

Ministry of Natural Resources and Tourism



**ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK FOR THE
RESILIENT NATURAL RESOURCES MANAGEMENT FOR TOURISM AND GROWTH
PROJECT**

P150523-PPA-C-07

03 August 2017

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**P150523-PPA-C-07 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK
(ESMF)**

Submitted to

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ACRONYMS & ABBREVIATIONS

AIS	Alien Invasive Species
CCASs	Community Conservation Award Schemes
CDO	Community Development Officer
CI	Conservation International
CSOs	Civil Society Organisations
DAWASCO	Dar es Salaam Water and Sewerage Corporation
EA	Environmental Assessment
EAM	Eastern Arc Mountains
EIA	Environmental Impact Assessment
EICC	Environmental Impact Consideration Checklist
ESA	Environmentally Sensitive Area
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management framework
ESMP	Environmental and Social Management Plan
FFS	Farmers' Field Schools
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographical information system
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GMP	General Management Plan
GoT	Government of Tanzania
GR	Game Reserve
HWC	Human Wildlife Conflict
IBA	Important Bird Areas
IDA	International Development Association
IIF	Intervention Identification Form
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
KASEZ	Kilombero Agro-processing Special Economic Zone
KEA	Key Ecological Attribute
KEA	Key Ecological Attributes
KPL	Kilombero Plantation Limited
KVTC	Kilombero Valley Teak Company
LGAs	Local Government Authorities
LGAs	Local Government Authorities
M&E	Monitoring and Evaluation
MALFD	Ministry of Agriculture, Livestock and Fisheries Development
MINAPA	Mikumi National Park
MNRT	Ministry of Natural Resources and Tourism
MoWI	Ministry of Water and Irrigation
NAFORMA	National Forestry Resource Management Programme
NBS	National Bureau of Statistics
NEMC	National Environment Management Council
NGOs	Non-Governmental Agencies
NIC	National Irrigation Commission

NP	National Park
NWA	Northern Wildlife Area
OP	Operational Policies
OP	Operational Policies
OUV	Outstanding universal Value
PAs	Protected Areas
PDO	Project Development Objective
PF	Process Framework
PM	Pest Management
PPP	Public Private Partnership
PTP	Primate Tourism Protocol
RAP	Resettlement Action Plan
REGROW	Resilient Natural Resource Management for Tourism and Growth
RUNAPA	Ruaha National Park
RWBO	Rufiji Basin Water Office
SACCOS	Savings and Credit Cooperatives
SGR	Selous Game Reserve
SMUWC	Sustainable Management of the Usangu Wetland and its Catchment
SOPs	Standard Operating Procedures
SWA	Southern Wildlife Area
TANAPA	Tanzania National Park Authority's
TANROADS	Tanzania National Road Agency
TAWA	Tanzania Wildlife Authority
TAWIRI	Tanzania Wildlife Research Institute
TAZARA	Tanzania-Zambia Railway Authority
TBD	To Be Decided
TCAA	Tanzania Civil Aviation Authority
ToR	Terms of Reference
TTB	Tanzania Tourist Board
TWCM	Tanzania Wildlife Conservation Monitoring
TZS	Tanzania Shillings
UMNP	Udzungwa Mountains National Park
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
URT	United Republic of Tanzania
URT-PMO	United Republic of Tanzania Prime Minister's Office
USAID	United States Agency for International Development
USD	United States Dollar
VPO-DoE	Vice President's Office Division of Environment
VIC	Visitor Information Centres
VLUPs	Village Land-Use Plans
VMG	Vulnerable and Marginalized Groups(s).
WB	World Bank
WHO	World Health Organization
WMAs	Wildlife Management Areas

TABLE OF CONTENTS

ACRONYMS & ABBREVIATIONS	II
EXECUTIVE SUMMARY	VIII
1 INTRODUCTION	1
1.1 RATIONALE FOR THE ESMF	1
1.2 OBJECTIVES OF THE ESMF	2
1.3 ESMF KEY STEPS, PREPARATION AND APPROACH	3
1.3.1 Literature review	3
1.3.2 Fieldwork and Consultations.....	3
1.3.3 Mapping.....	4
1.3.4 Dissemination	4
2 PROJECT SCOPE AND INSTITUTIONAL ARRANGEMENTS	6
2.1 PROJECT BACKGROUND	6
2.2 REGROW LOCATION	9
2.3 REGROW PROJECT DEVELOPMENT OBJECTIVE AND COMPONENTS	11
2.4 PROJECT BENEFICIARIES	16
3 ENVIRONMENTAL AND SOCIAL BASELINE	17
3.1 BIOPHYSICAL ENVIRONMENT	17
3.1.1 Mikumi National Park (MINAPA)	17
3.1.2 Udzungwa Mountains National Park (UMNP).....	18
3.1.3 Selous Game Reserve (SGR).....	22
3.1.4 Ruaha National Park (RUNAPA)	26
3.1.5 Wildlife Management Areas (WMA).....	29
3.2 SOCIO-ECONOMIC ENVIRONMENT	33
3.2.1 Administration	33
3.2.2 Mikumi National Park (MINAPA)	34
3.2.3 Selous Game Reserve (SGR).....	41
3.2.4 Udzungwa Mountains National Park (UMNP).....	46
3.2.5 Ruaha National Park (RUNAPA)	55
3.3 EXISTING IMPACTS/ISSUES IN THE PRIORITY PAS WITHOUT REGROW	63
4 POTENTIAL POSITIVE AND ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS OF REGROW INTERVENTIONS AND MITIGATION MEASURES	70
4.1 POSITIVE IMPACTS OF REGROW INTERVENTIONS	70
4.2 NEGATIVE ENVIRONMENTAL IMPACTS OF REGROW INTERVENTIONS	71
4.2.1 Negative social impacts of REGROW interventions	72
4.3 MITIGATING MEASURES FOR POTENTIAL NEGATIVE IMPACTS	72
4.4 ENVIRONMENTAL AND SOCIAL RISKS TO THE PROJECT	79
4.4.1 No Primate Tourism Protocol at UMNP	79
4.4.2 Cumulative impact of multiple water users of the Great Ruaha River	80
4.4.3 Community engagement.....	81
4.4.4 Natural disasters.....	82
4.4.5 Cumulative impact of increased tourism.....	82
4.4.6 Involuntary resettlement	82
4.5 PROJECT ALTERNATIVES	83
5 PRINCIPLES GUIDING ACTION: SAFEGUARDS AND LEGISLATION	84
5.1 WORLD BANK SAFEGUARD POLICY EXCLUSIONS AND REQUIREMENTS FOR REGROW 84	
5.1.1 Environmental Assessment Policy (OP 4.01).....	84
5.1.2 Natural Habitats Policy (OP 4.04)	85
5.1.3 Physical Cultural Resources Policy OP 4.11).....	90
5.1.4 Pest Management Policy (OP 4.09).....	91
5.1.5 Involuntary Resettlement Policy (OP 4.12)	93
5.1.6 Forests Policy (OP 4.36)	93

5.2	RELEVANT INTERNATIONAL AND NATIONAL POLICES AND REGULATORY FRAMEWORK	94
5.3	INTERNATIONAL AGREEMENTS	96
5.3.1	<i>Convention concerning the Protection of the World Cultural and Natural Heritage Treaty 1972</i>	96
5.3.2	<i>Ramsar Convention 1971</i>	96
5.3.3	<i>The Convention on the Conservation of Migratory Species of Wild Animals (CMS), 1979</i>	97
6	IMPLEMENTATION AND MONITORING	98
6.1	INSTITUTIONAL ARRANGEMENTS FOR SAFEGUARDS MANAGEMENT UNDER THE PROJECT	98
6.2	ENVIRONMENTAL AND SOCIAL MANAGEMENT TOOLS AND PROCEDURES	100
6.2.1	<i>Step 1 Environmental and Social Screening</i>	100
6.2.2	<i>Step 3 Application of Standard Operating Procedures</i>	105
6.2.3	<i>Step 4 Application of developed ESMPs</i>	105
6.2.4	<i>Step 5 Environmental Assessment of the intervention</i>	109
6.2.5	<i>Stakeholder Engagement</i>	113
6.2.6	<i>Grievance Mechanism</i>	114
6.3	MONITORING AND EVALUATION	116
6.4	CAPACITY TO IMPLEMENT THE ENVIRONMENTAL AND SOCIAL SAFEGUARDS	116
6.4.1	<i>Training Needs Assessment (TNA)</i>	117
6.4.2	<i>Training Plan</i>	117
6.4.3	<i>Capacity Building and knowledge transfer activities</i>	119
6.4.4	<i>Budget for the Implementation of Safeguards</i>	120
7	REFERENCES	121
	APPENDICES	124
	APPENDIX 1 CONSULTED STAKEHOLDERS AND CONCERNS	125
7.1.1	<i>Minutes And Participant List Of Validation Meetings For ESMF Consultations</i>	134
	APPENDIX 2 PRIORITY VILLAGES UNDER REGROW	159
	APPENDIX 3 KEY INSTITUTIONS AND THEIR RESPONSIBILITIES RELEVANT TO REGROW	162
	APPENDIX 4 PHYSICAL AND CULTURAL RESOURCES CHANCE FIND PROCEDURES	165
	APPENDIX 5 LEGISLATIVE REVIEW	167
	<i>Policies</i>	167
	<i>Acts</i>	171
	<i>Regulations and Guidelines</i>	175
	APPENDIX 6 EXISTING LGA STRUCTURE AND COMMITTEES	179
	APPENDIX 7 ESMPs DEVELOPED FOR REGROW	181
7.2	AWARE ©^{WEGS}: AVOIDING WORK/WILDLIFE-RELATED ACCIDENTS AND RESPONDING TO EMERGENCIES	184
7.2.1	<i>Fire Prevention, Preparation and Response Plan (FPPR)</i>	185
7.2.2	<i>Performance Indicators for M & E for STCIM ESMP</i>	186
7.3	ENVIRONMENTAL AWARENESS AND COMPLIANCE TRAINING ©^{WEGS} (E-ACT)	189
7.3.1	<i>AIDS and HIV Awareness</i>	190
7.3.2	<i>Performance Indicators for M & E for E-ACT ESMP</i>	190
7.4	PRUNE ©^{WEGS} – PERMITTED/PROHIBITED UTILIZATION OF NATURE RESOURCES IN NATURAL (PROTECTED) ENVIRONMENTS	192
7.4.1	<i>Performance Indicators for M & E for PRUNE ESMP</i>	192
7.5	SHORT TERM CONSTRUCTION IMPACT MITIGATION (STCIM)	194
7.5.1	<i>Performance Indicators for M & E for STCIM ESMP</i>	195
7.6	MUDD ©^{WEGS} MANAGING UNDESIRABLE DEBRIS (SOLID WASTE) AND DISCHARGE (SEWAGE AND STORMWATER) AND DUST	197
7.6.1	<i>Debris (Pollution Control): Solid Waste Treatment and Disposal Program</i>	197
7.6.2	<i>Sewage Waste Treatment (septic tank) and Disposal (Soak pit)</i>	200
7.6.3	<i>Discharge: Stormwater Management Control (SMC) avoiding erosion and water pollution</i>	200

7.6.4	<i>Performance Indicators for M & E for MUDD ESMP</i>	201
7.7	3 CS HAZARDOUS SUBSTANCES MANAGEMENT	205
7.7.1	<i>Hydrocarbon fuel storage and dispensing</i>	205
7.7.2	<i>Use of Hazardous Chemicals</i>	205
7.7.3	<i>Performance Indicators for M & E for 3Cs ESMP</i>	206
APPENDIX 8 TOC FOR ESIA REPORTS		209
CONTENT OF A SCOPING REPORT		209
CONTENT OF AN ENVIRONMENTAL IMPACT STATEMENT		210
ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN		212
ENVIRONMENTAL AND SOCIAL MONITORING PLAN		213
APPENDIX 9 TOR TEMPLATE FOR ESIA		214

