractor's site-specific construction ESMPs (CESMP), Health and Safety, Labor Management Plans and Traffic Management Plans together with the PIU;
- Conduct regular site inspections of all work areas to ensure compliance with C-ESMPs and E&S specifications for contractors
- Take appropriate action if the specifications are not followed;
- Assist the contractor in finding environmentally responsible solutions to problems;
- Instruct the contractor(s) to take remedial actions within a specified timeframe, and carry out additional monitoring, if required, according to the contractual requirements and procedures in the event of non-compliances or complaints;
- Instruct the contractor(s) to stop activities which generate adverse impacts, and/or when the contractor(s) fails to implement the ESMP requirements / remedial actions;
- Provide training to the contractor on the ESHS requirements to be followed.

Under this ESMF, the capacity building objectives will intend to achieve the following:

- Develop and impart skills to the MCIT and PIU for screening and monitoring DTP interventions for environmental and social concerns;
- Impart skills to contractors, service providers and communities to prepare subproject proposals and plans in line with the WB standards and national legislations; and
- Facilitate Professional Service Providers to provide technical support (including environmental and social impacts awareness) to agencies project management teams in preparing and implementing their subprojects.

7.2 Training Needs Assessment

The MCIT will conduct a Training Needs Assessment (TNA) and develop a training plan to ensure effectiveness of the DTP implementation in various implementing partner institutions/agencies and LGAs. Primary focus of the TNA should be placed on all those will be involved in and or have responsibilities in the implementation of the DTP sub-projects, particularly for ESIAs and or ESMPs. It is proposed that NEMC or an experienced national private or public environmental and social practitioner carry out the environmental management/EIA training needs assessments. This has to be integrated into an overall DTP institutional capacity building aspect.

The TNA will be instrumental in differentiating various skills development and training needs in terms of:

- Awareness-raising for influential, representatives and community leaders who need to appreciate the significance or relevance of environmental and social issues.
- Sensitization for those who need to be familiar enough with the issues that they can make informed and specific requests for technical assistance;
- Distinguish among the various stakeholders and their needs for general awareness building and more specific training; and
- Detailed technical training for sub-project planning and implementation teams at all levels who will need to analyze potentially adverse environmental and social impacts, prescribe mitigation approaches and measures, and prepare and supervise the implementation of management plans.

7.3 Training of the Environmental and Social Specialists and Other Project Staff

It is also highly recommended that the Environmental and Social Specialists/Focal Persons from implementing agencies be provided with a four-day training workshop on implementation and monitoring of the ESMF. This training will ensure that the specialists are able to manage and monitor the environmental and social aspects of the DTP sub-project activities. The workshop should take place in early stages of DTP implementation. The workshop can be conducted by an external consultant with substantial knowledge on the environmental management requirements for Tanzania, including World Bank ESF Standards and requirements. Other relevant staff members of the DTP can be included in the training in order to widen the familiarization of the ESMF.

The key themes to be covered in the training workshop can include, but not limited to the following:

- Main environmental,social and health and safety problems /challenges and issues within the sector;
- Environmental and social assessment and management context: relevant policies, regulations and procedures;
- Review of environmental and social screening and assessment process; and
- How to screen projects; appraise and approve ESIAs, ESMP and overall project proposals; and supervise the implementation of subprojects.

A sample outline for the training is provided in *Table 15* below.

Table 15: Sample Outline Topics for the ESMF Capacity Building Workshop

Topic/Subject	Duration
Introductory brief	**(Opening session)**
• Definitions (environment, components of the environment, environmental management). • What Environment Management Tools are available in use in Tanzania & internationally. • Setting Environmental and Social Assessment Management procedures and process specific for the interventions.	
Environmental and social assessment process and preparation of ESIA / ESMP	**2 days**
• Screening process: how to identify projects/ components and activities likely to cause impacts (screening list, and the kind of criteria for use in classification of DTP subproject activities). • Preparation of scope (terms of reference) for carrying out ESIA. • Grievances management in project implementation; • Defining valued environmental and social receptors (indicators) in the existing environmental and social conditions. • Identification and evaluation of impacts: direct, indirect/secondary, cumulative and methods to use and significance criteria etc. • How to design appropriate mitigation and monitoring measures [How to prepare ESMP/RAP]. • How to review/approve/clear an ESIA report and associated ESMPs / RAP: conformity list, and the kind of criteria for use in this regard. • How to incorporate ESMP in project designs and in construction contract documents. • How to review and approve overall project proposals. • The importance of public consultations in the EIA process: strategies for consultation, participation and social inclusion. • How to embed the environmental and social management process into the civil works contract. • How to supervise monitor and report project implementation. • Implementation and monitoring of HIV/AIDS interventions; • Case studies.	
Environmental and social requirements (policies, legislation, procedures and sectoral guidelines) & institutional frameworks	**1 day**
• Review and discussion of Tanzania's environmental and social requirements (policies, procedures, and legislation). • Review and discussion of the World Bank ESS standards requirements. • How to collaborate with institutions at the local, regional and national levels e.g. NEMC.	
Selected topics on environmental components and conservation and social issues relevant to DTP development and implementation	**1 day**

Topic/Subject	Duration
• How to make environmental and social profiles of a specific intervention area. • Identification and evaluation of impacts associated with infrastructure development: land degradation (soil erosion), natural resources degradation/depletion, loss of valuable species and habitats, environmental pollution e.g. air quality, water quality. • Management of waste including handling of hazardous materials. • Disaster preparedness. • Land and property valuation and compensation.	

7.4 Proposed Budget for ESMF Implementation

The proposed budget for implementation of the measures and recommendations outlined in this ESMF for DTP is currently estimated at US$ 970, 000 as a ballpark figure– see breakdown in *Table 16* below.

Since the sub-projects and their locations have not yet been identified, a lump sum amount has been designated to address the potential number of EIAs and ESMPs which will have to be prepared as well as monitoring requirements for the ESMF. In addition, the exact locations and number of sub-projects that will be screened and determined by NEMC to require specific PEA, ESMP or detailed full-scale EIA is unknown at this stage. This is an estimate and will need to be updated once the project design has been finalized.

Table 16: Estimated Budget for ESMF Implementation

	Activity	Particulars	Cost (US$)
1.	Training	Training Needs Assessment	50, 000
		Project Implementation Unit	35, 000
		Direct Implementation Partners	30, 000
2.	Technical Assistance	General TA	20, 000
		Specific TA	30, 000
3.	Environmental and Social Management	ESIAs	150, 000
		ESMPs	300, 000
		Community Engagement	50, 000
4.	Annual Monitoring and Audits		65, 000
5.	Cost of recruiting full-time Environmental and Social Specialist		240,000
6.	Cost for 'on-call' archaeological monitor (the "DTP archaeologist") – covered under Specific TA.		-
	Total		**970, 000**

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ANNEXES

Annex I: Terms of Reference for the Assignment

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF COMMUNICATION AND INFORMATION TECHNOLOGY AND DIGITAL TANZANIA PROGRAMME

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

1. BACKGROUND

The Government of the United Republic of Tanzania (URT) through Ministry of Communication and Information Technology (MCIT) is preparing the proposed Digital Tanzania Programme intended for financing support from the World Bank (WB). The programme aims to assist the country to harness its digital potential by ensuring that all citizens have access to high quality, low cost connectivity, that public services are easily accessible online and that the digital economy is driving growth, innovation and job creation.

Across the globe, digital technologies are rapidly transforming the way people, businesses and governments communicate and access information and how they transact and deliver services. Tanzania can embrace this trend, taking proactive steps to ensure that its citizens, businesses and institutions are equipped to participate, innovate and flourish in an increasingly online, digital-first environment. This vision will require a long-term commitment to making the investments and policy reforms needed to increase connectivity, spur private sector ICT investment and innovation, develop a new generation of digital leaders and creatively using technology to improve the efficiency and impact of public services.

Digital Tanzania

The proposed project builds on the very successful Regional Communications Infrastructure and eGovernment Program – (RCIPTZ) that is in final stages of completion. The RCIP TZ development objectives were to (i) lower prices for international capacity and extend the geographic reach of broadband networks; and (ii) improve the government's efficiency and transparency through eGovernment applications.

The Project Development Objective of the proposed Digital Tanzania is to increase access to affordable, high quality internet services for government, businesses and citizens and to improve the government's capacity to deliver digital public services.

This program will follow a phased, Series of Projects (SOPs) approach. Phase I will focus on strengthening Tanzania's core Digital Foundations – closing the connectivity gap, increasing market competitiveness and investment, and strengthening the digitally enabled service delivery infrastructure and capacity within government. This phase planned to be implemented in five years from 2018-2022. The programme will involve significant collaboration with education sector initiatives and with private industry to strengthen digital skills development, in order to equip citizens and businesses with the capability to use technology to improve their livelihoods today and to thrive in the digital economy of tomorrow.

Digital Tanzania Project targets three core enablers of digital development components: (i) Digital Ecosystem: strengthening the laws, policies, regulations, and institutional and human capacity needed to promote ICT infrastructure investment, market competitiveness, digital engagement, job creation, and innovation; (ii) Digital Connectivity: ensuring access to affordable, high quality Internet services for all citizens and critical government institutions; and (iii) Digital Platforms and Services: building the technical capacity, institutions, and IT infrastructure for the Government to deliver services to citizens and conduct its own business digitally.

Component 1 (Digital Ecosystem): Aimed to make Tanzania a more attractive and competitive place to invest and innovate while ensuring that no one is excluded from the benefits of digital technologies. To draw on the terminology of WDR16 Digital Dividends, component 1 addresses mainly the "analog complements" to the digital revolution, specifically regulations, institutions and skills. The aim is to strengthen the enabling environment, or ecosystem, upon which Digital Tanzania can be built, and to boost the factors for future acceleration. Subcomponents would include:

1.1: ICT Policy, Regulatory and Fiscal Reform and Implementation

1.2: Cyber security, Privacy Protection and Data Exchange

1.3: Digital Youth

Component 2 (Digital Connectivity): Aimed to ensure that all Tanzanians can connect to the global network and that all government institutions, in particular, benefit from access to high-performance internet connectivity. Government funds would be used to leverage private sector investment, using the "cascade approach". Subcomponents would include:

2.1: Connected Government

2.2: Connectivity for Higher Education and Vocational Training

2.3: Rural broadband for development

Component 3 (Digital Platforms and Services): Aimed to build the core infrastructure and capacity necessary to support digital public service delivery and to enhance efficiency of the

government's internal operations. 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 "Whole of Government" philosophy. Subcomponents would include:

3.1: Shared digital public services delivery platform

3.2: Strengthening iinstitutional ccapacity to ddeliver ddigital sservices

3.3:Digital services and productivity platforms

2. ENVIRONMENTAL MANAGEMENT AND SOCIAL SAFEGUARDS

Taking into account potential impacts of the project and with due regard to World Bank environmental management and social standards, the proposed project has been assigned moderate risk category. The ESF standards triggered are ESS1, 2, 3,4, 5, 6, 7, 8 and 10In view of the fact that an ESMF and RPF were prepared for the Regional Communications Infrastructure Project - Tanzania (RCIP) in 2009, it is now proposed to update both documents, to be used under the Digital Tanzania Programme, taking into account changes in the regulatory environment, lessons learnt and the scope of activities under Digital Tanzania which may be different from RCIP in some cases. In the course of updating the ESMF and RPF, it should be determined whether any other World Bank ESF standards (and more specifically ESS 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources, ESS 8 on Cultural Heritage) might be triggered. If so, this would need to be reflected in the documents accordingly.

The exact network routing and specific location of the project activities that may result in involuntary resettlement is not known at this time. It is expected that 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, energy solutions and other telecom network equipment. In certain situations, the installation might require the acquisition of land. The project may also require construction or remodeling of data center facilities. Mitigation measures will need to be proposed to ensure that all sites are reinstated to their original conditions as far as possible after aerial cable installation or trenching or other project activities.

Environmental considerations of enhanced applications of digital technologies need to be looked into to safeguard quality of the environment. Assessment of capacity to handle waste arising from obsolete technologies as well as the governing policy and institutional frameworks is crucial in determining whether the available upstream and downstream measures to prevent and control environmental degradation are adequate. Integrated *e-waste* management strategies have the potential of minimizing adverse health and environmental effects of improper management of such waste. These include: establishing and promoting appropriate electronic product standards at national level for imported products; establishment of *e-waste* management systems; promoting environmentally sound management practices of *e-waste* at all levels; development of *e-waste* management infrastructure including recovery on pilot scale; promoting private sector participation in *e-waste* management; and enhancing public information dissemination and awareness, to mention a few.

3. OBJECTIVE OF THE ASSIGNMENT

The objective of the study is to update the existing RCIP Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) for the Digital Tanzania project. As part of the preparation of the project, the Government of Tanzania 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 and Environmental and Social Management Plans). The preparation of an RPF to address the needs of people who may be affected by the project will also be undertaken.

4. SCOPE OF WORK

Task 1: Update the RCIP TZ 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) to respond to the anticipated Economic and Social impacts arising from the project once the network routing/design and project 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, identification of environmental & health concerns and adverse impacts and enhance social and environmental performance of the project. This will be accomplished through identification of the likely environmental and social concerns during project planning and implementation; and development and application of appropriate criteria selection to gauge the severity of impacts to health and the environment arising from specific projects. The development and application of proper selection criteria for specific projects, planning that takes into consideration environmental and social criteria, sound implementation and monitoring, proper disclosure of project-related information, public consultations with various relevant stakeholders and beneficiaries' feedback.

For the preparation of the ESMF the consultant will undertake an analysis based on available information – under RCIP TZ, including the recent Audit Report for Environmental and Social Compliance for project activities implemented under the RCIP Tanzania, and follow up field visits where necessary, to achieve the objectives of the assessment. The consultant will review and take into account the environmental and social outcomes of the RCIP TZ Project. The update should also address the Bank requirements for environmental and social standard documents that have been introduced since the RCIP safeguard documents were prepared in 2009. For social standards this includes strengthening emphasis on public consultation and grievance redress mechanisms. For the ESMF this includes addressing potential impact on women and vulnerable groups.

These activities shall be carried out in due consultation with Ministry of Communication and Information Technology (MCIT), Universal Communication Service Access Fund (UCSAF), President's Office- Regional Administration and Local Government (PO-RALG), President's Office, Public Service Management (PO-PSMGG), Vice President's Office, Ministry of Lands, Urban Development and Human Settlement and National Environmental Management

Council (NEMC), which is responsible for approving Environmental and Social Management Plans.

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 existing ESMF as well as Environmental and Social Compliance audit developed under RCIP Tanzania should provide the prerequisite information, assess any existing environmental and social database for Tanzania, and collect additional data as necessary from any possible source including field visits for RCIP Tanzania project sites and baseline studies, with emphasis on aspects of biophysical and social environments that could be affected by project activities. The ESMF should also update socio-economic information on the project area. This will include but not limited to demographic composition, rural vs. urban areas, type of economic activities prevalent in the project areas, income level, education level, migration trends, gender, employment rate, youth, etc.

(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. This will include a review the World Bank ESF standards to be triggered under the project. Identify any potential gaps between national requirement and the Bank policies and propose mitigation measure to meet the gaps.

(iv) Screen potential environmental and social risks/impacts related to both construction and operation phases of the project, and recommend feasible measures to avoid, minimize and mitigate any adverse impacts and hence maximize environmental and social benefits of project activities. Review the project scope with the aim of confirming that the project abides to national land laws, local government procedures and appropriate operational guidelines.

(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, regional, and national) and their capacity to manage and monitor ESMF implementation.

(vi) Identify and describe the required instruments and procedures for identification, 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 to be deployed once project sites/locations are

known.