LIST OF TABLES

TABLE 3-1	ECOLOGICAL UNITS IN SGR.....	24
TABLE 3-2	SELOUS GAME RESERVE VISITOR STATISTICS	25
TABLE 3-3	SUMMARY RESULTS OF ELEPHANT CENSUS	28
TABLE 3-4	SUMMARY OF WMAS IN REGROW AREA	31
TABLE 3-5	LIVELIHOOD OPPORTUNITIES FOR WMA.....	33
TABLE 3-6	ADMINISTRATIVE COVERAGE OF REGROW PRIORITY PAS (OVERLAPPING AND BORDERING DISTRICTS)	33
TABLE 3-7	MOROGORO REGION DEMOGRAPHIC INFORMATION	34
TABLE 3-8	DISABILITY DATA IN MOROGORO REGION	35
TABLE 3-9	NUMBER OF SCHOOLS AND PASS RATES IN SAMPLED DISTRICTS.....	36
TABLE 3-10	EXISTING AND POTENTIAL IRRIGATION AREA IN KILOSA DISTRICT IN WARDS BORDERING MINAPA... 39	
TABLE 3-11	SUMMARY OF POPULATION AND ETHNICITY IN DISTRICTS SURROUNDING SGR	42
TABLE 3-12	SPECIAL INTEREST GROUPS DISTRICTS SURROUNDING SGR.....	42
TABLE 3-13	GROUPS WITH DISABILITY IN RUFJI AND KISARAWÉ DISTRICTS	42
TABLE 3-14	EMPLOYED POPULATION AGED 10 YEARS AND ABOVE MAIN OCCUPATION IN MOROGORO AND COAST REGIONS	44
TABLE 3-15	SUMMARY OF POPULATION AND ETHNICITY IN THE REGROW REGIONS	48
TABLE 3-16	NUMBER OF SCHOOLS AND PASS RATES IN SAMPLED DISTRICTS.....	48
TABLE 3-17	EMPLOYED POPULATION AS MAIN OCCUPATION IN MOROGORO AND IRINGA REGIONS.	51
TABLE 3-18	SUMMARY OF AGRICULTURAL CROPS IN SAMPLE REGROW DISTRICTS SURROUNDING UMNP.....	51
TABLE 3-19	SOURCES OF ENERGY FOR COOKING AND LIGHTING AROUND UMNP	55
TABLE 3-20	SUMMARY OF POPULATION AND ETHNICITY IN THE REGROW REGIONS	55
TABLE 3-21	NUMBER OF SCHOOLS AND PASS RATES IN SAMPLED DISTRICTS.....	56
TABLE 3-22	EMPLOYED POPULATION AS MAIN OCCUPATION IN MBEYA AND IRINGA.....	58
TABLE 3-23	SUMMARY OF IRRIGATION SCHEMES BORDERING RUNAPA	60
TABLE 3-24	IMPACTS TO BE ADDRESSED BY REGROW	64
TABLE 4-1	ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR REGROW INTERVENTIONS	74
TABLE 5-1	NO GO ZONES IN THE REGROW AREA.....	86
TABLE 5-2	NATIONAL POLICIES AND LEGISLATION APPLICABLE TO REGROW PDO.....	94
TABLE 5-3	TANZANIA BIODIVERSITY TARGETS FOR 2020 OF RELEVANCE TO REGROW	95
TABLE 6-1	ELECTED AND ADMINISTRATIVE SET UP OF THE GOVERNMENT OF TANZANIA	98
TABLE 6-2	RATING CATEGORIES FOR PRELIMINARY SCREENING ENVIRONMENTAL AND SOCIAL ASSESSMENT OF REGROW INTERVENTIONS	103
TABLE 6-3	PRELIMINARY ENVIRONMENTAL AND SOCIAL SCREENING OF COMPONENT 1 INTERVENTIONS	104
TABLE 6-4	ESMP DESCRIPTIONS	106
TABLE 6-5	ILLUSTRATION OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCEDURES ON COMPONENT 1 INTERVENTIONS	111
TABLE 6-6	SAMPLE TOPICS AND DURATION TO BE DELIVERED TO BUILD CAPACITY FOR REGROW STAKEHOLDERS	118
TABLE 6-7:	SUMMARY OF BUDGET ESTIMATES FOR ESMF IMPLEMENTATION	120
TABLE 5-2	GENERAL GUIDELINES FOR COMPLIANCE THAT IS APPLICABLE TO REGROW INTERVENTIONS.....	176
TABLE 4.1	ESMP OBJECTIVES AND PLAN OF ACTION	182
TABLE 4.4	EMAP - SUMMARY OF ENVIRONMENTAL MONITORING SCHEDULES FOR AWARE ESMP	187

TABLE 4.5 M & E REQUIREMENTS FOR AWARE – AVOIDING WORK/WILDLIFE RELATED ACCIDENTS AND RESPONDING TO EMERGENCIES	188
TABLE 4.6 M & E REQUIREMENTS FOR E-ACT	191
TABLE 4.7 M & E REQUIREMENTS FOR AWARE – AVOIDING WORK/WILDLIFE RELATED ACCIDENTS AND RESPONDING TO EMERGENCIES	193
TABLE 4.8 M & E REQUIREMENTS FOR SHORT TERM CONSTRUCTION IMPACT MITIGATION (STCIM)	196
TABLE 4.9 SOLID WASTE TREATMENT AND DISPOSAL PLAN DURING CONSTRUCTION PHASE	198
TABLE 4.10 SOLID WASTE TREATMENT AND DISPOSAL PLAN DURING ALL PROJECT PHASES	198
TABLE 4.11 M & E REQUIREMENTS FOR MUDDD – MANAGEMENT UNDESIRABLE DISCHARGE, DEBRIS AND DUST	202
TABLE 4.12 SUMMARY OF ENVIRONMENTAL MONITORING SCHEDULES FOR MUDD ESMP.....	203
TABLE 4.13 EMAP - SUMMARY OF ENVIRONMENTAL MONITORING SCHEDULES FOR MUDD ESMP.....	204
TABLE 4.14 SUMMARY OF ENVIRONMENTAL MONITORING SCHEDULES FOR 3CS HAZARDOUS SUBSTANCES CONTROL AND MANAGEMENT ESMP	207
TABLE 4.15 M & E REQUIREMENTS FOR 3 Cs HAZARDOUS SUBSTANCES MANAGEMENT (COVER, CONTAIN AND CONTROL).....	208

LIST OF FIGURES AND MAPS

FIGURE 6-1 LEVELS OF INVOLVEMENT IN THE REGROW PROJECT.....	100
FIGURE 6-2 FLOWCHART OF PRELIMINARY ASSESSEMENT.....	103
FIGURE 6-2 GRIEVANCE AND REDRESS FLOW CHART	115
MAP 1-1 PRIORITY PROTECTED AREAS AND DISTRICTS SAMPLED FOR DEVELOPMENT OF THE ESMF	4
MAP 2-1 REGROW LANDSCAPE AND ADMINISTRATIVE AREAS (REGION AND DISTRICT)	9
MAP 3-1 UMNP AND IT'S SURROUNDING FOREST AND NATURE RESERVES	19
MAP 3-2 NATURE TRAILS IN UMNP	21
MAP 3-3 PROPOSED CONVERSION OF HUNTING ZONE TO PHOTOGRAPHIC TOURISM ZONE.....	26
MAP 3-4 IMPORTANT ASPECTS OF THE UPPER CATCHMENT AREA OF THE GREAT RUAHA RIVER.....	27
MAP 3-5 WMA IN REGROW LANDSCAPE.....	31
MAP 3-6 LAND COVER AROUND MINAPA	37
MAP 3-7 LAND COVER LAND USE OF SELOUS GAME RESERVE	44
MAP 3-8 LAND COVERLAND USE OF UMNP AREA.....	50
MAP 3-9 SAGCOT CORRIDOR IN TANZANIA.....	52
MAP 3-10 LAND COVER LAND USE AROUND RUNAPA	57
MAP 5-1 HOTSPOTS IN THE REGROW FOOTPRINT.....	88
MAP 5-2 WILDLIFE CORRIDORS IN AND AROUND THE REGROW LANDSCAPE AREA	88
MAP 5-3 PROTECTION STATUS OF KEY FOREST HABITATS FOR ENDEMIC.....	89
MAP 5-4 CLOUD FOREST IN REGROW LANDSCAPE.....	90

EXECUTIVE SUMMARY

(i) Brief project background

The Government of Tanzania (GoT), in its Second Five Year Development Plan (FYDP II), has identified the Tourism industry as a robust source of growth. In just over a decade, annual tourist numbers have more than doubled from about 500,000 in 2000 to over 1 million visitors in 2013. The country's most visited tourism destinations are heavily concentrated along the Northern Wildlife Area (NWA) where the majority of tourist offerings are located and less in the Southern Wildlife Area (SWA). The SWA receives up to ten times less visitors than the NWA.

Challenges of the SWA including limited infrastructure, environmental degradation, and rampant wildlife poaching, coupled with weak capacity to manage these vast areas, threaten the health of these natural assets and hamper the tourism experience. Furthermore increasing economic activity, population growth and climate change exacerbate competition for water resources and threaten plans for transformational development.

The Ministry of Natural Resources and Tourism (MNRT) has solicited funding from the World Bank to implement the 'Resilient Natural Resources Management for Tourism and Growth' (REGROW) project in four Priority Protected Areas (PAs) of the SWA, namely Selous Game Reserve (SGR), Udzungwa Mountains National Park (UMNP), Ruaha National Park (RUNAPA) and Mikumi National Park (MINAPA).

REGROW aims to promote economic development in the SWA; provide legitimate alternatives to illegal exploitation of natural resources, and fund better management of the biodiversity. The implementation of REGROW upholds the mandate of MNRT ensuring that ecological integrity is not compromised by physical development and that there is equitable access and benefit sharing mechanisms with communities adjacent to the Priority PAs.

This assurance is provided by the deployment of tools to guide selection of interventions including this Environmental and Social Management framework (ESMF), Environmental and Social Management Plans (ESMPs) and Environmental and Social Impact Assessments (ESIAs) that provide a basis for acceptable thresholds and mitigation measures for sustainable exploitation of the resources in the Priority PA areas.

(ii) Brief description of the project by highlighting those activities with potential environmental and social effects;

The REGROW Project Development Objective (PDO) is to improve management of natural resources and tourism assets in priority areas of southern Tanzania, and to increase access to livelihood activities for selected communities. REGROW has four components that are to be implemented over five years starting in the second half of 2017.

Component 1 – *Strengthen capacity for the management and development of priority Protected Areas (US\$85 million)*. Policy and regulatory support, capacity/skills development activities and investments grouped under five sub-components will serve to improve the institutional and operational frameworks of the Priority PAs; improve the Priority PAs infrastructure to enhance assess and tourist experience; facilitate maintenance of PAs, conduct monitoring and research; support identification of activities that identify and build linkages between the range of attractions; and, promoting tourism investment by creating opportunities for private sector involvement.

Component 2 – *Strengthen access to improved livelihood activities for selected communities in proximity to the priority Protected Areas (US\$27 million)*. Providing access to improved economic opportunities within selected communities (approximately 20,000 households) living in the proximity of the priority PAs (including wildlife management areas) in order to enhance livelihoods, reduce vulnerability to climate shocks, and reduce pressure on natural resources and

wildlife. This is grouped under three sub-components: improved governance of conservation-related community-based initiatives; enhanced community livelihoods; and, capacity building of communities and government authorities.

REGROW will seek to mainstream gender-informed approaches in its design, implementation and monitoring of activities, by taking account of the different needs and opportunities of women, men, and the youth, together with Vulnerable and Marginalized Groups (VMGs). Project activities, particularly those targeted at communities living near the PAs, will be geared towards female, youth, and VMG participation, to benefit these groups, to the extent possible. In addition, project activities will entail mechanisms for effective citizen engagement through consultations, sensitizations, capacity building, and partnerships.

Component 3 – *Strengthen capacity for landscape management upstream of the Ruaha National Park (US\$27 million)*. Primarily, the component will focus on short-term measures targeted towards the restoration of dry season flows in the Great Ruaha River, and as a secondary focus, the component will lay the ground towards mitigating future degradation of the RUNAPA resulting from climate change impacts, excessive abstraction of water upstream of the Park, deteriorated water quality, and increased sediment in inflowing rivers. The sub-components aim to assess and implement measures to augment dry-season flows to the RUNAPA; improve the irrigation efficiency and water savings in irrigation areas; implement catchment conservation activities in selected rivers; and, support the consensus-building process for land and water management and climate change adaptation in the Usangu plains.

Component 4 – *Project management, institutional strengthening, and monitoring and evaluation (US\$11 million)*. This component will support the implementation of the project by ensuring coordination support, financial management and capacity building for the different actors involved; financing and operationalizing a Monitoring and Evaluation.

MNRT is the main implementing agency for REGROW, responsible for coordinating efforts of ministerial departments and agencies, regulatory authorities, regional secretariats, LGAs, private sector, Research Institutes, Non-Governmental Agencies (NGOs), CSOs and communities. Primary implementing partners for REGROW include the Tanzania National Parks Authority (TANAPA), Tanzania Wildlife Authority (TAWA), Rufiji Water Basin Office Authority (RWBO), The National Irrigation Commission (NIRC), Ministry of Agriculture, Livestock and Fisheries (MALF), Tanzania Wildlife Research Institute (TAWIRI) and Tanzania Tourist Board (TTB). MNRT receives funds from the WB and develops annual plans and budgets with the support of a Project Implementing Committee and Technical Assistance if required. The project implementation Unit is to be made up of representatives of the different key implementing institutions.

(iii) Disclosure

The WB requires that the ESMF and its development process are continuously disclosed to the different actors to ensure transparency and involvement of all those relevant to the project. The ESMF has presented at an inception workshop held on (31 October 2016) held in Dar es Salaam at MNRT offices. Further to this on 9th March 2017 at the National College of Tourism (correct title) preliminary feedback on the ESMF was collected at a workshop attended by members of the REGROW implementing partners. The final draft of the ESMF was discussed with a broad stakeholder group in Morogoro on July 24 and 25, at the Tanzania Tree Seed Agency venue and on August 03 with Civil Society Organisations and private sector stakeholders at MNRT headquarters. The final document will be further availed for public consumption on the World Bank Infoshop and the MNRT website including in the offices of the Priority PAs and implementing partners.

(iv) Environmental and Social Impact of REGROW

Implementation of REGROW will potentially result in Positive and Negative Impacts.

The **potential positive impacts** of REGROW implementation include:

- Improved connectivity and decreased travel time through road improvements and rehabilitation of airstrips; setting up gates at strategic entry points and ensuring permanent crossing over water courses by building bridges.
- Increased protection and conservation capability with more ranger posts and gate control points.
- Increased direct and indirect employment and business opportunities for surrounding communities associated with tourism sector.
- Community education and awareness to reduce human wildlife conflict.
- Improved tourism experience: Improved access gates, visitor facilities, payment modalities and transport connectivity will result in increased customer satisfaction with tour operators and park visitors.
- Increased water use efficiency by better regulation of water permits and integrated water and land use planning activities, improved irrigation infrastructure for selected smallholder schemes (drainage canals, control gates) and awareness and capacity building for farmers via training through Farm Field Schools (FFS).

The potential **negative environmental impacts** that would require institution of mitigation measures include:

- Noise pollution from operation of construction machinery, increased road and air traffic and increase use of generators
- Ecological disturbance to terrestrial and aquatic habitats including viewshed marring from civil/earthworks and increased investment/business
- Pollution of land or water resources due to discharge of sewage from malfunctioning or lacking sanitation and waste-water treatment systems and contaminated surface run-off and mismanagement of solid and liquid waste generated from construction and operational activities
- Pressure on existing groundwater sources and groundwater shortages from overexploitation of local aquifers
- Land destabilization and soil degradation (in form of erosion, compaction, sealing and/or waterlogging) from construction works (road grading, vegetation clearance and cut-and-fill), especially with slopes > 7% gradient
- Increased timber harvesting and deforestation in response to demand from Priority PA construction works
- Increased exposure and incidence to invasive alien species in the Priority PAs due to movement of earthworks into the areas
- Increased removal of material in borrow pits from the Priority PAs for construction resulting in hazardous water sources (acid pools) of non-rehabilitated
- Increased sedimentation patterns from construction of bridges and road crossings at rivers
- Destruction of benthic communities and habitat during construction of bridges and culverts
- Creation of new microhabitats from construction of additional water storage areas
- Potential Negative Environmental Social Impacts
- Ambient air pollution from operation of construction machinery and generators
- Occupational health, security and safety hazards to public and construction workers
- Fires leading to damaged property or injury
- Temporary disruption and/or permanent closure of roads and airstrips limiting connectivity or causing delays impacting tourism operators and communities.

- Marginalization of local content in construction and operational procurement and labour
- Disturbance of historically or culturally valuable sites and/or resources
- Disturbance of local community's social dynamics
- Land use conflicts during the establishment of new and/or enforcement of existing land use plans

(v) Objectives of the ESMF

The WB Environmental and Social Safeguard Policies institute a requirement for appraisal prior to approval of funding. REGROW has been assigned Environmental Assessment Category B under the WB Operational Policy 4.01 and triggers the following safeguard policies: (i) Environmental Assessment, OP/BP 4.01; (ii) Natural Habitats, OP/BP 4.04; (iii) Forests, OP/BP 4.36; (iv) Pest Management, OP 4.09; (v) Physical and Cultural Resources, OP 4.11; and (vi) Involuntary Resettlement, OP/BP 4.12.

REGROW's PDO will support interventions that are likely to generate some detrimental and site specific environmental and social impacts. However, the exact nature of sub-projects (or 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 a level of detail where an ESIA and or an ESMP can be developed and appraised for compliance.

The ESMF thus establishes a mechanism to conduct environmental and social screening and development of compliance tools in the form of Environmental and Social Impact Assessments and Environmental and Social Management Plans to ensure that National obligations the and World Bank safeguard Policies that triggered by the project are addressed.

The ESMF thus sets procedures and methodologies for the environmental and social planning, review, approval and implementation of interventions to be financed under the REGROW, identifying roles and responsibilities and determining capacity needs for effective implementation.

(vi) Screening and mitigation.

REGROW interventions will be subjected to an environmental and social screening process in accordance with the ESMF in compliance with the WB Safeguards and national legislation prior to approval for implementation. The screening and subsequent actions will guide MNRT to ensure the interventions are implemented whilst ensuring ecological integrity of the Priority PAs is not compromised and the communities adjacent to the Priority PAs benefit from the project.

The screening and development of mitigation measures is to be implemented through the following steps:

1. **Screening:** The interventions (proposal of activities) are subjected to a screening process that serves to determine initially what WB Safeguards are triggered and how.
2. **Categorisation of environmental assessment:** The category of environmental assessment required using the National Environmental Impact Assessment and Environmental Audit Regulations (2005) Schedule III as guidance is determined.
3. **Development of ESIA and or ESMP:** For interventions deemed to require environmental and social assessment either an ESIA and or an ESMP is developed by the project proponent, following the guidelines reflected in the current ESMF, and reviewed by the the National Environmental Management Council (NEMC). The development of ESIA's will follow the National Environmental Impact Assessment and Environmental Audit Regulations (2005) and submit registration, scoping and full ESIA reports to NEMC in accordance with section 18. TANAPA guidelines for roads and other standard operating procedures in National Parks will be used to inform the ESMPs. The ESIA's

and or ESMPs will be developed using experts registered by NEMC. For specific construction work for which Construction Contractors are engaged, these Contractors will be required to prepare a construction-specific ESMP, which will be reviewed, approved and included as part of their contract obligations.

4. **Monitoring and Evaluation and Audit:** The ESIA's and or standalone ESMPs are subjected to in-house and external audit to ensure revision to the ESMPs as will be deemed appropriate.

Further to the steps to be followed in instituting environmental and social measures to mitigate negative impacts, the ESMF also establishes an engagement and grievance redress mechanism to ensure that opinion and concerns of all consulted and involved are appropriately addressed.

- (vii) The ESMF presents a generic ESMP to serve as guidance of potential impacts and mitigation measures that are associated with the REGROW interventions and outlines estimated costs of implementation of the ESMF

1 INTRODUCTION

1. Tanzania's economy is largely Agriculture based with the sector accounting for about 50 per cent of GDP and about 80 per cent of export earnings (Kweka et al, 2003). Agriculture is followed by the extractive industry and Tourism, the latter being the country's number one foreign currency earner. Tourism contributed 9.3% to the GDP in 2015 (Economic Impact Report for Tanzania of the World Travel and Tourism Council). The WTTC predicts that the Tanzanian tourism sector will rise by 4.9% (to 7.7% of GDP) in 2015–2025.
2. In Tanzania the tourism industry is more prominent in the Northern Wildlife Area (NWA), the city of Dar es Salaam and the historic isles of Unguja and Pemba that make up Zanzibar, than the South of the country. The Wildlife Resources of the South have been minimally exploited over the years despite the excellent potential for tourism. The Southern Wildlife Area (SWA) on the other hand, accounts for less than 10% of all visitors to Tanzania's national parks and less than 1.5% of park revenue (MNRT, 2012). To address this MNRT developed a strategy in to increase in the revenue from tourism in the area and recognised that oversight, mechanisms to reduced poaching and funding was needed to boost tourism in the SWA.
3. MNRT has conceptualised a project entitled 'Resilient Natural Resources Management for Tourism and Growth' (REGROW) in four Priority Protected Areas (PAs) of the SWA, namely Selous Game Reserve (SGR)¹, Udzungwa Mountains National Park (UMNP), Ruaha National Park (RUNAPA) and Mikumi National Park (MINAPA).that aims to lay the foundation for economic development, provide legitimate alternatives to poaching, and fund better management of the biodiversity. The implementation of the project is to be delivered in a manner that upholds the mandate of MNRT which is to ensure that the ecological integrity of the PAs is not compromised by physical development and that there is equitable access and benefit sharing mechanisms with communities adjacent to the Priority PAs. This assurance is provided by the use of an Environmental and Social Management framework (ESMF) to select interventions and institute safeguard mechanisms such as Environmental and Social Management Plans (ESMPs) and Environmental and Social Impact Assessments (ESIAs) that provide a basis for acceptable thresholds for exploitation of the resources in the PA areas.

1.1 Rationale for the ESMF

4. The World Bank Environmental and Social Safeguard Policies which are in accordance with the laws of Tanzania require that before a project is appraised by the Bank, relevant safeguard instruments, such as an Environmental and Social Impact Assessment (ESIA) containing an Environmental Management Plan (ESMP) -if specific location, design and other characteristics of the investment are known, or an Environmental and Social Management Framework (ESMF) -if location or design are not known at the time of appraisal- will be disclosed as required by National Regulations and at the Bank's InfoShop.
5. The REGROW Project will support interventions that are likely to generate some detrimental and site specific environmental and social impacts. However, the exact nature of sub-projects (or 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 a level a detail where an ESIA and or an ESMP can be developed for approval under the National regulations.
6. REGROW has been assigned Environmental Assessment Category B under the WB Operational Policy 4.01 and triggers the following safeguard policies: (i) Environmental

¹ Only the photographic zone as described in section 7 of the Selous Game Reserve General Management Plan is to be covered by the REGROW project.

Assessment, OP/BP 4.01; (ii) Natural Habitats, OP/BP 4.04; (iii) Forests, OP/BP 4.36; (iv) Pest Management, OP 4.09; (v) Physical and Cultural Resources, OP 4.11; and (vi) Involuntary Resettlement, OP/BP 4.12.

7. The ESMF provides a mechanism for ensuring environmental and social concerns are addressed in the course of selection and implementation of interventions where (i) the actual locations and potential localized adverse environmental and social impacts of future interventions and investments cannot be fully determined prior to the appraisal of REGROW. As best practise and a lenders requirement (ii) the WB OP 4.01 requires screening for potential adverse environmental and social impacts of all investments considered for Bank financing and carrying out of the appropriate level of environmental work based on the screening results. Furthermore, (iii) Tanzania's national assessment procedures do not provide for environmental and social screening of small-scale investments with lack of technical specification at unknown locations, thus the ESMF provides guidance on the scope of assessment. The ESMF also provides types of impacts and suggested mitigation activities that Construction Contractors will be required to implement, and which will need to be reflected in a construction-specific ESMP, to be prepared by the contractor and to form part of the contract.
8. REGROW is a unique project but is not self-standing and will be implemented in a landscape of other conservation and development initiatives in the area some of which are supported by other development partners including USAID, GIZ, KfW WWF and FZS. The ESMF thus guides MNRT in discerning environmental and social impacts of the activities of REGROW in relation to other initiatives and ensure that REGROW interventions do not aggravate and or compromise the environmental and social impact of these, noting that REGROW is likely the only initiative, at present time, implementing infrastructure works in the three National Parks that are part of the project (Mikumi, Udzungwa and Ruaha), whereas in Selous there is another project, supported by KfW, which also implements infrastructure, but is targeting the area not addressed by REGROW (the non-photographic area). Therefore, it is not anticipated that there will be any cumulative or unintended impacts due to the different interventions of different programs or initiatives.

1.2 Objectives of the ESMF

9. The ESMF is a mechanism to establish a process of environmental and social screening, which will permit the MNRT, to identify, assess, mitigate, and monitor the environmental and social impacts of interventions under the REGROW project, and to prepare the required safeguard instruments.

Specific objectives of the ESMF are to:

- a) Establish clear procedures and methodologies for the environmental and social planning, review, approval and implementation of subprojects to be financed under the REGROW Project;
- b) Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to subprojects;
- c) Determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF;
- d) Establish the Project funding required to implement the ESMF ; and
- e) Provide practical information resources for implementing the ESMF.

1.3 ESMF Key Steps, Preparation and Approach

10. The ESMF was developed using best practise approaches for scoping and identification of impacts and design of mitigation measures and budgeting. Briefly the Consultant identified key stakeholders to consult and passed these by MNRT for confirmation. The stakeholders ranged from Central Government to local communities in the REGROW area and included civil society actors. The consultations were followed up by field visits to some of the areas and on site consultations conducted. Complement to this was an extensive literature review.