(vii) Develop a generic environmental and social management Plan and recommend feasible and cost-effective measures to prevent or reduce significant negative impacts. Estimate the impacts and costs of those measures, and of the institutional and training requirements to implement them. Prepare a management plan including proposed work programs, budget estimates, schedules, staffing and training requirements and other necessary support services to implement the mitigating measures. For sub-projects, whose locations are unknown, the consultants will (i) develop a checklist and recommend typical impact assessment methodologies, to be annexed to the report, of typical impacts and mitigation measures. The consultants shall also describe institutional arrangements, including roles and responsibilities of different parties involved for screening, review, approval, and implementation and monitoring of sub-projects envisioned under the project.

(viii) Develop an environmental and social monitoring plan, with relevant and measurable indicators to monitor the implementation of mitigating measures and impacts of the project during construction and operation. Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to carry it out.

(ix) ESMF should include a detailed discussion of public consultations with different stakeholders; as well as feedback/ grievance redress mechanism. The ESMF should include a section on public disclosure, which will detail how this document will be shared with different stakeholders in a meaningful, constructive and engaging way.

(x) Update any relevant sections of the RCIP ESMF inadvertently missed in the above activities.

Task 2: Update the RCIP Tanzania Resettlement Policy Framework (RPF)

Task 2 of the assignment deals with updating the Resettlement Issue Framework developed under RCIP Tanzania in 2009, which will require the consultant to undertake the following tasks during preparation:

(i) Review existing RPF as well as Environmental and Social Compliance audit developed under RCIP Tanzania.

(ii) 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 various types of potential impacts such as loss of assets, loss of income sources and livelihoods arising from project activities.

(iii) Review the legal framework governing acquisition of Right of Way for ICT facilities and valuation for losses suffered by project 's 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.

(iv) 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. 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.

(v) 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 to discuss the WB OP 4.12 concept of full replacement value and elements that constitute it. The RPF will 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. The entitlement matrix will be used to ensure transparency and clarity on how compensations are calculated for different types of impact. The RFP is to detail the manner in which 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. In case the loss of livelihoods is expected, propose actions that can be applied to restore and improve one's livelihoods.

(vi) Since it is impossible to estimate exactly eventual human displacement/loss of income to be caused by the proposed activities, the Consultant should prepare a draft budget for resettlement activities including budget lines for monitoring, public consultations and a grievance redress mechanism. The Consultant is expected to also draft 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.

(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. Clearly state who the responsible agency or private entity is to pay for compensation. 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 Human Settlements Developments, District Council under President's Office- Regional Administration and Local Government, Ministry of Communication and Information Technology 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.

(x) Update any relevant sections of the RCIP RPF inadvertently missed in the above activities.

Task 3: Public Consultation on the Digital Tanzania 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.

Task 4: Annexes

The Consultant shall complement the ESMF and the RPF Reports with detailed, additional information and resources.

As a minimum, the following Annexes are suggested:

a) List of persons and organizations involved with the preparation of the ESMF and the RPF;

b) References: documents, whether published or not, that were used to prepare the studies and outputs; list of related reports;

c) Minutes of meetings among the relevant institutions and of consultations, including those undertaken to obtain the authorized views of the affected populations and local non-governmental organizations (NGOs). The annex should also include specific formats used (such as surveys) to obtain these views;

d) Tables, figures or detailed descriptions of data that appear in summary form in the body of the text;

e) Table of contents, terms of reference, templates, samples and guidance for ESIA, ESMP etc.

5. ROLES OF THE CLIENT

(i) Supervise the consultant but the quality of the work shall remain the entire responsibility of the consultant.

(ii) Avail all available and relevant background documentation and studies.

(iii) Making all necessary arrangements for supporting the work of the Consultant, by e.g. facilitating access to government authorities and other project stakeholders.

(iv) Provision of furnished office space for the duration of the assignment, in the same location where the project coordination unit will be installed.

(v) Disclosure of draft documents, sending out of invitations, organization of venues for public hearings, and being present as discussant at all public hearings.

6. QUALIFICATIONS AND EXPERIENCES

The Consultant should have the following qualifications:

- He/She shall have a proven track record in environmental and social assessment and management projects, as well as sector-specific experience in the ICT sector. He/She shall possess at least a Master's degree or equivalent in Environmental Engineering, Environmental Science, Geography & Environmental Studies, Social Studies or related fields.
- He or she must be registered by the National Environment Management Council as Environmental Expert.
- The consultant shall have a minimum of 7 years relevant working experience in environmental and social impact assessment, with experience and knowledge in development of Environmental and Social Management Frameworks as well as Resettlement Policy Frameworks.
- The consultant shall have a demonstrable experience and knowledge of applying the World Bank's ESF standards in Tanzania, and working with local communities on land, resettlement and livelihoods issues. Previous experience of preparing similar documents for the WB or other investment agencies is an advantage.
- The Consultant shall be required to have proven capabilities in report writing in English.

7. SCHEDULE OF DELIVERABLES

There will be two main deliverables:

i. The ESMF and

ii. The RPF

This assignment is expected to be completed within 8 weeks, with an anticipated starting date in xxxxxxxx. A draft ESMF and a draft RPF will be expected within 6 weeks of contract signature. After the Client's and Bank's review (1 week) the advanced drafts will be disclosed, and consultations organized during week 8. The final ESMF report that has been updated based on the comments received during consultations will be delivered at the end of 8 weeks from

the contractual mobilization date. The assignment will be undertaken in Tanzania. The maximum level of input from the consultant will be 1-person month.

8. REPORTING

This overall assignment will be managed by the MINISTRY OF COMMUNICATION AND INFORMATION TECHNOLOGY. The consultant will coordinate with the Ministry of Lands, Housing and Human Settlements Development for preparation of the Resettlement Policy Framework. All raw baseline data collected as part of this assignment shall be shared with and become the property of the Ministry of Communication and Information Technology, to be stored by the Ministry and used in monitoring project impacts. The raw data is also to be shared with the World Bank task team.

Annex II: Consulted Stakeholders' Issues and Concerns

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
Experience from RCIP TZ	Inadequate of ICT specialists and equipment hinders its use/run at LGAs & MDAs. Most staff have basic skills in the use of computers, but not ICT training.	PO-RALG/MWCT/ MOEST	Training staff in ICT is essential if this project is to achieve its objectives.	ESMF
	Availability of cheap and reliable internet	PO-RALG/ICTC	NA	ESMF
	Poor performance of VISAT & ADSL to transfer information	PO-RALG	Use fiber connection in DTP	ESMF
	Local community access to government information via online	PO-RALG/POPSM	Provide ICT services with high quality in DTP	ESMF
	e-Waste management is a problem	PO-RALG/MWCT/ICTC	DTP should introduce department responsible for managing e-Waste	ESMF
	Management challenges: Involved many stakeholders in coordinating RCIP TZ	MWCT/UCSAF	The DTP must have a centralized coordinating system	ESMF/RPF
		ICTC	Flow of managing process for DTP should be clear	
	Inadequate public awareness: local community were not aware of RCIP TZ	TTC	Public awareness is highly encouraged for DTP	ESMF/RPF
	Coordination: There were delays in approval and payments	eGA/Tigo/PO-PSMGG	DTP should have proper coordination arrangements	NA
	Payment mode: All were done centrally	eGA	Improve/enhance payment modalities	NA

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	Provision of statutory permits mainly EIA certificate, aviation certificate, etc.	Airtel/Tigo/Halotel/Vodacom	Delays in obtaining permits hinder implementation of the project within the agreed time.	ESMF
	Land speculation for installing ICT infrastructures	PO-PSMGG/UCSAF	Telecom companies should avoid land speculation by engaging local authorities of the respective villages	RPF
Social impacts - DTP	Creation of a conducive ICT regulatory environment will: • Translate increased investment in ICT sector leading to: creation of job opportunities, efficient government service delivery, better governance and improve productivity as well as healthcare service delivery. • Expansion of technical capacity and business opportunities in the ICT • Improved access to education • Increased better and affordable access to internet services • Connect agricultural producers (rural community) to markets • Government data integration and sharing programs • Enhancing government's abilities to collect and analyze information	PO – RALG/UCSAF/ICTC/UDOM/PO-PSMGG/PPRA/TTC/DIT/UDSM/MITI/Airtel/MNH/TCRA/E-waste collectors/UDSM/MOEST	• Ensure good ICT infrastructures (ICT and Power) and internet services • Have a good business model (infrastructures, user capacity and maintenance)	ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	• Reduction of operation costs and integration and sharing of resources • Improvement of rural-Urban communications			
	• Easy collection of tax via electronic money transfer/e-payment/banking system	TRA/TCRA	Enforce the use of electronic transfer than cash	ESMF
			Create a library/internet center for people to pay taxes	ESMF
	• Improvement of online business services and logistics	MIT/eGA/TPC	The Community will be able to apply a business license	ESMF
	• The e-school program should consider teaching student via ICT	MOEST/UDSM	Digitize material via online for students to access	NA
	• Provision of employment via e-mobile, internet café etc.	UCSAF/eGA/TCRA	The project will offer employment to local people	ESMF
Social impacts - DTP	• Increased of government income through e-procurement and tax • DTP will enable communities to access information via e-procurement	PPRA/TRA/Airtel	Establish an effective network connection to ensure e-procurement is available at all time	NA
	• Information management	MOEST/UDOM/DIT/TCRA/MNH	Improved stock control for medical supplies or training materials in schools (less wastage and lower costs)	ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	• Job loss or reduction of employment opportunities	TCRA	Manual operations being replaced by automation	NA
			Multiple workers being replaced by a smaller number who are able to do the same amount of work	
	• Security	TCRA/PO-PSMGG/eGA	ICT keeps data safe from unauthorized people	ESMF
	• Reduction of human movement: Use of ICT will reduce the need for movement of people from one location to another for online bid collection and submission	PPRA/NEMC/TCRA	Reduction of air and land pollution caused by vehicles and improper throwing of waste done by passengers when traveling for a service	ESMF
	• Meetings (because video/ teleconference is possible)	PO-RALAG/UDSM		
	• Reduction of government operation cost	eGA	This will be done through video conference	NA
	• Controlling physical crimes	TCRA	Provide consumers awareness and education	ESMF
	• Patient data can be shared easily between doctors, pharmacies and even other hospitals where they get the services. • Improvement of health care network	MNH	Improve medical personnel's skills and knowledge in managing complicated conditions by themselves before deciding to refer patients	NA
			Reducing the amount of paper work and simplifying patient, referring the process	ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	• Increase accessing speed to medical services	MNH	The network hospitals can be consulted and send laboratory results	ESMF
	• Through a post code systems items will be delivered directly to the owner	TPC	Contract motorcycle in the remote areas to deliver items to the targeted community	NA
	• Vibration and noise • Use of earth-moving equipment and heavy vehicles will generate noise and vibration • The principal source of noise is associated with the operation of backup power generators.	PO-RALG/ ICTC/POPSM	Contractors should use equipment and vehicles that are in good working order and well maintained.	ESMF
		UCSFA/Tigo/Airtel	Use of noise suppression shields and mufflers and locating noise generating sources away from residential or other noise sensitive receptors	
	• Changes in livelihood activities	Airtel	Laying fiber cables/installing communication towers	ESMF/RPF
	• Cultural interactions	Airtel/TCRA	It is easy to adopt good/bad things via ICT services	ESMF
	• The Digital youth development program should be interactive	DIT/UDSM	Have constructive content which may attract students	NA
		DIT/MOEST	Have good connectivity to link HLI and VTC	ESMF
	• e-Schools development programme	UDSM/UDOM/DIT	Improvement of ICT knowledge to the students	NA
		DIT/UDOM	Have enough and good infrastructure (ICT and power)	NA
		MOEST/DIT	Alternation of ICT services like results or transfer	NA

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
		UDSM	Enhancement of ICT technology in learning institutions	NA
Environmental impacts	e-Waste • The project will add to the increasing levels of e-waste in the country. • Operations and maintenance activities may result in the generation of nickel cadmium batteries and printed circuit boards from computers and other electronic equipment as well as backup power batteries	VPO/MOEST/ TRA /e-Waste collector/ /NEMC	e-waste will need to be temporarily stored properly (avoiding direct contact with soil, water, people)	ESMF
		VPO/MWCT/eGA/Airtel	Raise public awareness on e-waste management	
		VPO/Tigo//Airtel/UDSM	Contact registered e-waste collectors for disposal	
		PPRA/eGA/RITA/TRA	Develop guidelines and enforce to manage e-waste	ESMF
		UDSM/RITA/TRA	Construct centers to extract useful e-waste	ESMF
		Tigo	Use renewable source of energy to reduce e-waste	ESMF
	• Raise awareness on the presence of registered e-waste collectors; this will reduce land pollution and increase income via selling e-waste	UCSAF/E-Collectors PORALG/MWCT/MITI	Telecom companies/implementing agencies should have management tools to control e-waste	ESMF
	• Provide education on environment and health impacts associated with e-waste	VPO-DoE/Vodacom	Educate local people how to control e-waste	ESMF
		E-waste collector	Solar companies that sell solar panels to collect unused equipment	ESMF
		MIT/PPRA/TRA	Designate areas for collecting e-waste and disposal	ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	• All e-waste from ICT product should be properly controlled	Tigo	Management should work hand in hand with private waste handlers (licensed waste handlers)	ESMF
		Tigo/Airtel	Establish e-waste recycling plants/industries	ESMF
		Airtel/TRA	Train enough and competent expert to manage e-waste	ESMF
	The project will minimize provisions of waste (voucher)	Tigo/TCRA	Construct and encourage the use of electronic voucher	ESMF
	Clearance of vegetation and other natural environmental features: e.g. laying optical cables and construction of access road to reach the site	TTC/Airtel/Vodacom/MNH	Reduce impact of any environmental features	ESMF
			Optimization of existing network if any	ESMF
	Noise and dust emissions during construction and operations phases	Airtel/MWCT	Use dust control measures (water sprays)-construction	ESMF
		Airtel	Use electricity instead of generator to reduce noise	ESMF
			Have a proper maintenance of generators	ESMF
	Land/soil pollution caused by oil spills from the generator or release of hazardous substances to the soil	Halotel/MCIT/UCSAF/Airtel/Vodacom/NEMC	Implementing spill prevention, control of backup electric power systems or use solar power/connect with REA	ESMF
		Tigo/Halotel	Connect REA electricity with telecom towers	ESMF
		TTC/NEMC	Ensure availability of toilet facilities in each site	ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
		TTC	Use cost effective alternative source of energy (solar)	ESMF
	Reduction of resource needs in records storage	TCRA/PPRA/MNH	Storage of records in electronic form will reduce paper needs and building space in all beneficially entities	ESMF
	Enormous harm to human and environment due to informal recycling and disposal of e-waste	E-waste collector/DIT/UDOM	Avoid unsafe exposure in recycling operations and leaching of materials from landfills/dumps	ESMF
			Have regulations guiding ethical and safe disposal	ESMF
		VPO/E-Waste collector	Hazardous waste should be collected and disposed of by VPO licensed waste handlers.	ESMF
Environmental impacts	Enormous harm to human and environment due to informal recycling and disposal of e-waste	E-waste collector	To avoid unsafe disposal, construct a warehouse in different parts of the country to store e-waste	ESMF
		DIT/E-Waste collectors/RITA/NEMC	Engage/use a certified e-Waste collector to collect, dismantle, recycle or dispose	ESMF
		NEMC	Have a proper management of hazardous waste	ESMF
	Reduction of wastes (paper work), and pollution from transport	NEMC	Use of ICT will reduce paperwork and traveling	ESMF
	Cultural heritage resources	VPO/NEMC	Avoid any damage during construction activities and immediately notify the authority	ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	• Construction operations/excavation of trenches may encounter cultural and archaeological resources or chance finds.	UDOM	Observable heritage resource should not be disturbed	ESMF
	Air emissions/pollution associated with the operation of vehicle fleets and use of diesel generators.	VODACOM/HALOTEL/Airtel/RITA/NEMC/Tigo	Use reliable power supply and avoiding the use of backup power generators as a permanent power source i.e. use solar power to reduce emissions of CO_2	ESMF
	Soil erosion	Tigo/Vodacom/RITA	The constructor should restrict vegetation stripping to critical sites to minimize soil erosion	ESMF
			Avoid ground and vegetation stripping in steep sloping areas to minimize soil erosion and the risk of landslides.	ESMF
Land take/acquisition issues	Land acquisition is envisaged, but there will be no resettlement	UCSAF/DIT/Airtel	Operators will rent/purchase land for locating communication towers	RPF
		MWCT/Airtel/Tigo	Operators should have contracts with host/land owners to put their infrastructures	RPF
		TTC/MLHHSD/Airtel	Awareness to be done by engaging local authorities	RPF
		UCSAF/RITA/MNH/TCRA/UDSM	Ensure transparency in all activities related to land acquisition	RPF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	Changes in livelihood activities due to land acquisition	Airtel/Halotel/UDSM	Laying fiber cables/Installing communication towers	RFP
		Airtel/Vodacom	Rent land for locating towers and other infrastructures will ensures income to PAPs	
	Damage to crops, properties and other assets	MLHHSD/PO-RALG/NEMC	Crops/assets affected by the project should be compensated	RPF
		MOEST/UCSAF/TCRA/VPO	Provide sufficient resources and time to the persons affected by the project	RPF
	Communities should be fully engaged from the design phase through project implementation (public engagement)	MLHHSD/NEMC/UDSM	Any land takes/rent for laying/installing infrastructure should involve the local authority	RPF
		MLHHSD/MNH/eGA	Any land takes/rent for laying/installing infrastructure should involve the local authority	
		MWCT/PPRA/ICTC	Consult PAPs and give opportunity to participate in planning and implementation in land take	
		NEMC/TCRA/Airtel	Raise awareness to PAPs of their rights	
	Compensation: Any land takes or damage to underground facilities and interruption of service	PO-RALG/MITI/NEMC	Any land takes during project implementation should be duly compensated for	RPF
		MLHHSD/eGA/e-waste collector	Compensation should be based on the market value of the property and assets	