1.3.1 Literature review

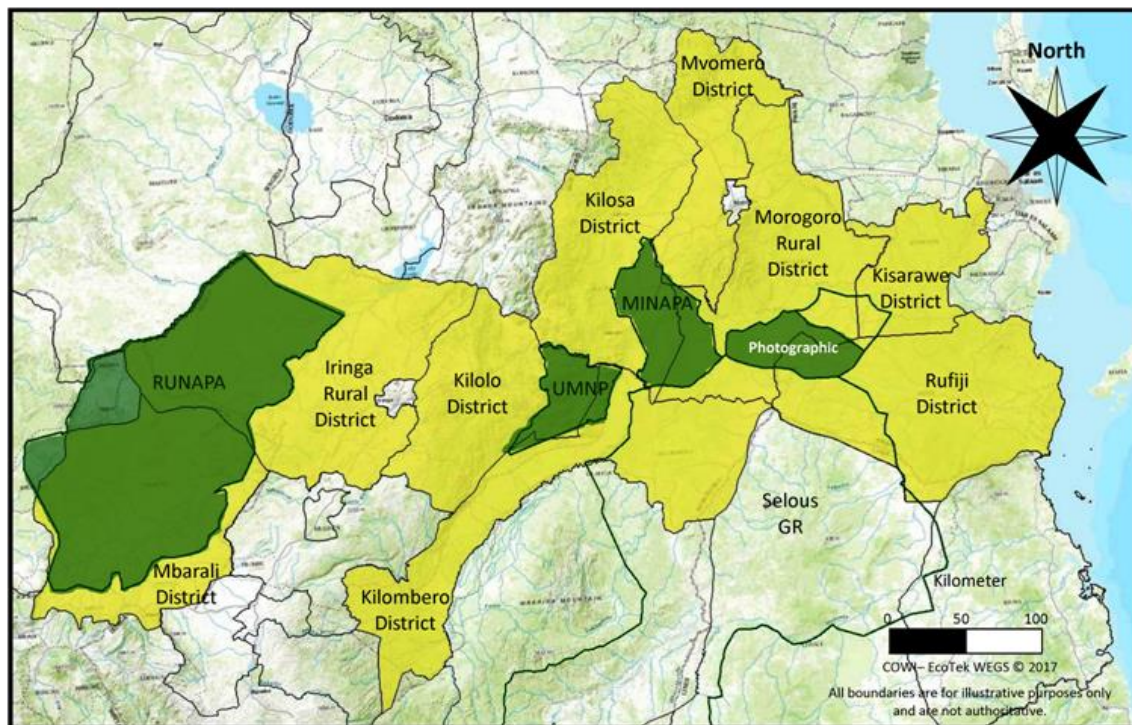
11. The main sources of information were secondary, primarily from regional and district socio-economic profiles, investment profiles or strategic plans. In addition, relevant national policies, legislation, national development strategies and plans were reviewed to understand the Policy, Legal and Institutional context. WB Safeguard Policies were also consulted to establish what elements of REGROW would trigger a Safeguard and the consequences of this.
12. Articles and reports on programmes and projects in the REGROW area served as a source of information on the biophysical and socioeconomic status highlighting intended and on-going interventions. Furthermore, socioeconomic data from National Bureau of Statistics was consulted to establish the scope of impact with reference to populations around the Priority PAs.

1.3.2 Fieldwork and Consultations

13. Fieldwork was conducted in mid February 2017. Districts visited included Morogoro Rural, Kilosa, Kilombero, Mvomero (Morogoro region); Iringa Rural and Kilolo in Iringa region; and Mbarali in Mbeya region² (Map 1-1). In addition to the districts, some of the irrigation schemes and Wildlife Management Areas (WMA) around the Priority PAs were visited. Field work contributed baseline information for livelihood activities, infrastructure, land and water resources use and cultural settings.

² These were selected during inception phase based on four criteria: Recommendations from the Client; Inclusion of maximum number of local government authorities; Districts that give a representative sample of the REGROW components; Available literature from the different areas

Map 1-1 Priority Protected Areas and Districts sampled for development of the ESMF



14. Consultations were conducted at Central, regional, district and community level in order to solicit concerns, views, opinions, suggestions and collect additional secondary information and data to inform the ESMF. The consultations were both one-one, key informant interviews and group discussions held with relevant technical staff and representatives mainly from public, private sector and civil society using a checklist of guidance questions and/or issues to ensure that stakeholders were presented with similar questions and information about REGROW. The list of consulted parties is included as Appendix 1.

1.3.3 Mapping

15. To establish the footprint and draw up areas/ zones of influence of REGROW, extracted information was mapped using GIS onto land use land cover maps supplemented with information from the National Forestry Resource Management Programme (NAFORMA, 2010) and the National Bureau of Statistics, Census 2012. The maps have been used to illustrate the characteristics of the Priority PAs in relation to the proposed REGROW interventions as detailed in chapters two three and four. Mapping information on the proposed interventions for each of the Priority PAs was availed by the respective Priority PA Management Authority.

1.3.4 Dissemination

16. The Terms of Reference for the preparation of the safeguard documents were shared with stakeholders. This was done by sending the ToR directly to institutions in November 2015 and publicly on the Ministry of Natural Resources and Tourism's website (MNRT). The feedback received were incorporated into the ToR.
17. The development approach of the ESMF and its associated frameworks was disclosed at an **inception workshop** held on 31 October 2016 in Dar es Salaam at MNRT offices. The inception workshop was attended by teams working to develop approaches and options for the

REGROW interventions³; representatives of REGROW implementing partners (See chapter 6) including the Priority PAs management; MNRT staff and a mission of the World Bank aimed at providing a general understanding to all on the expected outputs and outcomes of REGROW and how the frameworks would serve to guide implementation of the project.

18. On 9th March 2017 at the National College of Tourism, preliminary feedback on the ESMF and associated frameworks development was disclosed at a **Scoping workshop** attended by members of the REGROW implementing partners, World Bank staff and MNRT. The scoping workshop disclosed environmental and social aspects of concern and existing mechanisms to address these forming the basis of the ESMF development.
19. The draft ESMF was discussed with a broad stakeholder group in Morogoro on July 24 and 25, at the Tanzania Tree Seed Agency venue and on August 03 with Civil Society Organisations and private sector stakeholders at MNRT headquarters, as part of the World Bank and National requirements of projects such as that with the nature of REGROW. The final document will be further availed for public consumption on the World Bank Infoshop and the MNRT website including in the offices of the Priority PAs and implementing partners.

³ MNRT has commissioned slightly more than 10 teams to develop different components to guide the implementation of REGROW.

2 PROJECT SCOPE AND INSTITUTIONAL ARRANGEMENTS

2.1 Project Background

20. ***The United Republic of Tanzania has had a robust macroeconomic performance in the past 10 to 15 years, with GDP growing annually at an average of 6.5 percent.*** GDP per capita (current US\$) increased from US\$308 in 2000 to US\$ 865 in 2015. Tanzania has a set of assets that provide unique economic opportunities compared to many other African countries: as a coastal economy bordering eight countries, six of which are completely or partially land-locked, the country has a strong advantage in terms of its location to be a regional hub; it is endowed with rich and diverse natural resources, both renewable and non-renewable, providing the basis for current and future economic development and people's livelihood; and it has enjoyed decades of socio-political stability, with significantly shorter conflicts than any other East African country.
21. ***Despite strong economic performance, 12 million are living below the poverty line, especially in rural areas.*** The poverty rate has declined from 34 percent in 2007 to 28 percent in 2012, while rural poverty declined from 39 percent to 33 percent. Tanzania hosts one of the largest poor populations in Africa. Economic growth has been primarily driven by non-labor intensive sectors with only a limited impact on job creation, whilst the country's population is rapidly growing (over 53 million in 2015, projected to increase to 74 million by 2030).
22. ***Tanzania's economy depends, to a significant degree, on its rich natural resources-base.*** The tourism industry, largely biodiversity and wildlife-based, generated \$4.3 billion in revenues in 2013, or 10 percent of GDP, and is the main contributor to foreign currency; agriculture consumes around 89 percent of the country's water withdrawals, and accounts for 23 percent of GDP; 90 percent of the energy needs are satisfied by hydropower and wood fuels. The majority of the population lives in rural areas, and depends on natural resources for their livelihoods in the form of food, fuel, and fodder. In order to maintain economic growth and make it more inclusive, strong management and stewardship of natural resources is paramount, given the interlinkages between natural resources, livelihoods and poverty.
23. ***The Government of Tanzania (GoT), in its Second Five Year Development Plan (FYDP II), has identified the Tourism industry as a robust source of growth.*** In just over a decade, annual tourist numbers have more than doubled from about 500,000 in 2000 to over 1 million visitors in 2013. Tanzania's "low-volume high-value" tourism approach has significant economic, social and environmental benefits, particularly in ecologically sensitive areas. The country is very successful in attracting high-expenditure tourists, resulting in the highest revenue/tourist ratio in Sub-Saharan Africa (double, for example, than Kenya). The sector generates the bulk of export revenues for the country, represents a reliable and resilient source of revenue to the government, and provides well-remunerated direct employment to over 400,000 people. According to the World Travel & Tourism Council, tourism's total contribution to GDP in Tanzania between 2015 and 2025 is expected to be 6.6 percent per year, while the growth rate of its contribution to employment for said period will be 2.7 percent per year.
24. ***Increased economic activity, population growth and climate change are exacerbating competition for water resources, threatening plans for transformational development.*** Demand for water is growing faster than available supply, with conflicts becoming increasingly common as a result. Climate change is adding complexity to water resources management, with changes in precipitation seasonality and variability. Land and water, both of which are necessary enablers for a natural resources-based economy, are becoming more scarce, impacting the development of sectors such as agriculture, tourism, power production,

and ecosystem conservation. Progress has been made in planning for improved catchment management, however, tested models for resolving such competing demands at the local level do not exist.

25. ***Tanzania's rich and diverse natural resources, especially wildlife, are the basis for tourism development.*** About a third of the country's total area is under protection, one of the world's highest percentages. Tanzania's 16 national parks and 17 game reserves, in addition to three marine parks, 15 marine reserves, multiple forest reserves and others are host to world renowned biodiversity, wildlife, and unique ecosystems, constitute a prime global tourism destination. MNRT including the Tanzania National Parks Authority (TANAPA) and the recently created Tanzania Wildlife Authority (TAWA), is responsible for the management of the country's PAs and the promotion of tourism. Both, TANAPA and TAWA are parastatal agencies that are being funded through revenue generated by the PAs.
26. ***The country's most visited tourism destinations, however, are showing signs of overstress and carrying capacity limitations.*** Tourism remains heavily concentrated along the NWA where the majority of tourist offerings are located. Most of the TANAPA revenue is generated by five National Parks in the NWA and these parks are Serengeti, Kilimanjaro, Lake Manyara, Arusha and Tarangire. Pressures on the carrying capacity of key ecosystems such as the Greater Serengeti, are leading to concerns that future expansion of visitors in some of Tanzania's key attractions may soon undermine the quality of the tourism experience, and be at odds with the low-volume high-value proposition. If the new administration were to carry out its intention to double the number of tourist arrivals, and if this increased activity continues to be focused in the North, the effects could be counter-productive, with a degraded environment which will no longer attract high level tourism and ends up damaging the wildlife. As highlighted in a recent World Bank study, there is a need to diversify the tourism product without diminishing its revenue potential, with a growth in tourism that does not compromise the natural asset base.
27. ***The so-called Southern Circuit is the chosen location for tourism diversification and expansion.*** The GoT is keen to develop new tourism products to expand the sector, while maintaining the low-volume high-value approach that has been successful in capturing the highest per capita revenue in the region. Specifically, it is interested in balancing the focus on the Northern Circuit with developing the Southern Circuit, which includes a number of national parks (i.e., the Katavi, Kitulo, Mahale, and Ruaha National Parks), game reserves (Selous being the largest), two rift valley lakes (Nyasa and Tanganyika), and other areas of cultural interest. In view of expanding and enhancing tourism in Southern Tanzania, a recent study financed by USAID, highlighted that specifically the Mikumi National Park, Ruaha National Park, Udzungwa National Park, and the Selous Game Reserve are considered having high potential for increasing jobs and creating spill-over effects.
28. ***Limited infrastructure, environmental degradation, and rampant wildlife poaching, coupled with weak capacity to manage these vast areas, however, are threatening the health of these natural assets and hampering the tourism experience to date.*** The four priority PAs in the Southern Circuit together cover a vast area (approx. 62,000km²),⁴ and additional efforts in managing and sustainably exploiting their natural assets will be required if tourism be expanded - to date, the Southern Circuit receives up to ten times less visitors than the Northern Circuit. Currently, MNRT's capacity to effectively manage these vast areas and address issues such as human-wildlife conflict, wildlife poaching, water trade-offs, research and maintenance

⁴ The Ruaha National Park encompasses 13,000 km², representing the largest PA in East Africa, the Selous Game Reserve, Africa's largest Game Reserve and a UNESCO World Heritage Site, extends over 44,000 km², and Mikumi and Udzungwa National Parks cover an area of 3,230 km² and 1,990 km², respectively, while Switzerland covers an area of 41,285 km².

of the PAs is limited and characterized by human and financial constraints. Developing the Southern Circuit will therefore not only require significant investments in infrastructure to boost the incipient tourism, but also investments in the management of the PAs to significantly increase conservation efforts and protection of wildlife. Some of these areas have historically received much less attention and resources for management and conservation, given the focus on the Northern Circuit, with negative consequences from heightened poverty to increased ecosystem degradation.