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
		TTC/Tigo/Airtel	Land evaluation to be done under a win-win situation	
		TTC/NEMC	Pay compensation of any destruction of infrastructure	
		NEMC/TCRA	Avoid community grievances on unfair compensation	
	Avoid land speculation and provide awareness where DTP facilities will be laid	PO-PSM/UCSAF	DTP should benefit local people owning the land only	RPF
	The difficulties of getting land for laying infrastructures, especially in private land because others are not ready to rent/sell their land	TTC/Halotel	Provide awareness to the local communities	RPF
			Collaborate with village government to get land	
	DTP may consider renting/purchasing land owned by the village government	Airtel/TTC	Locate infrastructures in the public/village land if any	RPF
		Tigo/NEMC	Land rent has socioeconomic value to the owner	RPF/ESMF
Land acquisition	Loss of livelihoods by agriculturalists	Vodacom/PPRA	Replacement costs for all losses	RPF
	Business losses: removal of vendors in areas where fiber cables will be laid	MITI/NEMC	Compensation for temporary business loss	RPF
Physical relocation/damaging of infrastructure	The project might lead to relocation/damaging of physical infrastructures such as water when laying fiber/optic cables in the way leave, etc.	TTC/Airtel	Great care should be taken to avoid any disturbances of physical infrastructures including consulting owners	RPF/ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	Institutional coordination: Implementing institutions to inform the utility companies to relocate their utilities especially in way leave/road reserve area before laying DTP infrastructures including paying a relocation fee	Airtel/TTC/ NEMC	Avoid damaging of utilities that might contribute to polluting the environment and inaccessibility of services	RPF/ESMF
Interruption of services	Excavation and removal of materials (pavement, sidewalks, soil, etc.) required for the laying of optical fiber cable may accidentally rupture pipes,	TTC/ Vodacom/Tigo	Consultation and coordination between operators and utility companies to plan the execution of work	ESMF
		TTC	Inform utility companies of laid infrastructures	ESMF
Occupational health and safety hazards	• Trenching operations for laying of optical fiber cable • Conduct rust inspection in each year to avoid falling of infrastructures • Controlling human feces	Vodacom/Tigo	Provide and enforce the use of adequate Personal Protective Equipment (PPE) on site	ESMF
		Vodacom/TTC	Provide occupational health and safety training to riggers who will be responsible to lay the infrastructure, provision of sanitation facilities for the guard houses in each tower	
		Airtel/Tigo	Install safety signs in all communication towers	
		Tigo/Airtel/Halotel	Each site should have a toilet for security guides	ESMF
		Tigo/Vodacom	Install health and safety signs in all sites/towers	ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	• Occupational Health and Safety Policy (OHSP)	Airtel	Have OHSP to guide operators	ESMF
ICT and Industrialization	DTP will promote the growth and development of industrial sector in the country, this may result into: • Air pollution due to industrial operations • Land pollution due to the availability of waste from industries	ICTC/UCSAF	Industries should use environmental-friendly technology that will minimize/not pollute the environment	ESMF
			Prepare hazardous waste management procedures to ensure environment is not polluted	ESMF
	The ICT will enable to control the importation of fake ICT product in the country	ICTC/POROLG/ MWCT	The DTP should collaborate with TBS to control the influx of fake ICT product in the country	NA
	Improvement of domestic ICT products will reduce the influx of fake product	ICTC	Enable industries to produce quality products to control importation of fake product/e-waste in the country	ESMF
	Integration of land system management and industrialization	MLHHSD	ICT will enable planners to show different land use	NA
			ICT will help local communities to know the exact location of industries and avoid land use conflicts	RPF
			Avoidance of encroachment	RPF
	Create an enabling environment to attract ICT investors to invest in the industry	eGA/e-waste collector	Investors to construct industries for disposing e-waste	ESMF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	Inadequate appropriate method to dispose e-waste produced by industries	e-waste collector/PPRA	Construct industries/plants for disposing e-waste	ESMF
	Empower institutions dealing with ICT to have competent and skilled manpower to drive the development of industrialization	eGA/UDSM/DIT	Finance institutions to impart ICT knowledge that will promote industrialization	NA
	ICT should help easy collection of taxes stamp/at production site/industry	TRA	Create system that will connect online tax collections	NA
Capacity building	There is a very big shortage of ICT technicians, ICT equipment and programs such as networking, Operators of telemedicine programs, e-waste management,	PO-PSM/eGA/MNH	Have a capacity building program to all implementing agencies	NA
DTP design and implementation	The DTP should prepare guidelines/action plans for controlling and managing e-waste	PO-PSM/RITA	Guideline/action plan and framework to be prepared for e-waste management	ESMF
	Involve environmental experts to design how environmental issues will be addressed during project implementation	UDOM	Have an environmental specialist to manage environmental issues related to DTP	
	Coordination	eGA	MWCT&PO-PSM should improve the project management team	NA
			Streamline the overall project implementation that will increase efficiency	

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	All regulatory agencies for permit provision should be part of the implementation of DTP	Airtel/Halotel/ Tigo	Coordinate authorities to simply exercise of the permit provision	ESMF
	Adequate training of staff	MNH/RITA/PO-PSM	Most of them have no idea about the use of new technologies in communication.	NA
	Post code system	TPC/TCRA	Raise awareness of the postcode system	NA
		TPC	Construct system, including the use of GPS to help service provider to deliver commodities to clients	
			Implementation should be under one agency	
			Have special department to coordinate/supervise	
	Construction of supportive infrastructures to the villages/areas that lack communication connectivity (road)	Tigo/Airtel/Halotel/Vodacom	Construct access road to villages that will be connected by DTP	NA
			Rural connectivity should be aligned with REA service	ESMF
	Involvement of all stakeholders	DIT/UDOM/UDSM	Involves all stakeholders before project implementation	ESMF/RPF
Public awareness and sensitization	Reduction of vandalism/theft of DTP infrastructures (Copper from fibers, solar panels, battery, generator, etc.)	Vodacom/TTC/Tigo/Airtel	Engage local authorities in the project implementation Including public awareness where DTP will be operated	ESMF/RPF
	Easy availability of land rent for installing communications infrastructures	Airtel/Vodacom	Creation sense of project ownership with communities	ESMF/RPF

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	Disseminate information to the public on the DTP	TTC/Tigo/RITA	Involves village government as part of implementing stakeholders	ESMF
Dematerialization	Replacement of physical production and distribution of books, and software, etc. by the delivery of digital information over the network.	UDSM/DIT	Dematerialization reduces resource consumption and waste generation	ESMF
Availability of Permits	Regulatory agencies responsible for the provision of permits/certificate (EIA, aviation, building, etc.) should consider quick provision of permits to avoid delaying project implementation	Tigo/Airtel/Vodacom/ Halotel	Provide provisional environmental permit as it is being done for industries	ESMF
			MCIT should facilitate the availability of permit	ESMF/RPF
			Coordinate/inform all regulatory agencies to simplify the whole process of permit provision for DTP	
Project Sustainability	Control vandalism of project facilities (Fibers, solar panels, battery, etc.) leading to environmental pollution	UDOM/Tigo/TTC	Engage end users before implementation of the project	ESMF
	Have a component of research/technical services to make a follow-up on project implementation	UDOM	Follow up, operation and maintenance should be enhanced especially in remote areas	ESMF
	Involvement of operators	UCSAF	Operators should be maintained to run the project after its completion	ESMF
	The Government should plan for reliable financing after implementation of project	TTC	NA	NA

Topics	Issues/concerns	Stakeholder who raised the concern	Mitigating or enhancement measures	Relevant framework
	The project should provide resources for training staff that will be involved in the monitoring of project activities.	UDSM	Continue providing capacity building and establishment of infrastructures	NA
	Have human resources and infrastructures that can work on	TPC		
	Have an internal policy and procedure to ensure project sustainability	Vodacom	NA	NA
	Select IT that can be prospered after project implementation	TRA	NA	NA

Annex III: Minutes of Consultation with Prominent Registered E-waste Dealer

1.1 E-Waste Definition

Electronics Waste (e-Waste) or Waste Electrical and Electronic Equipment are all types of electrical and electronic equipment (EEE) that (i) can't be upgraded or repaired for re-use and finally enter the waste stream; these include TVs, computers, mobile phones, white goods (e.g. fridges, washing machines, dryers etc), home entertainment and stereo systems, toys, toasters, kettles, and (ii) can be re-used, working and repairable electronics (working and repairable electronics) and they include Copper, Steel, Plastic, etc.)

1.2 Types of e-Waste in Tanzania

The e-waste in Tanzania is divided into six categories, these includes (i) Battery (Lead Acid Battery and Lithium ion Battery, (ii), Computers (Desk top and Laptops and its accessories), (iii) Photocopier machines, (iv) Air Conditions, (v) Communications equipment (Bts, Ats, Rectifier, feeder, cell phones, ODU and PRU), (vi) UPC, (vii) Domestic equipment (fridge, cooking, washing machines, televisions, dryers, etc.) and (viii) Power tools (plug-in and rechargeable power tools, battery packs, and chargers). According to the consulted registered e-waste collector, (Chilambwa General Trade Company), communication equipment constitutes 75% of the total e-waste in the country followed by computer related equipment (20%) and domestic equipment (05%). The total amount of generated e-waste from each type is not exactly known.

It is expected that the implementation of DTP will increase the amount of e-waste in the country that might have negative effects to the public health and environment because e-waste products contain toxic materials such as lead, barium, mercury, and cadmium that require proper management as well as valuable resources that could be recovered to ensure public health and environment are well protected.

1.3 Sources of e-waste in Tanzania

The use of ICT equipment is still low and growing at a staggering pace in Tanzania compared to other countries in the world. The Consulted e-waste collector explained that the main sources of the e-waste in Tanzania is communication companies (Vodacom, Tigo, Airtel, Zantel, Halotel, Helios towers (HTT), and Huawei), followed by Gas company (Songas), Financial Institutions (NMB, CRDB, NBC, Barclays, etc.), Domestic, mainly from the European embassies as well as local communities. The Government institutions have their own ways of handling e-waste that they produce. Communications companies have reported being the major e-waste producers followed by financial institutions in the country.

1.4 Registered e-waste Collectors

Consultation held with VPO-DoE, department of pollution control, revealed that there are only four registered/certified e-waste collectors in Tanzania as listed below:

- Chilambwa general trade company Ltd;
- Game Metal;

- JBR; and
- Phenix group of companies.

These companies have their headquarters is located in Dar es Salaam. The companies are responsible for collecting, dismantling, recycling, or exporting the e-waste for disposal. In view of the above, consultation with registered e-waste collectors was done so as to understand the status of e-waste management and its challenges in Tanzania. Given the time limitation for the assignment, out of four registered e-waste collectors only one (Chilambwa general trade company Ltd) was chosen for consultation. The selection criteria were based on the experience and capacity in e-waste management and the recommendation from the VPO-DoE, department of pollution control.

2.0 Collection Capacity of E-Waste Collectors

Consultation with Chilambwa General Trade Company Ltd indicated that certified e-waste collectors in Tanzania are capable of collecting produced e-waste and selling to companies or industries that are capable of recycling or disposing the e-waste within and outside the country. Since its registration in 2012 to December 2017, Chilambwa General Trade Company Ltd has collected 32,045 tons of e-waste as presented in Table 1 below.

Table 1: Amount of collected e-Waste from 2012-2017

Sn	Year	Amount in tones	e-Waste type	
			Re-cycle	Disposal
1.	2012	1,000	55	945
2.	2013	1,286	110	1,176
3.	2014	1,987	200	1,787
4.	2015	2,478	380	2,098
5.	2016	3,109	500	2,609
6.	2017	22,185	18,000	4,185
	Total	**32,045**	**19,245**	**12,800**

Source: Chilambwa General Trade Company Ltd Fieldwork, May 2018

The following figure shows various e-wastes collected by the company and temporarily stored at company's warehouse located at Pugu Kinyamwezi Street, Majohe Ward, Ilala Municipality, and Dar es Salaam.

Battery (Lithium Battery, Disposal)

Communication equipment (Large Bts, Re-usable)

Extension cables (Re-usable)

An existing warehouse containing re-usable and disposal e-wastes

Various types of e-Wastes collected by Chilambwa General Trade Company Ltd

Source: Field photo, May 2018

2.1 Sources of Markets for e-Wastes Products

Majority of the e-Wastes that are produced in the country depend on the domestic markets. Most of these wastes are recycled/re-usable. The e-waste collector mentioned the presence of copper, steel iron; zinc and cast iron industries (Steelcom Tanzania, OK Plastics, Kamal Steel, AM steel, Aluminum steel industries, etc.) have ensured availability of the markets for e-Waste (re-usable). These industries manufacture steel bar, iron sheets, metal pot/pan, nail, hinge, mat, etc. These products are then supplied to the market.

3.0 Challenges of E-Wastes Management in Tanzania

Efforts to deal with the e-waste problem in Tanzania at the present are erratic and uncoordinated as such it does not match with the magnitude of the problem. Generally, there is a lack of awareness on the part of the public on the e-Waste issues. Management of collected e-waste involves storage, collection, dismantling, and recycling/re-used or final disposal. Only e-wastes comprising metal (copper, cast iron, Aluminum, Zinc, Steel iron, plastic, wood, lead acid battery, etc are recycled by domestic industries. The rest of e-waste such as lithium battery, printed socket bolts (from a computer and mobile phones), soft plastics, etc are either stored in warehouses or exported to Europe (Belgium, Italy, France, and China) for re-cycle (printed socket bolts) and lithium ion battery for a final disposal.

3.1 Challenges facing e-wastes collectors

According to Chilambwa General Trade Company Ltd, e-wastes collectors in Tanzania faces three main challenges as outlined below.