29. The Southern Circuit is significantly less developed than the Northern Circuit, with a significantly lower amount of tourist arrivals. For example, whilst Serengeti National Park received a total amount of 372,986 visitors in 2015, and Ngorongoro Conservation Area received 567,983, Selous Game Reserve received 18,197 and Ruaha National Park received 18,961. The gap is significant, and is partly due to less infrastructure and facilities in the South. REGROW will, by implementing key basic infrastructure, begin to close the gap. Any risks of saturation of the Southern Circuit, thus, remain very low.
30. ***The subsistence of the RUNAPA together with the viability of the hydropower dams downstream the park, is threatened.*** Poor land use and watershed management practices leading to degradation of forests and watercourses are wide spread. Particularly, the expansion of formal and informal irrigation and associated encroachment of the Usungu Plains upstream and RUNAPA, has been threatening the watershed's ecosystem services, and subsequently reducing the once-perennial Great Ruaha River to a seasonal watercourse. Water trade-offs upstream of RUNAPA, which can be considered as a sample of what will happen in other basins in the medium-term (for example, in Pangani or in Kilombero), require multi-sectoral, multi-disciplinary solutions instead of traditional sector approaches, led by a single line ministry.
31. ***Climate change represents an additional important risk for Tanzania's natural resource-based growth.*** Tanzania is already experiencing changes in its climate, and precipitation is increasingly unpredictable with studies showing a shift in the onset of the rainy season(s). Changes in timing and quantity of rainfall are also predicted, and water security, which is already under threat from current climate variability and social, economic and environmental change, is likely to be under greater threat. These patterns will have multi-dimensional effects on the Tanzanian economy, affecting agricultural productivity, energy use, water dynamics, and the wildlife upon which tourism depends. Efforts to promote climate resilience in these key natural asset-based sectors will have important longer-term effects on food security and livelihoods. For the specific case of the RUNAPA, most of the wet season flows are being captured by irrigation, which seems to be the main cause for the seasonal dry-up of the Great Ruaha River. However, as precipitations become more erratic, and extreme events such as droughts become more intense, there is an even greater need to implement concerted, multi-sectoral solutions in the basin area in an integrated manner.
32. ***Finally, while the tourism sector has grown rapidly, it has not created enough jobs for citizens: even around the most visited areas, poverty is prevalent, indicating that strong linkages with local communities have yet to be established.*** While in other African countries (such as Namibia, Mozambique and parts of Kenya), tourism is providing an important source of revenue and employment to local communities, Tanzania's current policies, which aim to promote local benefit from tourism, have not been effective. The interactions between PAs and the populations around them are weak - and sometimes, conflicting - and the revenues and other benefits that are being generated by the PAs, are not sufficiently shared with the communities. Despite the establishment of Wildlife Management Areas (WMAs) to provide communities with economic benefits and involve them in management, community-based conservation remains weak. Linkages with the local economy need to be strengthened and

more inclusive policies and incentives need to be developed. Sustainable and successful tourism development would need to rely on stronger connections with local economies through training and job creation, supply chain development, and other forms of benefit sharing. There is an opportunity in the South to build and pilot new financial relationships between investors – public and private – and communities. Conservation-friendly tourism industry can contribute to addressing persistent poverty in the region and support natural resources protection, as park revenue can flow directly back into conservation, and the multiplier effect of tourism spending can grow the local economy.

2.2 REGROW Location

33. REGROW will initially focus on four priority Protected Areas (PAs) - MINAPA, RUNAPA, UMNP, and SGR (the latter, only in its northern sector, Matambwe, where photographic tourism is practiced) (see Map 1-1). The project will develop key tourism assets that promote increased activity around the Southern Circuit, and conduct short, medium and long-term interventions for the same. REGROW enables MNRT to address rural poverty and vulnerability to climate variability and change, by enhancing participation of communities in resilient nature-based economic activity and exploring alternative livelihoods. Map 2-1 illustrates the general location of the region and districts in relation to the REGROW priority PAs (RUNAPA, MINAPA, UMNP and SGR)

Map 2-1 REGROW Landscape and administrative areas (Region and District)



34. **MINAPA:** MINAPA is located approximately 300 km west of Dar es salaam in Southern Tanzania & it extends from longitude 37°00' to 37°30'E and latitude 7°00' to 7°45'S. The area covered by MINAPA includes water catchments for the Ruaha, Ruvu and Wami Rivers systems that provide significant water resources for eastern Tanzania. MINAPA covers an area of 3,230 km². It is known for its diverse habitats, fauna & flora. In 1951 the area was awarded Game Reserve status to conserve the rich wildlife resources found in the area. In 1964 it was

gazetted as a National Park with initial area of 1070 km². In 1975 MINAPA was extended to the north & south by incorporating 2160 km². The extension southwards covered the area between the park and Selous Game Reserve (SGR). This was done to achieve ecological balance and diverse habitats to meet the needs of a wide range of species requirements and ensure movement between the park, the SGR and adjacent protected areas in the ecosystem.

35. MINAPA's tourism potential is impeded by difficulties in accessibility, poaching, accommodation & mobility within the park that are to be addressed through REGROW.
36. **UMNP:** UMNP is found in Morogoro and Iringa regions at 36.35°E and 7.65°S. The park is about 180 km from Morogoro town & 350 km from Dar es Salaam by road. It was gazetted in 1992 from the existing Forest Reserves of Mwanihana, Iwonde and parts of Matundu and the West Kilombero Scarp forest. It covers an area of 1990 km², a mere 20% of the whole of Udzungwa Mountains Ecosystem which is nearly 10,000 km². UMNP is the seventh largest National Park among the sixteen (16) National Parks after Ruaha, Serengeti, Katavi, Mkomazi, Mikumi and Tarangire.
37. A significant part of the foregoing beauty and attractions remain untapped due to several challenges, notably accessibility. It is expected that with sustainable investment aimed at unlocking UMNP's full tourism and ecological potential, the park will, over time, be transformed into a world-class destination.
38. **SGR:** SGR is the largest single PA in Africa covering an area of about 50,000 km². It was established in different phases from 1898 to its current boundaries that were created around 1970s. In 1982 the reserve was inscribed in the list of UNESCO World Heritage Site due to its outstanding universal value. Due to its enormous size, it is divided into eight (8) sectors/zones for management purposes. Two forms of wildlife utilization characterize the reserve - consumptive (trophy hunting) that occupies about 90% and non-consumptive (photographic tourism) that occupy the remaining 10%. The annual revenue collection from the two forms of wildlife utilization is about TZS 14 billion with 75% of it originating from trophy hunting & 25% from photographic tourism. Numerous challenges affect the reserve's outstanding universal value including inadequate capacity, poorly maintained or lack of infrastructure and facilities (both for law enforcement and tourism), inadequate funding base and inadequate facilities to enforce patrols. The consequences of these challenges is impaired ability of the SGR management to combat poaching particularly of elephants. The Tanzania Wildlife Research Institute (TAWIRI) census of 2013/2014, noted that the elephant population had declined considerably by 81.4% from that of the year 2006 elephant census 70,406 to a mere 15,217 in 2014. This alarming decline and others led to inscription of SGR onto the endangered list of World Heritage in 2014. GoT has taken various short and long-term measures to retain the UNESCO World Heritage status of SGR by recruiting more than 500 new rangers, decentralizing the Wildlife Division from the central government and establishing TAWA, formulation of Selous Emergency Action Plan, developing a National Strategy to Combat Poaching & Illegal Wildlife Trade of 2014 among other efforts.
39. The SGR Northern Sector-Matambwe covers an area of about 4,741km² and is the only area that practices non-consumptive tourism. REGROW funds will be invested in this area to upgrade infrastructure and facilities. Potential future extensions may include the North-Western Sector-Msolwa to transform some consumptive blocks into non-consumptive tourism.
40. **RUNAPA:** RUNAPA is situated in South Central Tanzania between 7 and 8 degrees south, covering part of Iringa and Mbeya Regions. It covers an area of 20,226 km² to the West of the Southern highlands, between the Great Ruaha River in the southeast and the Mzombe River in

the north-west. Ecologically, RUNAPA is unique because it covers a transition zone where East and South African species of both flora and fauna converge. These zones together with the Usangu wetlands and the Great Ruaha River are among RUNAPA's tourist attractions.

41. Due to climate variabilities potentially induced by development around the PA and movement of wildlife, RUNAPA faces a number of challenges that include drying up of the Great Ruaha River and the subsequent ecological effects in the Greater Ruaha Ecosystem. There is eminent loss of ecological connectivity within the ecosystem, as a result of anthropogenic activities (agriculture & livestock keeping) in areas adjacent to the park, sparking human-wildlife conflicts. Additional challenges include increased poaching in the entire Ruaha-Rungwa ecosystem, poor visitor access to the park and inadequate visitor accommodation facilities that TANAPA and RUNAPA Management are striving to address.
42. In 2008 GoT made a decision to annex the Usangu wetlands which contains the Ihefu swamp and some of its surrounding catchment areas to RUNAPA as one of the measures to address water resource management and associated challenges⁵. Results from a simple hydrological model developed for the Ihefu swamp indicated that, between 1958 and 2004, dry season inflows declined by approximately 60% and the dry season area of the swamp decreased by approximately 40% (i.e. from 160 km² to 93 km²) (McCartney et al, 2008). This was considered a sustainable approach to ensuring conservation of natural resources and restoration of perennial flow of Great Ruaha River and continued Hydro-power production at Mtera dam throughout the year.
43. The annexing of Usangu/Ihefu wetland has been challenging to benefit from due to a number of compounding reasons which include inadequate financial resources to ensure sustainable management. The management of the annexed area that is now part of the RUNAPA General Management Plan (GMP) has further limited implementation of the GMP which was approved in 2009.
44. RUNAPA has always been a High value, Low density destination that offers a unique wilderness experience for visitors. It is expected that the REGROW project will help resolve some of RUNAPA's challenges relating to accessibility; tourism accommodation demand; occupancy rate Visitor Information Centres (VIC), in-park mobility & maintenance Nature based or wildlife tourism is the main source of income that is ploughed back for management, regulation, & fulfilment of all organizational mandates in the national parks systems.

2.3 REGROW Project Development Objective and Components

45. The Project Development Objective (PDO) is *to improve management of natural resources and tourism assets in priority areas of southern Tanzania, and to increase access to livelihood activities for selected communities.*
46. REGROW has four components that are to be implemented over five years starting in the second half of 2017.
47. ***Component 1 – Strengthen capacity for management and development of priority Protected Areas (US\$85 million).*** The objective of Component 1 is to improve the management and sustainability of natural resources inside the four priority PAs in Southern Tanzania. This will

⁵ Over the last decade, outflow from the swamp has ceased for extended periods in the dry season. This has had severe consequences for downstream ecosystems, including RUNAPA

be achieved through policy and regulatory support, capacity/skills development activities and investments which are grouped under five sub-components:

- a) ***Sub-Component 1.1 – Improve knowledge, policy, institutional and operational frameworks for improved Protected Area management.*** Strengthen the enabling environment for the activities to be implemented under this component, by generating and managing knowledge, strengthening policy and enhancing capacity at national, institutional, and PA level. Key activities include: (i) review PA General Management Plans, and prepare a tourism development plan to guide future development of the southern part of RUNAPA; (ii) improve payment systems to address delays entering PAs, and carry out sensitivity studies for entrance fees; and (iii) improve existing policies and regulations to promote participation and benefit-sharing.
 - b) ***Sub-Component 1.2 – Improve PA infrastructure.*** Enhance accessibility and basic infrastructure of the priority PAs to improve their management and the overall quality of the tourism products. Key investments include, amongst others: (i) earthworks - construction of new and upgrade existing roads, trails, bridges and upgrading of existing airstrips to improve connectivity and ability to patrol strategic locations; (ii) civil works - construction and upgrading of ranger posts, tourist arrival amenities, entry/exit gates, visitor information centers, youth hostels, rest houses, and “bandas” for official and educational/ research purposes, maintenance workshops, and construction of research centers to strengthen monitoring efforts.
 - c) ***Sub-Component 1.3 – Infrastructure maintenance, monitoring and research.*** Activities include: (i) upgrading of communications systems (radio repeaters, cellphone connectivity and others), monitoring and patrolling equipment; (ii) infrastructure management tools and contingency plans; (iii) basic light and heavy equipment; (iv) wildlife related research initiatives to inform policy dialogue and integrated management; and (v) targeted training.
 - d) ***Sub-Component 1.4 – Strengthen “Destination Southern Tanzania”.*** Support activities that identify and build linkages between the range of attractions – including the priority PAs – in southern Tanzania and increase recognition of southern Tanzania as a destination. Among the activities included are: (i) an integrated tourism product development and marketing strategy for southern Tanzania that includes wildlife, forests, beach, cultural and historic products; (ii) implement marketing and branding strategies for the priority PAs; (iii) supporting and developing capacity to drive destination development and management; and (iv) scoping studies for Kitulo National Park, Katavi National Park and other southern destinations for possible future investment.
 - a) ***Sub-Component 1.5 – Tourism investment promotion.*** Identify, assess feasibility, promote and take to market opportunities for private sector investment in and around the selected PAs. This activity will, among others: (i) define opportunities for private sector investment in PAs and with communities; (ii) support the creation of a conducive investment climate to facilitate investments; and (iii) support the processes of investment promotion and facilitation.
48. ***Component 2 – Strengthen access to improved livelihood activities for selected communities in proximity to the priority Protected Areas (US\$27 million).*** The overall objective of this component is to provide access to improved economic opportunities within selected communities living in the proximity of the priority PAs in order to enhance livelihoods, reduce vulnerability to climate shocks, and reduce pressure on natural resources and wildlife.

49. The total number of households living in over 100 villages located around the boundaries of the priority PAs is 297,000 (based on the 2012 National Census), of which an estimated 20,000 households would benefit directly from the project. By focusing on enhancing partnerships between PAs and communities, the project will be anchored around improved policy and governance frameworks, productive initiatives linking improved livelihoods with tourism, conservation of wildlife and landscapes, and a strong focus on community and Local Government Authority's (LGA) education and training. During preparation, comprehensive surveys and assessments were conducted on all villages adjacent to the priority PAs. Based on these, all villages were characterized, through the identification of specific challenges (occurrence of human-wildlife conflict, poaching and/or encroachment levels) and opportunities (potential to supply goods and services to the tourism industry, accessibility, existence of WMAs). This exercise will provide inputs to prioritize "hotspot villages" into three categories: "High Potential", "Potential" and "Low Potential" villages. Component 2 activities will first focus on villages which will be classified as High Potential. If there are enough resources to reach all High Potential villages, the project will then expand its interventions to additional Potential villages (see Appendix 2).
50. The implementation of this subcomponent would be led by the strengthened outreach units of the respective PAs, operationally supported by locally recruited service providers, under the overall coordination of the PA management. The specific instruments, procedures and responsibilities for the delivery of technical and financial support to beneficiaries would be included in a Subproject Manual, to be completed and submitted to the Bank for no objection prior to the implementation of activities. The TOR for the preparation of the Manual have been agreed upon, and the content of the Manual would be jointly developed, with active participation of TANAPA and TAWA. Specific sub-components are:
- a) ***Sub-Component 2.1 - Improve the governance framework of conservation-related community-based initiatives.*** The component will, amongst others: (i) strengthen the legal and institutional framework of TANAPA's and TAWA's benefit sharing schemes; (ii) strengthen and/or develop the community outreach structures of TANAPA and TAWA, through technical assistance, capacity building and equipment; and (iii) develop a plan and/or strategy for development of cultural/historical tourism in the priority PAs.
 - b) ***Sub-Component 2.2 – Enhance community livelihoods by improving economic opportunities, and link them with conservation of wildlife and landscapes.*** Through a demand-driven approach, the subcomponent would provide technical and financial assistance to support the creation, organization, training and operation of groups of households in the priority villages focusing on (i) supplying services and agricultural products to tourism operators; (ii) developing cultural/historical tourism products; (iii) promoting low-environmental impact agricultural micro-enterprises; (iv) establishing conservation-friendly crop and livestock production; (v) reducing human-wildlife conflict; and (vi) promoting participatory forest management.
 - c) ***Sub-Component 2.3 – Capacity building of communities and government authorities.*** The sub-component will focus on targeted education and training to create new or strengthen existing mechanisms for improved natural resources management. It will include, amongst others: (i) scholarships for community members in tourism, wildlife, conservation, and facilitating access to vocational colleges (e.g., wildlife and tourism related skills); (ii) sensitization and promotion of conservation activities at community level, including education sessions, village game scout programs, joint community patrolling, and others; (iii) strengthening of eligible WMAs, through equipment and

targeted training, targeted towards increasing their wildlife management effectiveness; (iv) targeted natural resources management training for local government authorities around the priority PAs; and (v) support the development or improvement of Village Land Use Plans (VLUP) in selected areas targeted by sub-component 2.2.

51. **Component 3 – Strengthen capacity for landscape management upstream of the Ruaha National Park (US\$27 million).** The overall objective for Component 3 is to protect RUNAPA’s water resources within the social and climatic context of the area. These resources are critical for the subsistence and preservation of wildlife and ecosystems, and for continued and expanded tourism in Tanzania’s Southern Circuit. Primarily, the component will focus on short-term measures targeted towards the restoration of dry season flows in the Great Ruaha River, and as a secondary focus, the component will lay the ground towards mitigating future degradation of the RUNAPA resulting from climate change impacts, excessive abstraction of water upstream of the Park, deteriorated water quality, and increased sediment in inflowing rivers. All project activities are in line and follow the conclusions of the Rufiji Integrated Water Resources Management and Development Plan.
52. Improving land and water management in the Usangu plains and the upper catchments, (which feed into the Ihefu wetland and the Great Ruaha River), is a long process, which will translate into improved quantity and quality of flow only in the medium to long-term. Therefore, given the critical water emergency inside RUNAPA (currently up to three-four consecutive months with zero river flow at the “Ngiriama” control point), the priority of Component 3 is to implement structural solutions, inside RUNAPA, to improve water availability during the dry season, ensuring sufficient, accessible water points for wildlife. These measures will provide results in the short-term, temporarily mitigating the impacts caused by no-flow days. However, they will not address the underlying causes for zero flows, and therefore, the second priority of the Component is to initiate a process to improve land and water management in the upstream catchments in the Mbarali District (where most of the cultivated land is located) through cross-sectoral coordination, efficient farming and irrigation procedures, and conservation of upstream water sources, to demonstrate the benefits and methods for subsequent upscaling and to promote climate change adaptation in the area. The sub-components are:
 - a) **Sub-Component 3.1 – Assess and implement measures to augment dry-season flows to the RUNAPA.** Key infrastructure investments inside RUNAPA, along the Great Ruaha River, will be implemented in order to: (i) augment dry season flows to the river through storage of wet season flows; and (ii) generate water-stored areas, along the river and tributaries, that ensure increased water availability during dry season.
 - b) **Sub-Component 3.2 – Improve the irrigation efficiency and water savings in irrigation areas.** This sub-component will focus in the extensive irrigation lands upstream the Ihefu wetland, promoting water savings through: (i) Farmer’s Field Schools to raise awareness and knowledge of System Rice Intensification (SRI) as a farming method for increasing crop yields and reducing water use; (ii) construction of irrigation infrastructure in selected irrigation areas to demonstrate water-efficient methods (water controlling structures, lining of canals and drainage); and (iii) revisiting water use permits and assessing incentive mechanisms for controlling excessive use of water or increase of irrigation areas utilizing drainage water.
 - c) **Sub-Component 3.3 – Catchment conservation activities in selected rivers.** This would include: (i) surveying hotspots in the upper catchment areas where climate variability and change, together with present and future human activities, comprise severe risks for water sources; (ii) integrated water and land-use planning activities to

reduce the risks in these hotspots; and (iii) implementation of selected watershed management activities such as river boundary protection and sustainable agricultural land management practices.

- d) ***Sub-Component 3.4 – Support the consensus-building process for land and water management and climate change adaptation in the Usangu plains.*** The sub-component includes: (i) facilitating cross-sectoral interaction and consultations at the district level, including social and physical surveillance studies when needed, for water resources management; and (ii) strengthening the monitoring and management capacity of Irrigation Organizations and Water Users Associations, including operation and maintenance training.
53. ***Component 4 – Project management, institutional strengthening, and monitoring and evaluation (US\$11 million).*** This component will support the implementation of the project. It will facilitate the technical management and coordination of the project, financial management (FM), procurement and safeguards oversight. It also covers monitoring and evaluation of project implementation progress towards objectives, preparation of regular monitoring, mid-term, and evaluation reports; procurement and FM including audits, environmental and social safeguards. It will also provide for impact evaluation and adaptive improvement activities
- a) ***Sub-Component 4.1 – Project Management and Institutional strengthening.*** This subcomponent will finance project implementation, management, and coordination support, together with capacity-building initiatives to benefit the various actors involved in project implementation (particularly government agencies and LGAs). Specifically, this support includes: (i) project oversight and coordination costs; (ii) establishment and operation of a Project Coordination Unit (PCU); (iii) fiduciary management, including external/internal audits and accounting; (iv) performance monitoring and reporting; (v) environmental and social safeguards management, including implementation of mitigation measures; (vi) development and implementation of a communication plan; and (vii) short-term training, tailored towards project management.
- b) ***Sub-Component 4.2 – Monitoring and Evaluation.*** A Monitoring and Evaluation (M&E) system will be financed and operated to capture data on physical and financial progress, the performance of implementing agencies and service providers, and the achievements of outcomes and impact vis-à-vis the PDO and associated indicators. In addition, since REGROW would be implementing a development model for tourism promotion and environmental protection, social inclusion and water resources management, it can potentially be scaled up to other protected areas and to other basins. This sub-component will therefore finance extraction of lessons, knowledge generation and exchange, and annual networking among key project stakeholders (at local, regional and national level, including active involvement from the private sector)
54. MNRT is the main implementing agency for REGROW, responsible for coordinating efforts of ministerial departments and agencies, regulatory authorities, regional secretariats, LGAs, private sector, Research Institutes, Non-Governmental Agencies (NGOs), CSOs and communities. The different actors roles and responsibilities and their relevance to REGROW is indicated in the institutional framework in Appendix 3.
55. It is important to note that REGROW builds on strategies and plans prepared for the Southern Circuit over the years. Specifically, for the implementation of infrastructure and other activities inside the priority PAs, REGROW will follow the existing General Management Plans (GMPs). Each PA has a General Management Plan (GMP) in place, which, through a

comprehensive approach, guides the day-to-day management of the areas in view of ecosystem and tourism management, park operations, and community outreach. These GMPs were prepared with the double objective of promoting conservation and sustainability, and also facilitating sustainable tourism as a source of revenue. At the same time, they were designed to minimize disturbance to key habitats and wildlife populations. The REGROW design, in following the recommendations of the GMPs, ensures that cumulative, indirect, and induced impacts from its interventions are limited

2.4 Project Beneficiaries

56. **Direct beneficiaries:** (i) around 20,000 households of communities living near the priority PAs including those associated with WMAs through increased economic benefits; (ii) around 20,000 farmers' households within the Great Ruaha River sub basin, upstream RUNAPA, through more efficient irrigation and production methods; (iii) government agencies and officials working on water, agriculture and land management, wildlife, tourism, and PA management in Southern Tanzania through capacity building; and (iv) tourism operators and related businesses within and adjacent to the priority PAs through increased tourism revenue. Within the framework of the project, emphasis will be placed on providing opportunities for women and the youth.
57. **Indirect beneficiaries** of the project are the citizens of Tanzania, because an increase in the tourism sector will generate benefits away from where the tourism actually takes place (e.g., visa fees, airport usage, taxes that stay at national/treasury level). It will also indirectly benefit global citizens at large as a result of conserving globally significant biodiversity. Baselines, targets, and actual cumulative total numbers of project beneficiaries by gender will be obtained through a socio-economic assessment. A number of agribusinesses and agro-industries will benefit from increased tourism activity in the Southern Circuit. The lessons learned and analytical outputs from the project will have spillover benefits across the PA management sector, and the water resources management sector, with potential replicability in areas with similar challenges in the country.
58. Project will seek to mainstream gender-informed approaches in its design, implementation and monitoring of activities, by taking account of the different needs and opportunities of women, men, and the youth, together with Vulnerable and Marginalized Groups (VMGs). Project activities, particularly those targeted at communities living near the PAs, will be geared towards female, youth, and VMG participation, to benefit these groups, to the extent possible. In addition, project activities will entail mechanisms for effective citizen engagement through consultations, sensitizations, capacity building, and partnerships.
59. At project management level MNRT receives funds from the WB following approval of REGROW and develops annual plans and budgets with the support of a Project Coordination Unit and any technical support that needs to be availed. The project Steering Committee is to be made up of representatives of the different key implementing institutions. TANAPA is to be responsible for interventions in the three national parks through their respective management teams and MNRT is to be responsible for the other key implementing agencies i.e. TAWA (on behalf of Selous), RWBO and the National Irrigation Commission (NIC).
60. Details of the safeguards implementation mechanism is presented in Chapter 6 of this ESMF.

3 ENVIRONMENTAL AND SOCIAL BASELINE

61. This chapter presents the Environmental and Social conditions in the four PAs and adjacent areas with regards relevance to aims and objectives of REGROW.

3.1 Biophysical Environment

3.1.1 Mikumi National Park (MINAPA)

3.1.1.1 Important Surface Waters

62. The only natural perennial surface waters in Mikumi NP is the Ruaha River that transects the most South-Western corner of the park boundary, near Mahondo (bordering Selous, Kilombero Valley and UMNP). The seasonally flooded Mkata plains in the north central section of the park is an attraction with wide open grasslands and an abundant variety of wildlife that are resident and migrate through the area.
63. Due to the lack of surface water in the park throughout the years, MINAPA has built eleven (11) earthen dams that are used as watering holes for resident and migrating wildlife. These dams provide additional tourist attractions for the park. Although it is not a general policy to allow artificial manipulation in national parks.