(i) Collection challenges

There is an inadequate awareness from the local people how to manage the e-waste, including where they can sell e-waste. Most of them keep the e-waste in their homes and minority becomes reluctant to sell e-waste to the certified collectors hoping that they will use in the near future. The same challenge applies to the public institutions. Public offices produce e-waste especially the computers but they do not sell to the e-wastes collectors rather they do public auction in compliance with the PPRA law and its regulation. This promotes availability of uncontrolled e-waste.

(ii) Unfair competition

There is increasing number of unregistered e-waste collectors who are not knowledgeable on how to manage the e-waste. Since they do not pay taxes and have not e-waste collection permit, they collect e-waste at low prices, compared to the certified ones. For instance, the annual fees for certified e-waste collector paid to the government are about TZS 10,000,000.00.

(iii) Inadequate Domestic Market

There is inadequate domestic market for recycling or disposing some of the e-wastes products in Tanzania. E-wastes products such as optical fiber cables, ABC plastics such as a CRT Grass/monitor), toner and cartilages have no solution for recycling in Tanzania, they only depend on Europe and its exportation permit is very expensive, so they have to collect and store them until they get enough amount. According to the consulted e-waste collector, from 2012 to present, they have collected 12,800 tones of lithium battery and keep it in a store because exportation charges are very high if you have a small amount.

3.2 Government Support to E-Wastes Collectors

Consultation with e-waste collectors have shown that the only support that the government offers to them is the provision of permits for e-waste collections and creating enabling environment for them to work, but there is no any training and capacity building on e-waste management that has been offered by the government.

4.0 Future Plans of E-Wastes Collectors

The e-Waste collector (Chilambwa General Trade Company) has the following plans:

(i) Form an association of e-waste collectors that will be responsible for providing technical support for all certified e-waste collectors in the country as well as raising community awareness on the environmental and health impacts of e-waste and how to manage them;

(ii) Construct the largest e-waste warehouse in Tanzania that will be used to store, collect, and dismantle e-waste. They have acquired an area at Kisarawe Industrial area, where the proposed warehouse will be constructed. The designs for e-waste warehouse and other support infrastructure are already in place – see designs of the proposed e-waste warehouse below.

Proposed Warehouse for E-Waste Collection and Dismantling Centre

Source: Chilambwa General Trade Company, May 2018

(iii) Construct e-waste recycling facility/plant as part of the long-term plan. The facility/plant will have the capacity to recycle different varieties of e-wastes. Doing this will raise community awareness and income through selling e-waste, promote effective management of e-waste, and protect community's health and the environment in general.

5.0 Recommendations for the DTP and e-Waste Management

It is expected that the implementation of DTP will increase the amount of the electronic waste (e-waste) in the country that might have negative effects to the public health and environment because e-waste products contain toxic materials such as lead, barium, mercury, and cadmium that require proper management as well as valuable resources that could be recovered to ensure public health and environment are well protected. The following are the general recommendations for the proposed DTP:

(i) Public awareness: The DTP should raise awareness on the effects of e-waste and how they can be managed. Awareness can be done via campaigns, media, brochures, etc.;

(ii) Construction of e-waste collection centres: DTP implementing agencies may think of constructing regional and district collection centres (warehouses) where local people, institutions, non-government organizations, etc. will store e-waste by giving them incentives. Until now the e-waste collectors' warehouses are located in Dar es Salaam only;

(iii) As for the telecommunication companies, the government should require solar power companies that introduce solar panels especially in the rural areas to collect e-waste from solar panels once they are no longer in use. This will reduce accumulations of e-waste in the rural communities that encourages unsafe disposal; and

(iv) Since DTP intends to promote industrialization, enabling environment could be created to attract investors to invest in e-waste recycling or disposing industries.

Annex IV: Signatures of the Consulted Parties

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS, TRANSPORT AND COMMUNICATIONS (MWTC)

STAKEHOLDERS CONSULTATION FORM FOR UPDATING ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF) FOR THE PROPOSED DIGITAL TANZANIA PROGRAMME (DTP)

PUBLIC INSTITUTIONS

S/N	Date	Name	Position	Institution	Phone number	Signature
1.	24/04/2018	M. MUHAKU	DICT	MWTC	0713216013	
2.	24/04/2018	Stephen Wangwe	AD CS	MWTC	0754985177	
	24/04/18	Jasson Ndanguzi	Tel Eng	ICTC	0765709122	
4.	24/04/18	PRISCUS KIWANGO	DICTS	PO RSM	0786421688	
5	24/04/18	ARNOLD MATOYO	ADICTS	PO RSM	0754267066	
6.	24/04/2018	Justinian Anatory	DEAN, INFORMATICS	UDOM	0782106209	
7	-d-	L. Mrele	Dean school of VSP	UDOM	0757035779	
8.	24/04/2018	Odilo S. Majengo	DIRECTOR	MITI	0754275079	
9	24/04/2018	Ally Mage	ADICT	MST	0713411330	Through Phone
10	25/4/2018	ALBERT RICHARD	HEAD OF OPERATIONS	UCSAF	0754770711	
11	25/4/2018	Suzana Mchulla	PHO	VPO	0652134313	
12-	25/4/2018	Sutte Masuha	ADICT	PORALG	0784627842	
12	02/05/2018	Cecil N. Francis	CTO	TTCL Corporation	0738261200	
13	02/05/2018	Peter Shilla	DIS	PPRA	0752280787	
14	02/05/2018	Bernard Ntelya	MSSA	PPRA	0754296083	
15	02/05/2018	Fanuel Yengayenga	SAD	PPRA	0753260210	

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MINISTRY OF WORKS, TRANSPORT AND COMMUNICATIONS (MWTC)

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PUBLIC INSTITUTIONS

S/N	Date	Name	Position	Institution	Phone number	Signature
16	2/5/18	ALEXANDER K. KARABA	PICTO	MLHHSD	0754762421	[signature]
17	2/5/18	Shaban pozi	Ag. DICT	MLHHSD	0784998831	[signature]
18	2/5/18	BENJAMIN OTTO	DCIO	eGA	0755996080	[signature]
19	4/5/18	Charles Kossam	ICTO	MNH	0622577798	[signature]
20	4/5/18	Cuthbert Simalenga	DICT	RITA	0765029485	[signature]
21	4/5/18	Cliff Marajuli	PICTO	RITA	0754710671	[signature]
22	4/5/18	Rodney Otaigo	SICTO	RITA	0754 562409	[signature]
23	7/5/18	OMBENI MNDAVA	HEAD OF ICT SERVICES	DIT	0754 378537	[signature]
24	7/5/18	Charles Palapala	DICT	TRA	0699210053	[signature]
25.	7/5/2018	Lazaro Swai	MOPS	TRA	0787505001	[signature]
26.	7/05/2018	Violet Kazimoto	Ag. MSP	TRA	0784-267277	Kazimoto
27	7/05/2018	David Mtaho	Manager ICT	TPC	0684887957	[signature]
28	08/05/18	Dr. Charles Tarimo	Manager ICT	UDSM	0713455585	[signature]
29	08/05/18	Bakari Rashid	Systems Administrator	UDSM	0767380864	[signature]
30	09-05-18	Carlos Mbuta	Principal officer	NEMC	0784561156	[signature]
31	10-05-18	LUCAS MLENGANGO	DDIA RTR*	TCRA	0715381151	Mlalhangal.

* Deputy Director Industry Analysis & Tariff Regulation

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS, TRANSPORT AND COMMUNICATIONS (MWTC)

STAKEHOLDERS CONSULTATION FORM FOR UPDATING ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF) FOR THE PROPOSED DIGITAL TANZANIA PROGRAMME (DTP)

PRIVATE INSTITUTIONS

S/N	Date	Name	Position	Institution	Phone number	Signature
1	23/4/2018	Sutte Masuha	ADICT	PORALG	0784627842	
2	03/05/2018	Elvis Raphael	Infrastructure Manag	Halotel	0629078665	
3	03/5/18	BENNEDICT AMANDU	PROCUREMEN MANAG	HALOTEL	0629-1020/8	
4	4/05/18	REVOCATUS NKATA	SENIOR REGULATORY OFFICER	TIGO	0713123699	
5	4/5/18	NAMALA KACHECHERA	NETWORK PROGRAM MANAGER (PROJECT)	TIGO	0655123877	
6	4/5/18	Emmanuel Mallya	HEAD OF PLANNING & ENGINEERING	TIGO	0713123890	
7	4/5/18	SEMUULA KASSENGE	SNR. MANAGER PLANNING	TIGO	0655123438	
8	4/5/18	THOMAS CHANGA	ENG	TIGO	0658123058	
9	4/5/18	DAVID MBOGELA	ENG	VODACOM	0754711207	
10	4/5/18	LIVINGSTONE KIMARO	ENG	VODACOM	0754710808	
11	09/05/2018	Ncheye Maeya	SHE Officer	Airtel Tz	0786670164	
12	11/05/2018	GIDEON R. CHILAMBO	MANAGING DIRECTOR	CHILAMBO GEN. TRADE CO.	0713335898	

Annex V: Project Screening Form (Template)

This Environmental and Social Screening Form (ESSF) has been designed to assist in the evaluation of construction and refurbishment/rehabilitation activities under DTP. 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 two people, knowledgeable of the screening process.

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/City:
Project Location:	Nature/Size:
Type of activity: (e.g. new construction, rehabilitation, periodic maintenance):	
Name & Signature of Evaluator:	Date of Field Evaluation:

		Appraisal	Risk / Significance rating					
		Yes/No	None	Low	Moderate	Substantial	High	unknown
1	**Environmental Screening (ESS -1)**							
	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	Borrow pits and pools of stagnant water							
1.6	Rubble/heaps of excavated soils							
1.7	Demolishing waste from buildings including asbestos containing material							
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							
1.15	Cross through, located within or nearby environmentally sensitive areas (e.g. national parks, intact natural forests, wetlands, etc.)?							
1.16	Cause poor water drainage and increase the risk of water-related diseases such as malaria or bilharzias?							
1.17	Risk of exposing the workers to extremely hazardous working conditions including concerns of structural safety.							
1.18	Community Health & Safety							
2	**Resettlement Screening (ESS-5)**							

	Will the project generate the following negative social and economic impacts?							
2.1	Loss of land to households							
2.2	Loss of properties –houses, structures							
2.3	Loss of trees, fruit trees by households							

		Appraisal	Significance					
		Yes/No	None	Low	Moderate	Substantial	High	unknown
	Resettlement Screening (ESS-5) Contd…							
2.4	Loss of crops by people							
2.5	Loss of access to river/forests/grazing area							
2.6	Impact heritage site, graveyard land							
2.7	Conflicts over use of local water resources							
2.8	Disruption of important pathways, footpath/roads							
2.9	Loss communal facilities –churches							
2.10	Loss of livelihood system							
2.11	Risk of encouraging child labor							
2.12	Risk of workers to extreme exposure for GBV							
2.13	Spread of HIV/AIDS and other STI							

Categorization & Recommendations:

After compiling the above, determine which risk category the subproject falls under based on the environmental categories High, Substantial, Moderate and Low risk. If the subproject falls under "Substantial, Moderate or low" risk categories, proceed to identify the category of the subproject based on the National EIA procedural guideline issued by the National Environment Management Council.

a. World Bank ESF Categorization

	High Risk	DTP subproject highly unlikely to fall under "High Risk" rating. In the unlikely event that subproject falls under "High Risk" the Environmental and social Assessment should be conducted in accordance with the World Bank Environmental and Social Standards (ESSs).
	Substantial Risk	DTP subproject highly unlikely to fall under "Substantial Risk" rating. In the unlikely event that subproject falls under "Substantial Risk" the Environmental and social Assessment of the subproject should be conducted in accordance with National law and any requirements of the ESSs that the Bank deems relevant to such subprojects
	Moderate Risk	Environmental and social Assessment of the subproject should be conducted in accordance with National law and any requirements of the ESSs that the Bank deems relevant to such subprojects.
	Low Risk	Environmental and social Assessment of the subproject should be conducted in accordance with National law and any requirements of the ESSs that the Bank deems relevant to such subprojects. Sub project is not subject to environmental assessment as no potential impacts are anticipated.

Screening Criteria Provided in the Second Schedule under Regulation 9 (1)) of the Tanzania ESIA and EA Amended Regulations of 2018

These screening criteria are meant to demonstrate how the Tanzanian regulation screen projects to decide on the risk's levels and the possible safeguard tool to be prepared.

The following shall be screening criteria to be used for purposes of these Regulations:
The Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations

1. The project will not substantially use natural resources in a way that pre-empts the use or potential use of that resource for any other purpose.
2. Potential residual impacts on the environment are likely to be minor, of little significance and easily mitigated.
3. The type of project, its environmental impacts and measures for managing them are well understood in Tanzania.
4. Reliable means exist for ensuring that impact management measures can and will be adequately planned and implemented.
5. The project will not displace significant numbers of people, families or communities.
6. The project is not located in, and will not affect, any environmentally sensitive areas such as:
   (a) National parks;
   (b) Wetlands;
   (c) Productive agricultural land;

(d) Important archaeological, historical and cultural sites;
(e) Areas protected under any law;
(f) Areas containing rare or endangered flora or fauna;
(g) Areas containing unique or outstanding scenery;
(h) Mountains or developments on or near steep hill-slopes;
(i) Dry tropical forests, for instance brachystegia woodlands;
(j) Development near lakes or its beaches;
(k) Development providing important resources for vulnerable groups such as fishing communities along the lake-shore;
(l) Development near high population concentrations or industrial activities where further development could create significant environmental problems; and
(m) Prime ground-water re-charge areas or areas of importance for surface run off of water.

7. The project type shall not result in:
(a) Policy initiatives which may affect the environment such as changes in agricultural pricing subsidies or the tobacco liberation;
(b) Major changes in land tenure; or
(c) Changes in water use though irrigation, drainage promotion or dams, changes in fishing practices.

8. The project shall not cause:
(a) Adverse socioeconomic impact;
(b) Land degradation;
(c) Water pollution;
(d) Air pollution;
(e) Damage to wildlife and habitat;
(f) Adverse impact on climate and hydrological cycle; and
The Environmental Management (Environmental Impact Assessment and Audit)
(Amendment) Regulations.
(g) Creation of by-products, residual or waste materials which require handling and disposal in a manner that is not regulated by existing authorities.

9. The project shall not cause significant public concern because of potential environmental changes. The following are guiding principles:
(a) is the impact positive, mainly begin or harmful;
(b) What is the scale of the impact in terms of area affected numbers of people or wildlife;
(c) What is the intensity of the impact?
(d) What will be the duration of the impact?
(e) Will there be cumulative effects from the impact;
(f) Are the effects politically controversial?
(g) Have the main economic, ecological and social costs been quantified;
(h) Will the impact vary by social group or gender; and
(i) Is there any international impact due to the proposal projects?

10. The project shall not necessitate further development which is likely to have a significant impact on the environment.

Annex VI: Scoping Report Table of Contents

Chapter	Description
1. Introduction	• Brief description of the project i.e. nature, location scale etc. • Description of how the scoping exercise was carried out
2. Project Description	• Project location • Description of the preliminary project design • Project components and specifications
Environmental and social Context	• Description of the spatial and temporal boundaries • Description of project alternatives • Description of the environmental and social situation in the identified boundaries
3. Policy, legal and institutional Context	• Description of relevant policies and legislation • Description of institutions involved in the project planning and implementation, • Description of institutions involved in the management of environmental and social issue.
4. Stakeholder Participation	• Description of the stakeholder groups identified • Description of how they were involved in the scoping exercise • Stakeholder views and concerns that are to be considered during impact assessment
5. Preliminary Impacts	• Description of potential environmental impacts • Description of potential socio-economic impacts • Description of other impacts: public health, OHS, etc.
6. Impact Assessment Approach	• General approach and methodology to be taken • Description of particular studies/investigations to be conducted e.g. water analysis, survey of waste collection points/facilities
7. Project Budget	• Preliminary project investment cost (breakdown of major items)
8. References	• References and bibliography
Terms of Reference	• Terms of reference to guide the impact assessment including the scope, objectives, tasks and duration

Annex VII: Sample Terms of Reference for an ESIA

1. Introduction

[State the purpose of the ToRs, identify the development project to be assessed, and explain the executing arrangements for the environmental assessment.]