3.1.1.2 Ecological units and important habitats

64. MINAPA hosts a range of vegetation communities supporting a significant diversity of plant species. MINAPA vegetation and habitat types are both disturbed and undisturbed. The Park's eastern border adjoins the Wildlife Management Area (WMA) of UKUTU.
65. Six ecological units exist in MINAPA that vary in species diversity, abundance and physical structure particularly canopy cover. The woodlands are open, closed or a combination of miombo, *Terminalia-Combretum*, *Acacia-Dalbergia*, grasslands, wooded grasslands, bush lands, riverine/riparian vegetation and Afromontane forest. The International Union for Conservation of Nature (IUCN) Redlisted species *Dalbergia melanoxylon* (Mpingo/ Ebony tree) occurs in the park and a catena of saplings was observed north of the Doma – Kikwaraza Road extension. Furthermore, the Malundwe Mountain Afromontane rain forest is part of the MINAPA ecosystem and although there are no interventions from REGROW that directly will impact the forest, it is important to note its presence as it is part of the Eastern Arc Mountain (EAM) hot spot and hosts significant biodiversity in this regard.

3.1.1.3 Wildlife

66. The spectacular concentration of a variety of animals in Mkata floodplain includes four of the big five IUCN species i.e., elephant, buffalo, lion and leopard. Rhino historically was also present but is no longer due to its extinction in the area from poaching. The park is a home to worlds' largest antelope, eland, Greater Kudu, Sable antelope, Defassa waterbuck and African wild dog. The park has over 450 species of birds, making it one of the most important bird localities in Tanzania. Some of the endemic birds include hornbill, Bateleur eagles and Lilac breasted roller. Migrant species arrive in large flocks, between late October and mid-March. The migratory species include White European Stork and Open-billed stork. (MINAPA GMP, 2016-2021).
67. MINAPA hosts Ngolwe A and Malundwe mountains to the south, the latter which is an EAM, containing isolated patches of Afromontane rain forest. These forests provide refuge to a

diverse fauna component of the Park ranging from small invertebrates to large mammals. None of the proposed REGROW interventions transect these mountain forests.

68. **Challenges facing the wildlife** in MINAPA include, undeterred poaching serving a well-established bush meat network between the park and SGR (Patrol coverage is insufficient to cover the park), especially the southern less protected area.; grazing in the northern open grasslands that is exacerbated by drought causing the surrounding communities to come into MINAPA; and, Wildlife crop raiding in northeast and central west boundaries. During dry season wildlife (Elephants, buffalo and other large animals) migrate outside the park looking for water in the villages, especially along the Miombo and Mkondoa Rivers and ‘tindiga’ areas in Kilangali through (Comms. RUNAPA 2017). The associated wildlife corridors for MINAPA and the other PAs are illustrated in Map 5-2 (section 5.1).

3.1.1.4 Park Infrastructure

69. MINAPA is traversed by the T1 Tanzania – Zambia Highway, the Tanzania – Zambia Pipeline and two parallel Hydroelectric Transmission lines (220 and 440 kV) from Kidatu Hydropower station. There are also a number of Communication Network Towers in the park.
70. The infrastructure serves to provide access to tourist sinks but has limitations as it is difficult to connect between SGR and UMNP due to poor road infrastructure and the lack of entry gates at Lumanga and Mahondo.

3.1.1.5 Tourism potential

71. MINAPA potentially should attract more tourists than its current numbers if it considers a number of improvements including:
- Local tourism – locals are limited to enter and utilise facilities in the park as several of the facilities allow only for credit card payments which is not part of the local financial service industry;
 - Processing time particularly during high season is unnecessarily lengthy;
 - Insufficient numbers of accommodation facilities should numbers increase;
 - attracted to the park due to use of credit cards which locals do not possess and long processing times Lack of tourist accommodations during high season

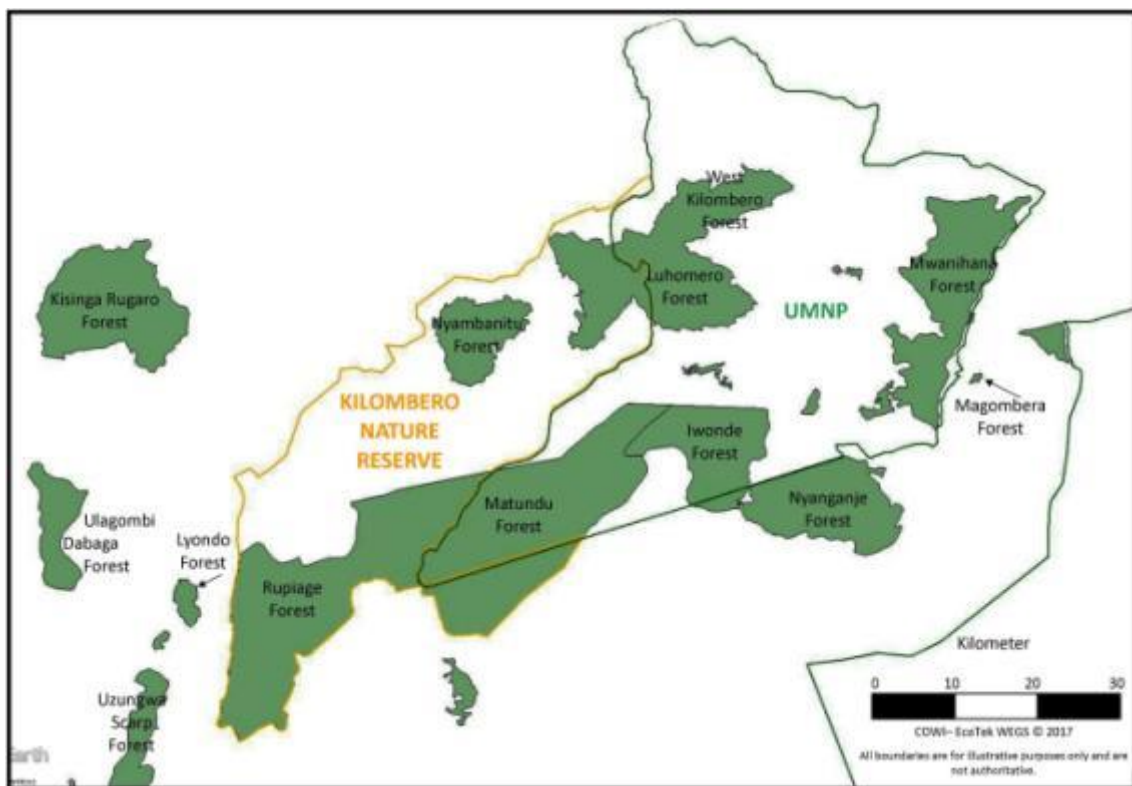
3.1.2 Udzungwa Mountains National Park (UMNP)

72. UMNP is known for its rich and unique biodiversity characterized by high endemism of a variety of species in the EAM. The EAM covers less than 2% of Tanzania’s area but holds 30-40% of the country’s plants and mammal species. The park provides a sanctuary for many unique plants, mammals, birds, amphibians, reptiles and butterflies species (Rovero et. al, 2009).
73. UMNP rises to 2,576 m at Mount Luhombero and 2,111 m at Mwanihana. The majority of the park is forested and the eastern escarpment has continuous forest across one of the largest altitudinal ranges in Africa. On the western margins the forest, the habitat changes to a high grassland plateau, which may in part have been created by agriculturists and be maintained by fire. Before the advent of modern agriculture there was a continuous belt of woodland and forest from the Kilombero valley to the east to the top of the escarpment and on the mountain peaks further to the west. Vehicular access from the west to the high grassland plateau has always been difficult and, apart from the present village of Udekwa, few people have lived in the area in recent times. (IBA, 2001).

3.1.2.1 Important Habitats: Eastern Arc Mountain Forests

74. UMNP and surrounding nature and forest reserves consist of six major vegetation communities (lowland forest, sub-montane forest, montane forest, open woodland, closed woodland, wooded grassland) from 280 to 2200 masl (de Luca, Mapunga 2005) UMNP includes Mwanihana, Iwonde and part of Matundu, West Kilombero Scarp Forest Reserves (See Map 3-1). UMNP share boundaries with the recently gazetted Kilombero Nature Reserve (KNR). Other very important forest reserves that are less protected than those contained within UMNP and KNR are Kisinga Rugaro, Dabaga, Lyondo and Uzungwa Scarp Forest Reserve. More than 489 plant species representing 107 families have been identified in the Udzungwa Scarp Forest. There are at least 50 plant species found in the park that are endemic to the EAM. Some of the common species including *Prunus africana*, *Ocotea usambarensis* and *Rapanea* sp. are threatened due to their extraction for timber.

Map 3-1 UMNP and its surrounding Forest and Nature Reserves



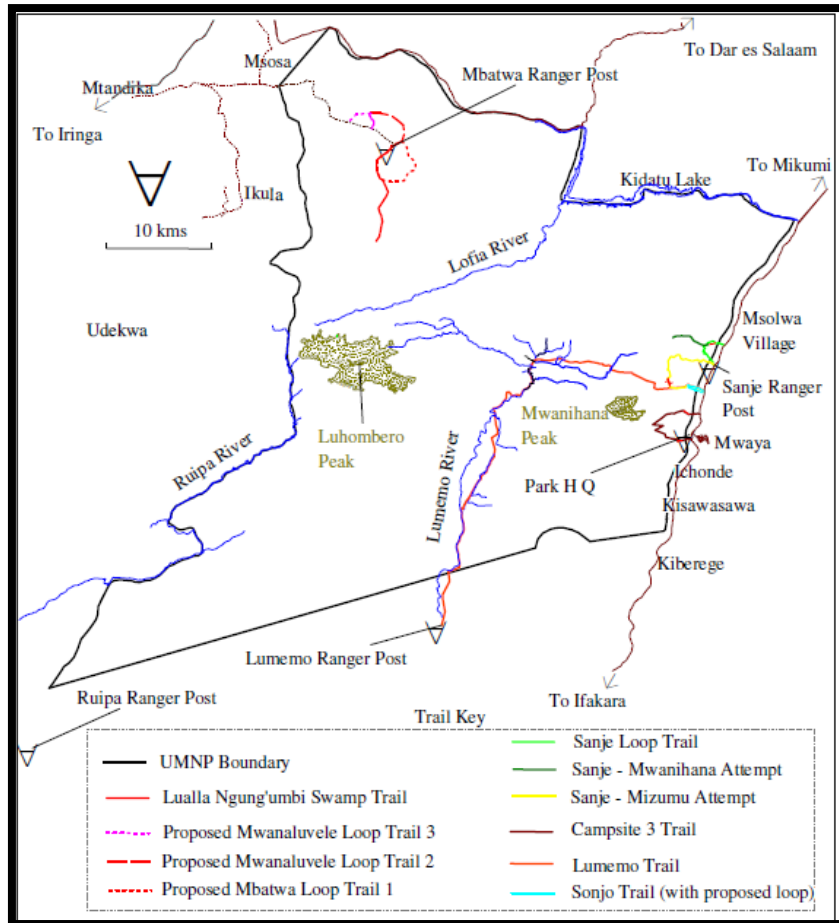
3.1.2.2 Wildlife

75. UMNP is one of the thirty-four “World Biodiversity Hotspots” and home to endemic species primate in addition to the treasure of high biodiversity of plants and other animals which exhibit endemism (EAMCEF, 2013).
76. The Udzungwa Mountains are of particular importance for the conservation of primates and duikers (Rodgers & Homewood, 1982; Dinesen et al., in prep.), and are the richest area for restricted-range forest birds (Jensen & Brøgger-Jensen, 1993; Dinesen et al., 1993; Stattersfield et al., 1998). Besides the ecoclimatic and geological uniqueness of the Udzungwas, and the EAM, the forest fragments have retained populations of some restricted-range bird species due to the large area of evergreen forest habitat (Griffith, 1993, Lovett, 1993; Rodgers & Homewood, 1982; Dinesen et al., in prep.).

77. UMNP and its adjacent environs support 15 strict endemic vertebrate species (with an additional two species currently being described), a further 27 Eastern Arc endemic vertebrate species and 36 Eastern Arc endemic trees (EAMCEF, 2013).
78. A recent analysis for the UNESCO World Heritage Convention ([http:// www.unep-wcmc.org/biodiversitywh_975.html](http://www.unep-wcmc.org/biodiversitywh_975.html)) indicates the EAM to the most important World Heritage Site 'gap' in Africa. Five sites in the EAMs (Udzungwa Mountains National Park and Kilombero Nature Reserve in Udzungwa, Mkingu proposed Nature Reserve in Nguru, Mamiwa Kisara Forest Reserve in Ukaguru, and the Uluguru Nature Reserve) are amongst the top 100 most irreplaceable protected areas for threatened mammals, amphibians and birds globally (Burgess, 2014).

3.1.2.3 Infrastructure

79. UMNP is the least developed of the National Parks in Tanzania, as it has no road network or development inside other than a short access track in the southwest of the Park (Mbatwa). There are two limiting factors, one being that the habitat is extremely unique and sensitive due to its endemic nature and the other is that the steep slope and terrain of the park provides little space for infrastructure development (roads, tourist facilities etc.).
80. The entry gate and administrative building are located inside the park but within meter of the park boundary. Development is prohibited in the park and thus staff housing and accommodations are on a piece of land owned by TANAPA in Mang'ula village. The connection between UMNP and SGR is limited by poor roads and lack of entry gates or a Payment point at Lumanga and Mahondo. Furthermore the park lacks an entry gate at the most popular tourist attraction which is Sanje Waterfalls Trail head which makes it somewhat inconvenient for tourists to access the site.
81. Networks of nature trails (Map 3-2) provide access to the forest habitat and the popular waterfalls of Sanje and Sonjo. UMNP has few accommodation units (mainly campsites) and some of them are ill equipped with sanitary facilities. A new youth hostel has been proposed for construction adjacent to the park and TANAPA is building a VIC to increase access to the park's forest habitat and popularise its globally unique endemic species.