2. Background Information

[Describe the pertinent background. This should include a brief description of the major components of the proposed project, a statement of the need for the project, the objectives it is intended to meet, the implementing agency, a brief history of the project (including alternatives considered), its status and timetable, and a list any associated projects. If there are other projects in progress or planned within the region that may compete for the same resources, they should also be identified here.]

3. Objectives

[Summarize the general scope of the environmental assessment and discuss its timing in relation to the project preparation, design, and execution processes.]

4. ESIA Requirements

[The ESIA requirements are determined by the Environmental Impact Assessment and Audit Regulations (2005) as amended made under the Environmental Management Act Cap 191. Identify any other regulations and guidelines that govern the conduct of the assessment or specify the content of the report, including e.g. the following:

- International treaties, national laws and/ or regulations and/ or guidelines on environmental reviews and impact assessments;
- World Bank Environmental and Social Framework (ESF).

5. Study Area

[Specify the boundaries of the study area for the assessment (e.g., water catchment area and land use), as well as any adjacent or remote areas that should be considered with respect to specific impacts (temporary infrastructure). The project could have different study areas corresponding to the level of impact.]

1. Scope of Work

[Define the tasks. In some cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified completely in the terms of reference. In other cases, specialized field studies or modeling activities will need to be performed to assess impacts. In that case, the consultant will define particular tasks in more detail after some period of assessment and will submit the detailed scope of work to the contracting agency for approval at a later date. Task 4 in the Scope of Work (below) is an example of the latter.]

SAMPLE TEXT ON SCOPE OF WORK:

The EIA study for project *XXX* includes, but is not necessarily limited to, the following tasks:

Task 1: Description of the proposed project and alternatives

- Provide a brief description of the relevant parts of the project using maps of appropriate scale where necessary and include the following information:
- Project justification;
- Location;
- General layout, size, and capacity;
- Pre-construction activities;
- Construction activities;
- Schedule;
- Staffing and support;
- Facilities and services;
- Operation and maintenance activities;
- Required offsite investments;
- Life span;
- Provide a brief description of alternatives considered. At a minimum, the do-nothing alternative must be included in the EIA study, i.e. the situation of not implementing the proposed project.

[*Note: specify any other type of information relevant to the description of the project category*.]

Task 2: Description of the environment

Assemble, evaluate, and present baseline data on the relevant environmental characteristics of the study area. Include information on any changes anticipated before the project commences. Modify the list below to show critical project information (e.g., information relevant to the project category and other project-specific information). Avoid compiling irrelevant data. Present environmental characteristics of the study area on a map to facilitate the understanding.

[a] Physical Environment: geology; topography; soils; climate and meteorology; ambient air quality; surface and groundwater hydrology; coastal and oceanic parameters; existing sources of air emissions; existing water pollution discharges; and receiving water quality.

[b] Biological Environment: flora; fauna; rare or endangered species; ecologically important or sensitive habitats, including parks or reserves, and significant natural sites; species of commercial importance; and species with potential to become nuisances, vectors, or dangerous (of project site and potential area of influence of the project)

[c] **Socio-cultural Environment:** population; land use; planned development activities; community structure; employment; distribution of income, goods and services; recreation; public health; cultural/ historic properties; tribal peoples; and customs, aspirations, and attitudes.

Task 3: Legislative and Regulatory Considerations

Describe the pertinent regulations and standards at international, national, regional and local levels that govern environmental quality, health and safety, protection of sensitive areas, protection of endangered species, siting, and land use control. The ToR should specify those that are known and should require the consultant to investigate for others.

Task 4: Determination of the Potential Impacts of the Proposed Project

Distinguish between positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of the affected environmental components (e.g., area, number) and environmental costs and benefits. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with the predicted impacts. If possible, develop ToR to conduct research to obtain the missing information. Identify the types of special studies likely to be needed for this project category.

The engineering plans should reflect "best practice" in alignment and construction to ensure that potential negative environmental impacts are minimized (e.g., through measures to prevent soil erosion risk, ensure proper drainage, and provide for waste disposal for cut and fill material and used oil. The EIA should verify that this is the case.

The EIA should focus on the potential for negative environmental and social impacts caused by project activities.

The EIA should also examine the potential for physical and/or economic displacement. An overview shall be provided of different groups of people and their cultural, ethnic, and socio-economic characteristics, and how they are likely to benefit and/ or be negatively affected by the project. Negative impacts may include, but not be limited to, physical relocation, loss of land or other physical assets, or loss of access to livelihood. The purpose of this screening shall be to minimize negative social impacts, both through the selection process and by providing inputs and guidance to the engineering designs.

In the case of land acquisition, a Compensation and Resettlement Plan (CRP) should be prepared and implemented in accordance with the Compensation and Resettlement Guidelines for the Road Sector.

Task 5: Analysis of alternatives to the proposed project

Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives, which would achieve the same objectives. The concept of alternatives extends to siting, design, technology selection, construction techniques and phasing, and operating and maintenance procedures. Compare

alternatives in terms of potential environmental impacts; capital and operating costs; suitability under local conditions; and institutional, training, and monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which can be mitigated. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Include the 'no project' alternative to demonstrate environmental conditions without the project.

Task 6: Development of an Environmental Management Plan to Mitigate Negative Impacts and Enhance Positive Impacts

The Environmental Management Plan (EMP) focuses on three generic areas: mitigation measures, institutional strengthening and training, and monitoring. The emphasis on each of these areas depends on the context-specific project needs.

Mitigation Measures

Recommend feasible and cost-effective measures to prevent or reduce significant negative impacts to acceptable levels. The must cover requirements in the design phase, site preparation, construction, demobilization of construction, and operation and maintenance of the road.

Quantify the impacts and estimate the costs of the mitigation measures. Consider compensation to affected parties for impacts that cannot be mitigated. The plan should include proposed work programmes, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigation measures.

The recommended mitigation measures must be specific and described in quantitative terms to a detailed level which allows for inclusion of the mitigation measures into the Bill of Quantities for the road project.

Describe residual impacts after incorporation/implementation of the recommended mitigation measures

Summarise the environmental impacts and mitigation measures using a strip map at the same scale as that of the road design.

Institutional Strengthening and Training

Identify institutional needs to implement environmental assessment recommendations. Review the authority and capability of institutions at local, provincial, regional, and national levels and recommend how to strengthen the capacity to implement the environmental management and monitoring plans. The recommendations may cover such diverse topics as new laws and regulations, new agencies or agency functions, inter-sectoral arrangements, management procedures, training, staffing, operation and maintenance training, budgeting, and financial support.

Monitoring Plan

Prepare detailed arrangements to monitor the implementation of mitigation measures and the impacts of the project during construction and operation. Include

in the plan an estimate of capital and operating costs and a description of other required inputs (e.g., training and institutional strengthening).

Task 7: Assist in Interagency Coordination and Public/NGO Participation

Assist in coordinating the EIA with other government agencies, in obtaining the views of local NGOs and affected groups, and in keeping records of meetings, other activities, communications, comments, and their disposition. The ToR should specify the types of activities (e.g., interagency scoping session, environmental briefings for project staff and interagency committees support to environmental advisory panels, or public forums).

1. Reporting

[State the reporting requirements]

SAMPLE TEXT ON REPORTING:

The EIS should be concise and limited to significant environmental issues. The main text should focus on findings, conclusions, and recommended actions supported by summaries of the data collected and citations for any references used in interpreting data. Detailed or un-interpreted data are not appropriate in the main text and should be presented in appendices or in a separate volume. Unpublished documents used in the EIA may not be readily available and should also be assembled in an appendix. The EIS should be organized in compliance with the requirements of the Environmental Assessment and Audit Regulations, 2005 and World Bank OP 4.01 Environmental Assessment.

XX hard copies and one electronic copy (in MS Word 2007) of a draft EIS should be submitted to the [name of road authority] for consolidated comments.

Upon receipt of the road authority's comments, the environmental expert shall prepare the EIS.

YY copies and one electronic copy (in MS Word 2007) of the ESIA should be submitted to the [name of road authority].

Upon receipt of possible comments by the environmental authority, the consultant shall incorporate the comments of the environmental authority into and finalize the EIS.

YY copies and one electronic copy (in MS Word 2007) of the ESIA should be submitted to the [name of road authority]. Photos, tables, maps and the like must also be submitted in original and appropriate electronic versions.

1. Consulting Team

[Identify the expertise to include in the Environmental assessment because it requires interdisciplinary analysis. Members of the team could consist of people with the following specializations: rural sociology (in the case of rural roads); human geography; and/or

terrestrial ecology (e.g., wildlife, plant, and conservation ecology). Depending on the location of the project, some issues may have higher priority than others.]

1. Schedule

[Specify dates for progress reviews, interim and final reports, and other significant events.]

1. Activity/Time Schedule

[Specify the duration of the assignment and include a time/activity schedule for the assignment.]

1. Other Pieces of Information

[Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed.]

12. Quality Assurance

[Include requirements to the environmental expert's quality assurance system and procedures, including the nomination of a qualified person who will be responsible for the quality assurance of the standard of work and performance of the environmental expert.]

13. Confidentiality and Intellectual Property Rights

[Include conditions on confidentiality and intellectual property rights, as required.]

SAMPLE TEXT ON CONFIDENTIALITY AND INTELLECTUAL PROPERTY RIGHTS:

During the performance of the consultancy services or at any time after expiry or termination of the EIA study, the consultant shall not disclose to any person or otherwise make use of any confidential information which he has obtained or may in the course of this EIA study obtain relating to the consultant, the client or otherwise.

The intellectual property rights and the copyright of the work produced by the consultant belong to the [NAME OF THE PROJECT PROPONENT ORGANISATION].

Annex VIII: ESIA Table of Contents

Chapter	Description
Executive Summary (English and Swahili)	• Brief description of the project environment • Project stakeholders and their involvement in the EIA process • Explanation on why some impacts are not addressed • Stakeholder participation: list of people consulted and their views and concerns • Description of the major significant impacts • Project alternatives considered • Mitigation measures for the impacts • ESMP with monitoring plan • Resource evaluation or cost benefit analysis • Decommissioning
Acknowledgements	
Abbreviations and Acronyms	
List of Tables	
List of Figures	
List of Registered Experts in the Project	NEMC-registered Environmental Experts involved in the EIA study
Introduction	• Background to the ESIA • Description of how the ESIA exercise was carried out • Assumptions made, gaps and uncertainties encountered during the ESIA • Layout of the report
Project Description	• Brief description of the project i.e. objective, nature, location scale etc. • Project activities, technologies, procedures and processes that will be used in project implementation • Materials to be used in construction and operation of project • Product and by-products to be generated
Policy, legal and institutional Context	• Description of relevant policies and legislation • Description of institutions involved in the project planning and implementation, • Description of institutions involved in the management of environmental and social issue.
Environmental and social Context	• Description of the spatial and temporal boundaries • Description of project alternatives • Description of the environmental and social situation in the identified boundaries
Environmental and Social Impacts	• Description of potential environmental impacts and their significance • Description of potential socio-economic impacts and their significance • Description of other impacts: public health, OHS, etc., and their significance
Mitigation Measures	• Identification of alternatives: project site, design, technologies etc. and reasons of preference

Chapter	Description
	• Description of mitigation measures for each of the impacts identified
Environmental and Social Management Plan	• Description of activities likely to cause potential impacts • Description of the impacts (negative and positive) • Description of planned mitigation measures • Monitoring plan including relevant monitoring indicators; • Institutional arrangements of who will be responsible for implementing the ESMP • Cost estimates and source of funds • Other management plans i.e. hazardous materials management plan, OHS plan
Cost Benefit Analysis	• Available resources to implement the project: human and financial OR • Analysis of the benefits and costs for implementing the project (qualitative and quantitative as appropriate)
Decommissioning	• Plan on how the project infrastructure will be demolished or re-used after the life-span of the project
Summary and Conclusions	• Summary of key stakeholder issues and impacts • Conclusion based on the findings (not to be subjective)
References	• List of any documents, reports or websites used
Appendices	• List of people consulted with names, organization and contacts • Meeting minutes • Project design • Specialized baseline surveys • Signatures of the consulted parties • Picture library • ESIA Terms of Reference • RAP report (if applicable)

Annex IX: ESMP Formats

Environmental and Social Management Plan

Anticipated Effect	Mitigation Measure(s)	Phase	Responsibility	Schedule	Cost and Source of Funds
Environmental impacts					
Socio-economic impacts					
Public and worker health and safety impacts					

Environmental and Social Monitoring Plan

Potential impact	*Phase*	*Parameters*	*Frequency*	*Sampling sites*	*Target level/Standard*	*Responsibility*	*Costs*
Environmental impacts							
Socio-economic impacts							

Public and worker health and safety impacts							

Annex XI: Format of an Annual Environmental Report

Relevant environmental authority:							
Reporting dates:							
District:							
Sub-projects approved:							
Sub-project title	***Activities***	***Project phase*** (1)	***Env. category***	***EIA / EMP completed?***	***Env. Permit granted?***	***Effectiveness of EMP***	***Issues*** (2)
(name, location, title, or reference)	*(new construction, rehabilitation, maintenance)*	*See note below*	*(High, Substantial Moderate* and *Low Risk)*	*Yes, No, or N/A*	*Yes, No, or N/A*	*Good, poor, or needs improvement ESHS performance indicators*	*See note below*
1							
2							
3							
etc.							
Sub-projects rejected:							
Sub-project title		***Activities***		***Reasons for rejection***		***Remarks*** (3)	
1							
2							
3							
Etc							

Notes:

(1) Sub-project phase will be one of the following: (a) under project preparation or appraisal, (b) appraised, or (c) implementation.

(2) Issues: accidents, litigation, complaints, or fines are to be listed. For example, if an environmental permit was not granted, explain why.

Annex XII: Chance Finds Procedures

1. Applicability of the Chance Finds Procedure

The following procedure shall apply to all DTP sub-project activities that may involve physical works that have the potential to uncover or otherwise disturb tangible cultural heritage.

Under DTP implementation arrangements, a contract will be put in place with an 'on-call' archaeological monitor (the "DTP archaeologist") who will advise on chance finds and any other cultural heritage issues arising from the implementation of activities under the DTP.

2. Purpose of the Procedure

The objective of this Chance Finds Procedure is to identify and protect previously unrecorded archaeological sites, artefacts or features from the potential impacts of DTP subproject-related activities. The Procedure applies to potential cultural heritage objects, features or sites identified as a result of any and all ground disturbing activities associated with construction and any other DTP project components. As a key part of the Chance Finds Procedure, an archaeologist(s) with relevant field experience should be identified who can assist with dealing with the authorities in Tanzania designated with responsibility for cultural heritage.

3. Legal Requirements

There are two principal pieces of Tanzanian national legislation that pertain to chance finds:

- The Antiquities Act, 1964; and
- The Antiquities (Amendment) Act, 1979.

The Antiquities (Amendment) Act, 1979 states that it should be read as one with the 1964 Act. The Antiquities Act, 1964 defines monuments and other protected objects, and it also sets out that in the case of a discovery (i.e. a chance find):

"….the occupier of any land, who knows of any such discovery on or under such land, shall forthwith report the same to an administrative officer, the Commissioner [of National Culture], the Conservator [of Antiquities] or the Curator of the Museum. The discoverer of such a relic, monument, object or site shall take such steps as may be reasonable for the protection thereof and shall, where he makes a report concerning a portable relic or object, if so required (and on payment of the cost of delivery if any) deliver such antiquity or object to an administrative officer, the Commissioner, the Conservator or the Curator of the Museum, as the case may be."

The Antiquities (Amendment) Act, 1979 sets out *inter alia* the Minster's powers:

"….to declare any place or structure of historical interest to be a monument for the purposes of this Act"
And it further sets out that:

"The Minister, after consulting the Minister for the time being responsible for lands may, by notice in the Government *Gazette,* declare to be a conservation area any area or site which: (a)

in his opinion is a valuable national heritage for its aesthetic value; or (b) contains a homogeneous groups of monuments; or
(c) contains buildings, structures or other forms of human settlement which in his opinion are a valuable national heritage for their historical, architectural, social or cultural value"

and:

"….no person except the Director or a person acting on his behalf, shall whether on his own land or elsewhere, (a) excavate, dig or probe for monuments or relics; or (b) remove or collect any relic or any object he supposes to be a relic from the site of its discovery, except for the purposes of protecting it and reporting the discovery under the provisions of section 10 or for the purposes of delivering it to the authorities if required to do so under that section; or (c) search for or collect any ethnographical object, except under and in accordance with an excavation licence or in the case of an ethnographical object, a collectors licence issued by the Director [of Antiquities]."

It also states that:

"No person shall sell or exchange any relic discovered in sales Tanganyika, or any protected object, except under and in accordance with a licence issued by the Commissioner."

4. Chance Find Procedure

4.1 Scope

The scope and requirements of the Chance Finds Procedure can be divided into two phases: the planning and preparatory phase, and the implementation phase. Prior to initiating ground-disturbing works associated with any type of DTP sub-project activity, the contractor responsible for the works will receive a detailed briefing on the requirements of the protocol from DTP staff.

The key objective of the briefing prior to onsite and other project activities will be to familiarise the contractor with the process of using an off-site, 'on-call' archaeological monitor (the DTP archaeologist)[1] and the circumstances under which the monitor will need to be called to the site/work area. The familiarisation process will also include training in the identification/recognition of objects/items of potential interest.

In areas such as those identified where previous survey work has indicated that the sites are of low or moderate potential for containing cultural heritage sites in terms of structures/buildings, the permanent presence of an archaeological monitor **will not be**

[1] The DTP archaeologist should be a person who meets the requirements for granting of a license as defined in Section 12 of the Antiquities (Amendment) Act, 1979, i.e. an expert who "has had sufficient scientific training or experience to carry out the proposed excavation, search or collection satisfactorily".

required. The DTP archaeologist will, however, need to be available to respond to any chance finds identified by DTP personnel or contractors during ground works.

4.2 Process for Managing Chance Finds During Implementation

In the event that the construction team encounters any chance finds during excavation or construction works the following procedures shall apply.

1. All construction activities in the vicinity of the find/feature/site will cease and DTP management personnel, the DTP archaeologist and the authorities will be informed.
2. The site will be marked, and active work at the site shall cease until an appropriate course of action has been determined.
3. The detailed find location will be recorded.
4. The area will be secured to prevent any damage or loss of removable objects (pottery, artefacts, jewellery, coins, etc.).

5. The DTP archaeologist will assess, record, and photograph the find/feature/site.

6. The archaeologist will undertake the inspection process in accordance with all relevant health and safety protocols established as part of DTP implementation arrangements.

7. The archaeologist will determine the appropriate course of action to take, and will discuss and agree this with the authorities.

8. All finds which have cultural heritage value as determined by the DTP archaeologist will be delivered to the relevant authorities, as defined under the Antiquities Acts defined above, and other relevant legislation as may come into force at a future date.

9. Once the necessary documentation and (if appropriate) recovery and removal of materials with a cultural heritage value has been completed and authorization has been given by the responsible statutory authorities, the contractor may resume work at the site.

Annex XIII. World Bank ESF Risk Categories

High Risk

A Project is classified as High Risk after considering, in an integrated manner, the risks and impacts of the Project, taking into account the following, as applicable.

a) The Project is likely to generate a wide range of significant adverse risks and impacts on human populations or the environment. This could be because of the complex nature of the Project, the scale (large to very large) or the sensitivity of the location(s) of the Project. This would take into account whether the potential risks and impacts associated with the Project have the majority or all of the following characteristics:

- long term, permanent and/or irreversible (e.g., loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the Project;
- high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large);
- significant adverse cumulative impacts;
- significant adverse trans boundary impacts; and
- a high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.);

b) The area likely to be affected is of high value and sensitivity, for example sensitive and valuable ecosystems and habitats (legally protected and internationally recognized areas of high biodiversity value), lands or rights of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and other vulnerable minorities, intensive or complex involuntary resettlement or land acquisition, impacts on cultural heritage or densely populated urban areas.

c) Some of the significant adverse E&S risk and impacts of the Project cannot be mitigated or specific mitigation measures require complex and/or unproven mitigation, compensatory measures or technology, or sophisticated social analysis and implementation.

d) There are significant concerns that the adverse social impacts of the Project, and the associated mitigation measures, may give rise to significant social conflict or harm or significant risks to human security.

e) There is a history of unrest in the area of the Project or the sector, and there may be significant concerns regarding the activities of security forces.

f) The Project is being developed in a legal or regulatory environment where there is significant uncertainty or conflict as to jurisdiction of competing agencies, or where the legislation or regulations do not adequately address the risks and impacts of complex Projects, or changes to applicable legislation are being made, or enforcement is weak.

g) The past experience of the Borrower and the implementing agencies in developing complex Projects is limited; their track record regarding ES issues would present significant challenges or concerns given the nature of the Project's potential risks and impacts.

h) There are significant concerns related to the capacity and commitment for, and track record of relevant Project parties, in relation to stakeholder engagement.
i) There are a number of factors outside the control of the Project that could have a significant impact on the ES performance and outcomes of the Project.

Substantial Risk

A Project is classified as Substantial Risk after considering, in an integrated manner, the risks and impacts of the Project, taking into account the following, as applicable.

a) the Project may not be as complex as High Risk Projects, its E&S scale and impact may be smaller (large to medium) and the location may not be in such a highly sensitive area, and some risks and impacts may be significant. This would take into account whether the potential risks and impacts have the majority or all of the following characteristics:

- they are mostly temporary, predictable and/or reversible, and the nature of the Project does not preclude the possibility of avoiding or reversing them (although substantial investment and time may be required);
- there are concerns that the adverse social impacts of the Project, and the associated mitigation measures, may give rise to a limited degree of social conflict, harm or risks to human security;
- they are medium in magnitude and/or in spatial extent (the geographical area and size of the population likely to be affected are medium to large);
- the potential for cumulative and/or trans-boundary impacts may exist, but they are less severe and more readily avoided or mitigated than for High Risk Projects; and
- there is medium to low probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.), and there are known and reliable mechanisms available to prevent or minimize such incidents;

b) The effects of the Project on areas of high value or sensitivity are expected to be lower than High Risk
c) Projects.
d) Mitigatory and/or compensatory measures may be designed more readily and be more reliable than those of High Risk Projects.
e) The Project is being developed in a legal or regulatory environment where there is uncertainty or conflict as to jurisdiction of competing agencies, or where the legislation or regulations do not adequately address the risks and impacts of complex Projects, or changes to applicable legislation are being made, or enforcement is weak.
f) The past experience of the Borrower and the implementing agencies in developing complex Projects is limited in some respects, and their track record regarding E&S issues suggests some concerns which can be readily addressed through implementation support.
g) There are some concerns over capacity and experience in managing stakeholder engagement but these could be readily addressed through implementation support.

Moderate Risk

A Project is classified as Moderate Risk after considering, in an integrated manner, the risks and impacts of the Project, taking into account the following, as applicable:

a) the potential adverse risks and impacts on human populations and/or the environment are not likely to be significant. This is because the Project is not complex and/or large, does not involve activities that have a high potential for harming people or the environment, and is located away from environmentally or socially sensitive areas. As such, the potential risks and impacts and issues are likely to have the following characteristics:
   - predictable and expected to be temporary and/or reversible;
   - low in magnitude;
   - site-specific, without likelihood of impacts beyond the actual footprint of the Project; and
   - low probability of serious adverse effects to human health and/or the environment (e.g., do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.).

b) The Project's risks and impacts can be easily mitigated in a predictable manner.

Low Risk

A project is classified as Low Risk if its potential adverse risks to and impacts on human populations and/or the environment are likely to be minimal or negligible. These Projects, with few or no adverse risks and impacts and issues, do not require further E&S assessment following the initial screening.

Annex XIV. E&S Specification for Contractors[2]

AIM OF THIS DOCUMENT

The purpose of this document is to present a comprehensive set of specifications to be followed by Contractors in the DTP in Tanzania.

GENERAL

In order to prevent harm and nuisances on local communities, and to minimize the impacts on the environment during the construction, rehabilitation and modifications of DTP sub-projects, the Contractor and his employees shall adhere to the mitigation measures set down in:

- ESIA
- Site Specific ESMP
- The specifications, procedures, and best practices included in this Annex. These specifications complement any technical specifications included in the work quantities and the requirements of Tanzanian regulations
- Contractor's ESMP: The Contractor is required to submit a Contractor's ESMP (CESMP)) as part of his proposed Construction Method Statements prepared as part of his Bid document and/or during construction phase. The Contractor's CESMP shall provide details such as Contractor's commitment to environmental protection; methodology of implementing the project ESMP; environmental mitigation measures and monitoring program during different stage of the construction period, and the contractor's proposed resources for the implementation of the ESMP.

The Contractor and his employees shall adhere to the mitigation measures set down in these specifications to prevent harm and nuisances on local communities, and to minimize the impacts in construction and operation on the environment.

Health, Safety and Protection of the Environment

The Contractor shall be responsible for the safety of all activities on the Site.
The Contractor shall:
(a) comply with all applicable health and safety regulations and Laws;
(b) comply with all applicable health and safety obligations specified in the Contract;
(c) take care for the health and safety of all persons entitled to be on the Site and other places, if any, where the Works are being executed;
(d) keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons;

[2] A Finalized Standard Version of Contract Clauses will be developed (Prior to any Subproject Bidding) based upon the Standard ESMP to be developed for this project and standard E&S Clauses in relevant Bank Standard Procurement Documents. A Final Version for an Individual Subproject will be based upon the standard clauses and any additional specific subproject issues and requirements

(e) provide fencing, lighting, safe access, guarding and watching of the Works until the issue of the Contract Certificate of Completion;
(f) provide any Temporary Works (including footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land;
(g) provide health and safety training of Contractor's Personnel as appropriate and maintain training records;
(h) actively engage the Contractor's Personnel in promoting understanding, and methods for, implementation of health and safety requirements, as well as in providing information to Contractor's Personnel, training on occupational safety and health, and provision of personal protective equipment without expense to the Contractor's Personnel;
(i) put in place workplace processes for Contractor's Personnel to report work situations that they believe are not safe or healthy, and to remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to their life or health;
(j) Contractor's Personnel who remove themselves from such work situations shall not be required to return to work until necessary remedial action to correct the situation has been taken. Contractor's Personnel shall not be retaliated against or otherwise subject to reprisal or negative action for such reporting or removal;
(k) where the Employer's Personnel, any other contractors employed by the Employer, and/or personnel of any legally constituted public authorities and private utility companies are employed in carrying out, on or near the site, of any work not included in the Contract, collaborate in applying the health and safety requirements, without prejudice to the responsibility of the relevant entities for the health and safety of their own personnel; and
(l) establish and implement a system for regular (not less than six-monthly) review of health and safety performance and the working environment.
Subject to GCC Sub-Clause 16.2, the Contractor shall submit to the Project Manager for its approval a health and safety manual which has been specifically prepared for the Works, the Site and other places (if any) where the Contractor intends to execute the Works.

The health and safety manual shall be in addition to any other similar document required under applicable health and safety regulations and laws. The health and safety manual shall set out all the health and safety requirements under the Contract,
(a) which shall include at a minimum:
(i) the procedures to establish and maintain a safe working environment without risk to health at all workplaces, machinery, equipment and processes under the control of the Contractor, including control measures for chemical, physical and biological substances and agents;
(ii) details of the training to be provided, records to be kept;
(iii) the procedures for prevention, preparedness and response activities to be implemented in the case of an emergency event (i.e. an unanticipated incident, arising from both natural and man-made hazards, typically in the form of fire, explosions, leaks or spills, which may occur for a variety of different reasons including failure to implement operating procedures that are designed to prevent their occurrence, extreme weather or lack of early warning);

(iv) remedies for adverse impacts such as occupational injuries, deaths, disability and disease;
(v) the measures to be taken to avoid or minimize the potential for community exposure to water-borne, water-based, water-related, and vector-borne diseases,
(vi) the measures to be implemented to avoid or minimize the spread of communicable diseases (including transfer of Sexually Transmitted Diseases or Infections (STDs), such as HIV virus) and non-communicable diseases associated with the execution of the Works, taking into consideration differentiated exposure to and higher sensitivity of vulnerable groups. This includes taking measures to avoid or minimize the transmission of communicable diseases that may be associated with the influx of temporary or permanent Contract-related labor;
(vii) the policies and procedures on the management and quality of accommodation and welfare facilities if such accommodation and welfare facilities are provided by the Contractor in accordance with GCC Sub-Clause 9.4.6; and any other requirements stated in the Specifications.

Protection of the environment
(a) The Contractor shall take all necessary measures to: protect the environment (both on and off the Site); and
(b) limit damage and nuisance to people and property resulting from pollution, noise and other results of the Contractor's operations and/ or activities.
The Contractor shall ensure that emissions, surface discharges, effluent and any other pollutants from the Contractor's activities shall exceed neither the values indicated in the Specifications, nor those prescribed by applicable laws.

In the event of damage to the environment, property and/or nuisance to people, on or off Site as a result of the Contractor's operations, the Contractor shall agree with the Project Manager the appropriate actions and time scale to remedy, as practicable, the damaged environment to its former condition. The Contractor shall implement such remedies at its cost to the satisfaction of the Project Manager.

Archaeological and Geological Findings
All fossils, coins, articles of value or antiquity, structures, groups of structures, and other remains or items of geological, archaeological, paleontological, historical, architectural or religious interest found on the Site shall be placed under the care and custody of the Employer. The Contractor shall:
(a) take all reasonable precautions, including fencing-off the area or site of the finding, to avoid further disturbance and prevent Contractor's Personnel or other persons from removing or damaging any of these findings;
(b) train relevant Contractor's Personnel on appropriate actions to be taken in the event of such findings; and
(c) implement any other action consistent with the requirements of the Specifications and relevant laws.

The Contractor shall, as soon as practicable after discovery of any such finding, notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.

Possession of the Site
The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the PCC, the Employer shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event.

Access to the Site
The Contractor shall allow the Project Manager and any person authorized by the Project Manager (including the Bank staff or consultants acting on the Bank's behalf, stakeholders and third parties, such as independent experts, local communities, or non-governmental organizations), including to carry out environmental and social audit, as appropriate, access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

Workforce
There is the potential that local labor from the villages along the road could participate in the project implementation activities. Priority shall be set by the Contactor(s) and sub-Contractor(s) to hire the local labor for the works. The contractor will not engage in child labor or forced labor. Based on the Labor Management Plan of the DTP Project, the Contractor should prepare a LMP for his workers. The Contractor shall take the following steps to maximize to use of the local labor:

- announcement for the position that local labor could participate in the works to every villages along the road;
- Provide equal employment opportunities for both youth, women, men and disabled;
- Provide work safety/environmental awareness training to those local labors upon their hiring.

Code of Conduct

A Code of Conduct shall be established to outline the importance of appropriate behavior, drug and alcohol abuse, and compliance with relevant laws and regulations. Each employee shall be informed of the Code of Conduct and bound by it while in the employment of the Contractors. The Code of Conduct shall be available to local communities at the project information centers or other place easily accessible to the communities.

The Code of Conduct shall address the following measures (but not limited to them):

- All of the workforce shall abide by the laws and regulations of Tanzania;
- Reporting of work situations that are believed not to be safe or healthy;

- Treating other people with respect, and not discriminating against specific groups such as women, people with disabilities, migrant workers or children;
- Illegal substances, weapons and firearms shall be prohibited;
- Pornographic material and gambling shall be prohibited;
- Fighting (physical or verbal) shall be prohibited;
- Creating nuisances and disturbances in or near communities shall be prohibited;
- Disrespecting local customs and traditions shall be prohibited;
- Smoking shall only be allowed in designated areas;
- Maintenance of appropriate standards of dress and personal hygiene;
- Requirement of completion of relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, and Sexual Exploitation, and Sexual Abuse (SEA)
- Failure to comply with the Code of Conduct, or the rules, regulations, and procedures implemented at the construction camp will result in disciplinary actions.

Prohibitions

The following activities shall be prohibited on or near the project site.

- Cutting of trees for any reason outside the approved rehabilitation area;
- Hunting, fishing, wildlife capture, or plant collection;
- Buying of wild animals for food;
- Feeding of wild animals;
- Use of unapproved toxic materials, including lead-based paints, asbestos, etc.;
- Disturbance to anything with architectural or historical value;
- Building of fires;
- Use of firearms;
- Use of alcohol by workers in office hours;
- Washing cars or machinery in streams or creeks;
- Doing maintenance (change of oils and filters) of cars and equipment outside authorized areas:
- Disposing trash in unauthorized places;
- Driving in an unsafe manner in local roads;
- Having caged wild animals (especially birds) in camps;
- Working without safety equipment (including boots and helmets);
- Creating nuisances and disturbances in or near communities;
- The use of rivers and streams for washing clothes;
- Indiscriminate disposal of rubbish or rehabilitation wastes or rubble;
- Littering the site;
- Spillage of potential pollutants, such as petroleum products;
- Collection of firewood;
- Poaching of any description;
- Explosive and chemical fishing;
- Latrine outside the designated facilities;
- Burning of wastes and/or cleared vegetation;

- Engaging in any form of sexual harassment including unwelcome sexual advances, requests for sexual favours, and other unwanted verbal or physical conduct of a sexual nature with other Contractor's or Employer's Personnel;
- Engaging in sexual exploitation, rape or sexual abuse;
- Engaging in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage.

Any rehabilitation workers, office staff, Contractor's employees, the implementing agencies employees or any other person related to the project found violating these prohibitions will be subjected to disciplinary actions that can range from a simple reprimand to termination of his/her employment depending on the seriousness of the violation.

Camp and Site Facilities

If applicable, the following general measures shall be considered for camp and site facilities:

- The construction, layout and extent of the construction site and its components, i.e. all offices, accommodation facilities, testing facilities / laboratories, batching areas, storage & stockpiling areas, workshops, vehicle washing areas and all other areas/facilities required for completion of the project shall be planned, designed and managed in such a manner that environmental impacts are minimized;
- The Contractor shall establish worker's camps, offices, workshops, testing facilities, stockpiling areas, staff accommodation etc. in a manner that does not adversely affect the environment.
- Site offices, camps, depots, asphalt plants, mixing stations, and workshops shall be located in appropriate areas as agreed by local village and approved by the Supervision engineer/Consultant and not within 500 meters of existing residential settlements and not within 1,000 meters for asphalt plants;
- Site offices, camps, depots and particularly storage areas for fuel, lubricants, bitumen and asphalt plants shall not be located within 500 meters of watercourses, and be operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. This will require lubricants to be recycled and a ditch to be constructed around the area with an approved settling pond/oil trap at the outlet;
- Areas for the storage of fuel or lubricants and for a maintenance workshop shall be fenced and have a compacted/impervious floor to prevent the escape of accidental spillage of fuel and or lubricants from the site. Surface water drainage from fenced areas shall be discharged through purpose designed and constructed oil traps. Empty fuel or oil drums may not be stored on site.
- Fuel wood shall not be used as a means of heating during the processing or preparation of any materials forming part of the Works;
- The Contractor shall restrict all his activities, materials, equipment and personnel to the area specified. Entry into restricted areas by any person, vehicle or equipment without the Supervision Engineer's/Consultant's permission can result in penalties;
- Potable water safe for human consumption shall be provided for at camps, site offices, and other working areas;

- Camp areas shall be located to allow effective natural drainage;
- A method shall be established for storing and disposing of all solid wastes generated by the labor camp. If applicable, kitchen wastes shall be disposed into soak pits;
- Solid wastes generated in the labor site shall be reused if recyclable or disposed of in land fill sites;
- If water is stored on site, drinking water and multi-purposed water storage facilities shall be clearly distinguished and demarcated.
- Sanitary arrangements, latrines and urinals shall be provided in every camp sites/work fronts.

First Aid Facilities

Medical and first aid facilities shall be provided at each camp area. First aid box shall be provided at the construction campsite and under the charge of a responsible person who shall always be readily available during working hours of the workplace. He/she shall be adequately trained in administering first aid-treatment. Formal arrangement shall be prescribed to make motor transport available to carry injured person or person suddenly taken ill to the nearest hospital.

Sanitary Facilities

- In every camp site separate and adequate lavatory facility (toilets and washing areas) shall be provided for the use of male and female workers. Toilet facilities should also be provided with adequate supplies running water, soap, and toilet paper. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic conditions:
  - Where female workers are employed, there shall be at least one latrine for every 25 females or part thereof.
  - Where males are employed, there shall be at least one latrine for every 25 males or part thereof.
  - Every latrine shall be under cover and so partitioned off as to secure privacy and shall have a proper door and fastenings.
  - Where workers of both sexes are employed, each latrine or urinal must be lockable from inside, and outside of each block there must be a notice in the language understood by the majority of the workers "For Men" or "For Women" as the case may be.
  - The latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times and
  - Water shall be provided in or near the latrines and urinals by storage in drums
- Chemical toilets, etc. must be provided at all construction camp areas where there will be a concentration of labor. Toilet paper must be provided;
- A temporary septic tank system shall be installed for the disposal of domestic wastes and excreta without causing pollution of nearby watercourses. Wastewater should not be disposed into water bodies without treatment.

Eating areas

- If none is available, the Contractor shall provide adequate temporary shade within the rehabilitation areas to ensure that site personnel do not move off site to eat;
- The Contractor shall provide adequate refuse bins at all eating areas to the satisfaction of the Supervision engineer/Consultant;
- If deemed necessary by the Supervision engineer/Consultant, the Contractor shall demarcate designated eating areas.

Security

Some security measures shall be put into place to ensure the safe and secure running of the site facilities and its residents. Some of these security measures include:

- Adequate, day-time night-time lighting shall be provided;
- A perimeter security fence at least 2m in height constructed from appropriate materials;
- Provision and installation in all buildings of fire fighting equipment and portable fires extinguishers.

Demolition of Existing Infrastructures

The following measures shall be implemented in order to protect workers and the public from falling debris and flying objects:

- Set aside a designated and restricted waste drop or discharge zones, and/or a chute for safe movement of wastes from upper to lower levels;
- Conduct sawing, cutting, grinding, sanding, chipping or chiselling with proper guards and anchoring as applicable;
- Maintain clear traffic ways to avoid driving of heavy equipment over loose scrap;
- Provide all workers with safety glasses with side shields, face shields, hard hats, and safety shoes.

Dust Control

- The Contractor shall ensure that the generation of dust is minimized and shall implement a dust control program to maintain a safe working environment, minimize nuisance for surrounding residential areas/dwellings and protect damage to natural vegetation, crops, etc;
- Construction vehicles shall comply with speed limits and haul distances shall be minimized;
- Material loads shall be suitably covered and secured during transportation;
- Exposed soil and material stockpiles shall be protected against wind erosion and the location of stockpiles shall take into consideration the prevailing wind directions and locations of sensitive receptors;
- The Contractor shall implement dust suppression measures (e.g. water spray vehicles, covering of material stockpiles, etc.) if and when required.

Noise Control

- The Contractor shall be responsible for compliance with the relevant legislation with respect to noise;
- The Contractor shall try to keep noise generating activities to a minimum;
- The Contractor shall restrict all operations that result in undue noise disturbance to local communities and/or dwellings (e.g. blasting, crushing, etc.) to daylight hours on weekdays or as agreed with the Supervision Engineer/Consultant;
- The Contractor shall warn any local communities and/or residents that could be disturbed by noise generating activities such as blasting well in advance and shall keep such activities to a minimum;
- In sensitive areas (including residential neighborhoods, hospitals, rest homes, schools, etc.) more strict measures may need to be implemented to prevent undesirable noise levels;
- To the extent possible, night time operations shall be kept to a minimum and banned near sensitive receptors;
- No blasting shall be allowed during night time unless prior approval is obtained from the government authority and the Supervision Engineer/Consultant;
- The Contractor shall maintain the construction equipment in its best operating conditions and lowest noise levels possible.

Vegetation Clearing

- No vegetation clearing shall take place without written approval by the Supervision Engineer/Consultant.
- Vegetation shall not be disturbed in those areas not submitted for non-objection;
- Before vegetation clearing takes place in any rehabilitation area, search and rescue and seed collection shall be undertaken for any protected or endangered species;
- Before clearing of vegetation, the Contractor shall ensure that all litter and non-organic material is removed from the area to be cleared;
- Vegetation clearing shall take place in a phase manner in order to retain vegetation cover for as long as possible;
- All indigenous plant material removed from cleared areas shall be stockpiled for mulching. All remaining vegetation shall be removed and disposed of at an approved landfill site.
- The Contractor shall remove topsoil from all areas where topsoil will be impacted on by rehabilitation activities, including temporary activities such as storage and stockpiling, etc;
- Stripped topsoil shall be stockpiled in areas agreed with the Supervision Engineer/Consultant for later use in re-vegetation and shall be adequately protected.
- The application of chemicals for vegetation clearing shall be minimized. To the extent possible, non- residual chemicals shall be selected and with negligible adverse effects on human health;
- Herbicides use in the project shall be shown to be effective against the target vegetation species, have minimum effect on the natural environment, and be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well for personnel applying them. The use of herbicides shall be approved by the Supervision Engineer/Consultant.

Re-Vegetation and site restoration

- Re-vegetation shall start at the earliest opportunity. Appropriate local native species of vegetation shall be selected for the compensatory planting and restoration of the natural landforms;
- Restoration of cleared areas such as borrow pits no longer in use, disposal areas, site facilities, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be accomplished using landscaping adequate drainage and re-vegetation;
- Spoil heaps and excavated slopes shall be re-profiled to stable batters, and grassed to prevent erosion;
- Restoration and re-vegetation shall be carried out timely for the exposed slopes/soils and finished areas shall be reinstated in order to achieve the stability of slopes and maintain soil integrity;
- All affected areas shall be landscaped and any necessary remedial works shall be undertaken without delay, including grassing and reforestation;
- Soil contaminated with chemicals or hazardous substances shall be removed and transported and buried in waste disposal areas.

Waste Management Plan

Waste management on site shall be strictly controlled and monitored. Only approved waste disposal methods shall be allowed. The Contractor shall ensure that all site personnel are instructed in the proper disposal of all waste.

Solid waste

- The Contractor shall submit a method statement detailing a solid waste control system (storage, provision of bins, site clean-up schedule, bin clean-out schedule, etc.) to the Supervision Engineer/Consultant for approval.
- The Contractor shall ensure that all facilities are maintained in a neat and tidy condition and the site shall be kept free of litter;
- Measures shall be taken to reduce the potential for litter and negligent behavior with regard to the disposal of all refuse. At all places of work, the Contractor shall provide litter bins, containers and refuse collection facilities for later disposal;
- Solid waste may be temporarily stored on site in a designated area approved by the Supervision Engineer/Consultant prior to collection and disposal through a licensed waste collector;
- Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. The waste storage area shall be fenced off to prevent wind-blown litter;
- No burning, on-site burying or dumping of waste shall occur;
- All solid waste shall be disposed of offsite at an approved landfill site. The Contractor shall supply the Supervision Engineer/Consultant with certificates of disposal;
- Random disposal of solid waste in scenery areas shall be strictly prohibited;
- During rehabilitation, inert construction materials / excavated soil shall be reused on site

as much as possible and minimize the volume requiring disposal;
- The Contractor shall identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each;
- Recyclable materials such as wooden plates for trench works, steel, scaffolding material, site holding, packaging material, etc. shall be collected and separated on-site from other waste sources. Collected recyclable material shall be re-used for other projects or sold to waste collector for recycling.

Domestic waste

- The Contractor shall provide refuse bins, all with lids, for all buildings. Refuse shall be collected and removed from all facilities at least twice per week. Domestic waste shall be transported to the approved refuse disposal site in covered containers or trucks.

Wastewater

- The Contractor shall submit a method statement to the Supervision Engineer/Consultant detailing how wastewater would be collected from all wastewater generating areas, as well as storage and disposal methods. If the Contractor intends to carry out any on-site wastewater treatment, this should also be included;
- Water from kitchens, showers, laboratories, sinks etc. shall be discharged into a conservancy tank for removal from the site;
- Runoff from fuel depots / workshops / machinery washing areas and concrete batching areas shall be collected into a conservancy tank and disposed off at a site approved by the Supervision Engineer/Consultant;
- Domestic sewage from site office and toilets shall either be collected by a licensed waste collector or treated by on-site treatment facilities. Discharge of treated wastewater must comply with the discharge limit according to the legislation;
- Chemical toilets can be provided on site for construction workers. Domestic sewage collected from the site office and chemical toilets shall be cleaned up on regular basis. Only licensed waste collectors shall be employed for this disposal;
- At completion of rehabilitation works, soak pits and septic tanks shall be covered and effectively sealed off.

Hazardous waste

- All hazardous waste shall be disposed of at an approved hazardous landfill site and in accordance with local legislative requirements. The Contractor shall provide disposal certificates to the Supervision Engineer/Consultant;
- The removal of asbestos-containing materials or other toxic substances shall be performed and disposed of by specially trained workers;
- Used oil and grease shall be removed from site and sold to an approved used oil recycling company;
- Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery shall be collected in holding tanks and sent back to the supplier or removed from site by a specialist oil recycling company for disposal at an approved hazardous waste site.

- Inform the Supervision Engineer/Consultant of any accidental spill or incident;
- Initiate a remedial action following any spill or incident;
- Provide a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions.

Ecological Considerations

Protection of Natural Vegetation

- The Contractor shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the rehabilitation site as a result of their activities;
- Clearing of natural vegetation shall be kept to a minimum;
- The removal, damage and disturbance of natural vegetation without the written approval of the Supervision Engineer/Consultant are prohibited;
- The use of herbicides shall be approved by the Supervision Engineer/Consultant;
- Regularly check the work site boundaries to ensure that they are not exceeded and that no damage occurs to surrounding areas;
- Prohibit and prevent open fires during rehabilitation and provide temporary fire fighting equipment in the work areas, particularly close to forest areas;
- Some tress might be of value for the communities and may not be cut, disturbed, damaged, destroyed and their products may not be possessed, collected, removed, transported, exported, donated, purchased or sold except under license granted a delegated authority.

Protection of Fauna

- The Contractor shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place;
- The feeding of any wild animals shall be prohibited;
- The use of pesticides shall be approved by the Supervision Engineer/Consultant;
- No domestic pets or livestock shall be permitted on site.

Fire Control

- The Contractor shall submit a fire control and fire emergency method statement to the Supervision Engineer/Consultant for approval. The method statement shall detail the procedures to be followed in the event of fire;
- The contractor shall take all reasonable steps to avoid increasing the risk of fire through activities on site;
- The contractor shall ensure that basic fire-fighting equipment is available at all camp areas and facilities;
- The contractor shall appoint a fire officer who shall be responsible for ensuring immediate and appropriate action in the event of a fire;
- The contractor shall ensure that all site personnel are aware of the procedure to be followed in the event of a fire;
- Any work that requires the use of fire may only take place at a designated area approved by the Supervision Engineer/Consultant and must be supervised at all times. Fire-fighting

equipment shall be available.

Traffic Management

- Estimate maximum concentration of traffic (number of vehicles/hour);
- Use selected routes to the project site, as agreed with the Supervision Engineer/Consultant, and appropriately sized vehicles suitable to the class of roads in the area, and restrict loads to prevent damage to local roads and bridges used for transportation purposes;
- Maintain adequate traffic control measures throughout the duration of the Contract and such measures shall be subject to prior approval of the Supervision Engineer/Consultant;
- Carefully and clearly mark pedestrian-safe access routes;
- If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours;
- Maintain a supply for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction;

Protection of Heritage and Cultural Property

- If any archaeological or paleontological artefact or remains are uncovered during rehabilitation activities, work in the vicinity of the find shall cease immediately. The Contractor shall immediately notify the Supervision Engineer/Consultant who shall contact the Provincial Culture Department;
- The Contractor will be required to abide by the specifications as set out by the heritage specialist appointed to investigate the find;
- The Contractor may not, without a permit issued by the relevant heritage resources authority, destroy, damage, excavate, alter, deface or otherwise disturb archaeological material.

Grievance Redress Mechanism

The contractor shall develop a GRM for workers and community members to express concerns about the civil works. The GRM system should be easily accessible. For GBV cases, the GRM shall be designed in a way to keep strict confidentiality. All workers shall be trained about the GRM process and the contractor shall prove that each employee has been inducted with signatures to show that they have been inducted on the procedure. If the dispute is not resolved at the workplace, other resolutions mechanisms provided for in the labor legislations can be utilized.

All complaints received shall be recorded. The supervision engineer/consultant and PIU should be informed about the complaints when they are received. A mechanism shall be put in place to resolve the compliant swiftly. For complaints by community members if a resolution is not possible, the compliant shall be dealt with through the DTP Project GRM system.

Community Relations

To enhance community relations the Contractor shall:

- Inform the local communities about construction and work schedules, blasting schedules, interruption of services, traffic detour routes and provisional bus routes, and demolition, as appropriate.
- Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures.
- Inform local community as early as possible and repeat at least one day in advance of any service interruption (including water, electricity, telephone, and bus routes) the community must be advised through postings at the project site, at bus stops, and in affected homes/businesses.
- All community infrastructures such as roads, bridges, water supply systems, micro-power generators, boat landings, irrigation systems, etc. affected during construction must be restored to the satisfaction of the communities and approved by the Supervision Engineer.
- All local roads used or by-passed by the Contractor will need to be rehabilitated to their original conditions.
- Establish and maintain a unit to receive, process and reach resolution on community complaints arising from construction activities (Grievance Redress Mechanism). Records of such complaints and their resolution musk be kept and be available for review by the Supervision Engineer/Consultant and PIU.

Health Services, HIV/AIDS Education

The Contractor shall provide basic first aid services to the workers as well as emergency facilities for work related accidents including medical equipment suitable for treatment likely to be required prior to transportation to hospital.

The Contractor shall be responsible for implementing a program for the detection screening of sexually transmitted diseases, especially with regard to HIV/AIDS, amongst laborers.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Supervision Engineer/Consultant details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

The Contractor shall conduct an HIV-AIDS awareness program via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

The Contractor shall conduct information and education campaigns addressed to all the site staff and labor (including all the Contractor's employees, all Sub-Contractors and Consultants' employees, and all truck drivers and crew making deliveries to site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behaviour with respect to of Sexually Transmitted Diseases (STD)-or Sexually Transmitted Infections.

Environmental Emergency Procedures

The possibility exists for environmental emergencies of an unforeseen nature to occur during the course of the construction and operational phases of the project:

- By definition, the nature of such emergencies cannot be known. Therefore, the Contractor shall respond on a case-by-case basis to such emergencies and shall initiate event-specific measures in terms of notifications and reactions;
- The Contractor shall prepare a report on the incident detailing the accident, clean-up actions taken, any pollution problems and suggested measures to prevent similar accidents from happening again in future. The incident report shall then be submitted to the Supervision Engineer/Consultant and PIU for review and records.

Environmental Training and Awareness

The Contractor should ensure that all concerned staff are aware of the relevant environmental requirements as stipulated in local environmental legislation and the Contract specifications. The Contractor is responsible for providing appropriate training to all staff. This should be tailored to suit their level of responsibility for environmental matters. The Contractor should also ensure that all site staff members are aware of the emergency response procedures. All staff should receive environmental induction training and managerial staff should receive additional training. The training materials should be reviewed by the Supervision Engineer/Consultant.

Additional refresher training may be provided and this should be scheduled following periodic internal review of requirements for the Project activity. Records should be maintained for staff environmental training. Records should be kept on site where possible for each project activity for easy access during site audits or enquiries. Environmental training records (e.g. attendance records for environmental awareness training, topics covered) should be kept.

Annex XV. Terms of Reference for Environmental and Social Supervision Engineer/Consultant

These are general terms of reference are for the Supervision Engineer/Consultant as part of the construction of any project (the Project). The TOR will be updated to reflect project specific activities with full TORs. Environmental and Social Supervision should be a continuous process during the construction of the Project.

The Contractor has the responsibility to comply with the Environmental and Social Management Plans (ESMP) of the Project and contractual requirements while undertaking the works. This is overseen by the Supervision Engineer/Consultant.

In order to achieve the goal of minimizing the negative environmental impacts of the project, the ESMP has to be integrated in the design of the Project, and in the technical specifications and contract documents. It will need to be closely followed and supervised by the Supervision Engineer/Consultant.

1. Objective of the Assignment

The general services to be provided by the Supervision Engineer/Consultant are:

- Inspect, monitor and audit construction activities to ensure that Environmental and Social Specifications established in the Site Specific Environmental and Social Management Plan of the Project and E&S Specifications for contractors are implemented effectively;
- Ensure that Contractors comply with the laws and regulations of a country and the contractual requirements;
- Ensure that the negative impacts are minimized;
- Provide environmental training to all actors involved in the construction activities.

2. Scope of Services

The Supervision Engineer/Consultant is expected to perform the following duties**:**

Initiation of the Supervision Works and Review of Project Documents

The Supervision Engineer/Consultant shall initiate the supervision works at least in advance before the start of the construction activities.

The Supervision Engineer/Consultant should use this time to become familiar with the Project designs, the technical specifications, contract documents, the plans to carry out the construction works, the ESMP, the SSESMPs, the Laws and Regulations of the country and any other document that is relevant to the Project.

The term 'construction activities' in this TOR pertains to all aspects related to the construction phase of the Project, including but not limited to, all construction sites,

permanent and temporary camps, off-site activities (disposal sites, borrow pits), all associated facilities , access roads, traffic and disturbances (dust, noise) in local roads, and areas of impact away from the project site.

In general, the objectives of this phase are: (i) review the ESIAs, ESMP, project designs and technical specifications and confirm that there have been no major omissions of mitigation measures; (ii) prepare guidelines for Contractors on implementing the ESMP; and, (iii) develop and execute training programs for all involved in construction activities. The main tasks in this phase are:

Review of Project Documents: The Supervision Engineer/Consultant shall review the ESIA, ESMP, project designs, technical specifications and contractual requirements to determine that there have been no major omissions of mitigation measures. Following the review, the Supervision Engineer/Consultant shall prepare a brief report on the potential issues and challenges arising from the implementation of the ESIA/ESMP, condition of contracts and make recommendations to the PIU about how best to improve the implementation of the ESIA/ESMP. Once the changes are approved by the PIU the Supervision Engineer/Consultant shall update the ESMP.

Environmental Supervision Checklist: The Supervision Engineer/Consultant shall establish checklists which will be used during the construction of the project to monitor the Contractor's performance. This shall cover major aspects of the project, required mitigation/control measures and their implementation schedule.

Log-Book: The Supervision Engineer/Consultant shall keep a log-book of each and every circumstance or change of circumstances which may affect the E&S management and non-compliance with the recommendations made by the Supervision Engineer/Consultant to remediate the non-compliance. The log-book shall be kept readily available for inspection by all persons assisting in the supervision of the implementation of the recommendations made in the ESIA and ESMP.

Site Inspections: The Supervision Engineer/Consultant shall carry out visits of site prior to commencement of construction activities and give its no objection. These sites shall include among others, quarries, stockpiles, borrow pits, disposal sites, location of workers' camps, access roads, storage of explosives, hazardous materials, fuels, maintenance areas, etc. The Supervision Engineer/Consultant should take advantage of these visits to take pictures of the places visited.

Environmental and Social Training: The Supervision Engineer/Consultant shall design and execute a training program for all the Contractor's workers, PIU, and all staff involved on the environmental and Social requirements of the Project, and how they will be supervised, monitored and audited, giving particular attention to:

- **ESMP:** The requirements of the ESMP and E&S specifications. Particular attention will be paid to the specific provisions in each contract's technical specifications indicating how the ESMP is to be complied with.
- **Health and Safety:** The health and safety requirements of the project shall be clearly identified and communicated (included in environmental specifications for contractors).
- **Laws and regulations:** explanation of the relevant environmental requirements as stipulated in the environmental legislation, standards and regulations of Tanzania and the contract specifications.
- **Code of Conduct:** All construction workers (permanent or temporary) will have to sign and should be educated on the following issues but not limited to them: firearm possession, traffic regulations, illegal logging and collection of non-timber forestry products, non-disturbance of communities, hunting and fishing restrictions, waste management, protection of surface water, erosion control, all prohibited activities, the Code of Conduct requirements and disciplinary procedures, general information on the environment in which they will be working and living; and establishment of penalties for those who violate the rules.

The training programs shall be carried out before the start of the construction activities and every time new workers or Contractors are hired to inform them of the problems identified and to indicate how to improve environmental and Social performance and compliance.

At the conclusion of the training, all attendees shall sign a statement acknowledging their understanding of the environmental regulations, the ESMP, the health and safety obligations and the Code of Conduct. The Supervision Engineer/Consultant shall sign a similar statement confirming their understanding of the supervision responsibilities.

Supervision of Construction Activities

The Supervision Engineer/Consultant shall:
- Review, and inspect in an independent, objective and professional manner in all aspects of the implementation of the ESIA, ESMP and contractor management plans;
- Carry out random monitoring checks, and review records prepared by Contractors;
- Conduct regular site inspections;
- Review the status of implementation of environmental and social protection measures against the ESMP, and contract documents;
- Review the effectiveness of environmental and social mitigation measures and project environmental and social performance;
- As needed, review the environmental acceptability of the construction methodology (both temporary and permanent works), relevant design plans and submissions. Where necessary, the Supervision Engineer/Consultant shall seek and recommend the least environmental and social impact alternative in consultation with the designer, the Contractor(s), and the PIU;
- Verify the investigation results of any non-compliance of the environmental and social quality performance and the effectiveness of corrective measures;

- Provide regular feedback audit results to the PIU according to the procedures of non-compliance in the ESMP;
- Instruct the Contractor(s) to take remedial actions within a specified timeframe, and carry out additional monitoring, if required, according to the contractual requirements and procedures in the event of non-compliances or complaints;
- Instruct the Contractor(s) to take actions to reduce impacts and follow the required ESMP procedures in case of non-compliance / discrepancies identified;
- Instruct the Contractor(s) to stop activities which generate adverse impacts, and/or when the Contractor(s) fails to implement the ESMP requirements / remedial actions instructed by the Supervision Engineer/Consultant;
- The Supervision Engineer/Consultant shall also regularly review the contractor's records to ensure that they are up to date, factual and meet the ESMP reporting requirements (*e.g.* environmental and social complaint monitoring records).

Review of Site Plans: The Supervision Engineer/Consultant shall review and finally clear all site plans which may affect the environment. The Supervision Engineer/Consultant shall review and approve the Contractor's E&S management plans. Where these plans are found not to comply with the ESMP, the Supervision Engineer/Consultant shall work with the PIU and Contractors to find a solution.

Health and Safety: The Supervision Engineer/Consultant shall review and clear Contractors' Health and Safety Plans. These Plans shall include procedures such as management of explosions, safety during construction, the prevention of soil erosion during the rainfall season, etc. These plans shall be updated if necessary.

The Supervision Engineer/Consultant shall ensure compliance with requirements of the health and safety clauses in the contract documents. This shall include, but not be limited to: (i) construction activities; (ii) HIV/AIDS; (iii) compliance with National Labor Laws; and (iv) road traffic safety.

In case of any incidents or accidents, the Supervision Engineer/Consultant should immediately notify the PIU, which is required to notify the Bank of the occurrence of the incident within 24 hours.

Site Inspections: The Supervision Engineer/Consultant shall closely monitor the construction activities through regular site inspections accomplished through daily site visits, walks and visual inspections to identify areas of potential environmental and social problems and concerns. As noted in footnote 1 of this ToR, the area of inspection should cover both the construction areas and the environment outside the site area that could be affected, directly or indirectly, by the contractor's activities.

Inspections should be done independently from the Contractor's staff. Where definitive monitoring is necessary to resolve contentious issues or to impose penalties, the

Supervision Engineer/Consultant may contract third parties to carry out specific monitoring at the locations under review.

Where there is infringement of technical specifications, or condition of contracts, or non-compliance with the ESMP, the Supervision Engineer/Consultant shall immediately inform the Contractor. The Supervision Engineer/Consultant shall also report all infringements to the PIU as part of the monthly reporting.

Regular joint environmental and social site inspections (e.g. weekly) should be organized by the Supervision Engineer/Consultant with the Contractor's staff. These should be used as an opportunity for the Supervision Engineer/Consultant to further train the Contractor's staff.

Complaints: Complaints could be received by the Contractor's Site Office from local residents with regard to environmental infractions such as noise, dust, traffic safety, etc. The Contractor's Environmental Officer shall be responsible for processing, addressing or reaching solutions for complaints brought to them. The Supervision Engineer/Consultant shall be provided with a copy of these complaints and shall confirm that they are properly addressed by the Contractor in the same manner as incidents identified during site inspections.

Unforeseen Impacts: In the event that an incident arises which was not foreseen in the ESMP, the Supervision Engineer/Consultant shall work closely with Contractors and the PIU to reach a satisfactory resolution to the incident. The Supervision Engineer/Consultant shall then update the ESMP, the implementation guidelines and train the Contractors' staff accordingly.

Site restoration and Landscaping

Before completion of construction activities, the Contractor shall submit to the Supervision Engineer/Consultant, for its approval, a Site Decommissioning and Restoration Plan including cleaning, landscaping and re-vegetation of areas affected by the Project. The Supervision Engineer/Consultant shall closely monitor all activities related to the restoration, re-vegetation and landscaping of places such as borrow pits, quarries, disposal sites, worker's camps, storage and maintenance areas, river banks, slopes, erosion-prone areas, etc., to ensure compliance with the ESMP and that the activities are performed according to appropriate and acceptable standards.

Staffing

The Supervision Engineer/Consultant shall retain at all times trained personnel with adequate knowledge on protection of environmental and social issues in construction projects and be able to supervise the Contractor's performance. One staff member should have specific qualifications and be designated as Health and Safety Supervisor.

Equipment

The Supervision Engineer/Consultant will have their own monitoring equipment such as hand held and portable monitoring equipment, cameras, gas detection equipment, motor vehicles and all resources necessary to carry out supervision of the Project. The Supervision Engineer/Consultant shall also have office equipment such as computers, fax, scanners, etc.

Reporting

As a minimum the Supervision Engineer/Consultant shall prepare the following written reports:

- Weekly report of non-compliance issues;
- Summary monthly report covering key issues and findings from reviewing and supervision activities;
- Consolidated summary report from contractor's monthly report; and
- Collect and report on data as requested by the PIU.

At the end of the project the Supervision Engineer/Consultant shall prepare a final report summarizing the key findings from their work, the number of infringements, resolutions, *etc.* as well as advice and guidance for how such assignments should be conducted in the future.