Map 3-2 Nature Trails in UMNP

3.1.2.4 Tourism potential

82. The Udzungwa Ecological Monitoring Center UEMC is part of the Tropical Ecology Assessment and Monitoring (TEAM), a network of field stations in the tropics implementing standardized biological monitoring. The programme aims to provide an early warning system on the status of tropical biodiversity that can effectively guide conservation actions. TEAM focuses on Mwanihana forest as the core monitoring site; collecting data on terrestrial vertebrates (through camera trapping at 60 points), arboreal vegetation (via 6 vegetation plots) and climate (through an automatic weather station). UEMC works with the UMNP Ecology department to conduct a range of monitoring activities variously supported or facilitated by UEMC, in particular:

- Ranger-based monitoring of large mammals: conducted throughout the park from each of 5 remote ranger posts;
- Human-elephant conflicts: in collaboration with the Udzungwa Elephant Project (UEP) UMNP is monitoring the recently-escalated incidence of crop raiding by elephants outside the park and also testing mitigation measures such as chilli-beehives fencing;
- Invasive species control: this mainly relates to the systematic removal of teak trees (*Tectonia grandis*) that were planted in the past along the park boundaries;
- Human disturbance monitoring: it is linked to law enforcement and aimed to assess the impact of various forms of anthropogenic pressure in the park. Until 2011, a special focus was on firewood collection by adjacent communities that was allowed on weekly basis.

83. The efforts by UEMC and the UMNP Ecology Department caters for researchers and serves to provide information on UMNP that draws more research and tourists to the park.
84. There are at least 146 villages in the Udzungwa Mountains, hosting at least 698,295 people. Some areas have high population density, but there are also large areas with sparse population and few villages, particularly in the higher areas close to the UMNP and West Kilombero Scarp Forest (now part of KNR). (EAMCEF, 2013). The communities can benefit from being close to the UMNP by being the first point of call for provision of maintenance services for the trails in addition to services such as supply of local produce and products to UMNP visitors.
85. The Park could increase visitorship by considering the following:
 - Reduction in the processing time for entry
 - Increase Conservation Awareness of Park Habitat and Protection of Endemic species and promote the Park
 - Improve quality and number of guides to benefit the visitor experience.
 - Consideration of the single entry policy which can be a deterrent to visitors in the absence of acceptable accommodation facilities in the park.
 - Promotion of UMNP for local tourism.

3.1.3 Selous Game Reserve (SGR)

86. Selous Game Reserve covers open and closed woodlands patched with small bushland and grassland, in addition to several wetlands. The Reserve is surrounded by the WMAs of UKUTU, Ngarambe-Tapika, Liwale, Mbarang'andu, Tanduru-Nalika, Kisungule and Chingole.
87. The Selous Game Reserve is on the List of World Heritage Sites in Danger (DSOCR) since 2014 ⁶ put into action certain corrective measures to address a stockpile of issues like i) continued pressure from poaching in the property and its impact on the property's Outstanding Universal Value (OUV), ii) establishment of a buffer zone and potentially strategic additions to the property like Mahenge, iii) proposed project such as Mkuju River Mine, Kidunda Dam and Stigler gorge. In reply to WHC Decision: 39 COM 7A.14, the URT outlined their actions in the February 2016 Report on State of Conservation of Selous Game Reserve World Heritage Property (N199) of which the REGROW project forms part of the corrective measure to remove the Selous from the DSOCR, Other corrective measures were i) formation of Multi Agency Task Force Team (MATT), ii) launch of Selous Ecosystem Conservation and Development Project (SECAD), iv) cross border collaboration with Kenya and Mozambique including the Coordinated Conservation and Management of the Niassa-Selous Ecosystem, v) the formation of Tanzania Wildlife Authority (TAWA)
88. SGR inscription to the UNESCO list of endangered sites due to financial constraints, illegal activity including poaching, management concerns, prospects of development particularly mining and extraction of oil and gas and potential hydropower development (Stiegler's Gorge), and the significant reduction in the elephant population requires urgent redress by GoT with support for development partners. GoT has indicated its commitment to conduct a Strategic Environmental Assessment (SEA) to holistically address the UNESCO Committee concerns to ensure that impacts on Outstanding Universal Value (OUV) are mitigated and the reserve status is reinstated whilst considering options to implement the proposed developments of

⁶ UNESCO World Heritage (Decision **38 COM 7B.95**, adopted at its 38th session (Doha, 2014)

mining and hydropower development. MNRT on behalf of GoT has committed to refrain from development in case OUV impacts are beyond mitigation.

3.1.3.1 Surface water

89. The Selous ecosystem comprises nearly half of the 177 000 km² of the Rufiji Basin. The Rufiji River, which at Stiegler's Gorge discharges on average 900 m³/second, flows eastwards through the north of SGR and discharges through the Rufiji Delta into the Indian Ocean. It has as its main tributaries, the Great Ruaha, which contributes 15% of the water in the Rufiji River; the Kilombero (with the Luhombero) which contributes 62%; the Luwegu (with the Mbarang'andu and Njenje) which contributes 18%. The eastern SGR benefits little from these great river systems, but nevertheless has numerous water supplies in the form of seepages and springs. The northern limits of SGR fall within the drainage system of the Ruvu River. One of its tributaries, the Mgeta River, forms part of the northern boundary of Selous GR. However, the Mgeta started to follow a new course north of the SGR boundary in the wet season of 1990 (SGR GMP, 2005)
90. Within the core photographic zone, there are a network of roads that provide viewing access to the many oxbow lakes (Lakes: Manze, Tagalala, Makubi, Nzelekela, Siwandu, and Mzizimia), Rufiji and Ruaha river habitats as well as many tributary sand rivers (Muhango Msine, Beho Beho, Humbi, Simbazi, Mwanamungu and Mgeta Rivers).

3.1.3.2 Vegetation

91. Being part of the Zambebian regional centre of endemism, SGR possesses a very diverse flora with an estimated total of over 1,800 plant species (Vollesen 1980). Miombo woodlands cover some 75% of SGR, as well as most of the peripheral areas of the ecosystem. Miombo woodland derives its name from the Nyamwezi name "muyombo" for the tree *Brachystegia boehmii*, and *Brachystegia* is the dominant genus in this type of woodland. (SGR GMP 2005) The definition of the miombo formation follows that of Rodgers (1980)
92. SGR is divided into five geographically distinct ecological units, each dominated by vegetation type hosting different associations of large mammals (Rodgers 1980) (See **Table 3-1** for vegetation descriptions). Briefly, these are:
 - i. **The far south:** highly dissected and eroded surfaces; flat ridges of miombo woodland; numerous steep stream beds, riverine forests and grassland. Elephant, buffalo, and waterbuck predominate in the valleys, and sable and greater kudu on the hills. Hartebeest are plentiful, but impala and wildebeest are confined to short grass ridges near the major rivers.
 - ii. **The southwest and northwest corners:** mountainous; rainfall over 1200 mm; dense forest and some thickets. Large mammal densities are generally low with elephant, buffalo, and sable predominating. The Muha Forest, Behobeho Riverine Forest and Congo ridge forest are part of this ecological unit. Congo ridge forest is subject to exploitation for time; the latter experiencing timber poaching in which REGROW may have a deterrent affect Forest habitats of importance for tourism and in which road upgrades are subject in REGROW interventions are
 - iii. **The west:** low-lying land with high rainfall; crossed by the Kilombero, Msolwa, and Luhombero Rivers; vegetation varies from open flood plain and swamp to riverine forest to dense miombo. Buffalo, elephant and hartebeest predominate, while kudu are absent.

- iv. **The centre:** undulating miombo-Combretum open woodland with some hill massifs. Elephant, buffalo, impala and hartebeest predominate; wildebeest are scarce on the open grassland near sand rivers.
- v. **The east:** scattered tree grassland. A wide variety of herbivores predominate at high densities.
93. The Great Ruaha and Rufiji rivers form a barrier between the miombo woodland in the south of SGR and the *Acacia-Combretum* wooded grassland of the north. This open wooded grassland occurs on alluvial hardpan and is also characterized by the picturesque flat-topped Tagalala tree (*Terminalia spinosa*). Along the Rufiji River the extensive, swamps and lakes with their tall *Borassus aethiopum* palms cover some 250 km². (Selous GMP, 2005)
94. SGR hosts deciduous unarmed woodland on old, acid, sandy soils characterised by Caesalpinoaceous trees, especially species of *Brachystegia* and *Julbernardia*. The ground cover varies from a dense, coarse grass growth to a sparse cover of herbs and small grasses. The shrub layer is variable in density and species composition, often dominated by *Diplorynchus condylocarpon* and species of *Combretum*. The whole area is maintained by periodic dry season fires.

Table 3-1 Ecological units in SGR

Habitat Type	Habitat Description
Forest Formation	Ground Water Forest, Riverine Forest and Coastal Dry Evergreen Forest
Thicket Formation	Riverine thicket, <i>Brachystegia microphylla</i> thicket, Coastal thicket on alkaline soils and Coastal thicket on sands.
Woodland Formation	<i>Brachystegia</i> Woodland ('Miombo')
	<i>Pterocarpus-Pseudolachnostylis</i> Woodland ('Chipya')
	<i>Pteleopsis-Millettia</i> Woodland ('Chipya')
	Combretum-Terminalia Tall Grass Woodland
	Upper Valley Mixed Woodland
	Lower Valley, Combretum-Sclerocarya Woodland
Scattered Tree Grassland Formation	Stunted Woodland on Stony Slopes
	<i>Terminalia spinosa</i> - <i>Spirostachys</i> Wooded Short Grassland
	<i>Acacia-Combretum</i> Shrub Short Grassland
	<i>Cassia-Combretum</i> Shrub Medium Grassland
Grassland Formation	Seasonally Flooded Tall Grass Swamp
Others	Ant Hill Communities

Source: SGR GMP 2005

3.1.3.3 Wildlife

95. SGR protects an impressive large mammal fauna; it contains globally significant populations of African elephant (*Loxodonta africana*), black rhinoceros (*Diceros bicornis*) and wild hunting dog (*Lycaon pictus*). It also includes one of the world's largest known populations of hippopotamus (*Hippopotamus amphibius*) and buffalo (*Syncerus caffer*). There are also important populations of ungulates including sable antelope (*Hippotragus niger*), Lichtenstein's hartebeest (*Alcelaphus lichtensteini*), greater kudu (*Tragelaphus strepsiceros*), eland (*Taurotragus oryx*) and Nyassa wildebeest (*Connochaetes albojubatus*). In addition, there is also a large number of Nile crocodile (*Crocodilus niloticus*) and 350 species of birds. Due to this high density and diversity of species, the SGR has been recognised as a natural habitat of outstanding importance for in-situ conservation of biological diversity. (UNESCO website access Jan. 2017).
96. The dramatic decline in elephant populations due to undeterred poaching has put Selous Game Reserve on the List of raised concern for the OUV of SGR. In 1976 the SGR had a population

of 109,000 elephants, This population had been reduced to 55 000 in 1986 and 31 000 in 1989. From 1989 the elephant population of SGR increased to an estimated 55 000 in 1998 and 70,000 in 2005 (TWCM). However, poaching caused a significant drop in the elephant population to 13,000 in 2013. Poaching also caused a dramatic decline in the black rhino population (it is estimated that there are less than 100). The 2014 census estimated 15,217 ±1800 elephants in the entire ecosystem. The current result reaffirms the decline of elephant population in the Selous-Mikumi Ecosystem as also shown in the 2013 census (13,683 ±1,967). These are the lowest estimates since monitoring started in 1976. (TAWIRI, 2015)

97. A factor that contributed greatly to the increase in poaching was the bulldozing of thousands of kilometres of 'seismic traces' in the SGR by the Shell Exploration Company over the period 1981-1985, as part of their oil exploration programme. These traces provided access for poachers into many of the more remote areas of SGR, particularly in the Eastern Sector near Kingupira, and in the south between Liwale and the Njenje River. (SGR GMP 2005-2015). Despite some progress, challenges include funding and management, possible impacts and risks related to uranium mining, possible future prospecting and mining and large-scale development projects proposed within and near the property, including the Stiegler's gorge and Kidunda dam projects.

3.1.3.4 Infrastructure

98. The terrain and hydrology of SGR presents challenges in developing road communications. The reserve has a road network of about 3,500 km that was developed in the 1960s and increased in 1988. SGR tries to rehabilitate more than 2,000 km regularly but efforts are limited by finances and capacity (SGR GMP 2005). Notwithstanding there due to the size of the reserve new roads are needed to improve access.

99. The Selous GR management has embarked on a new road opening programme dubbed the "watershed project" with the aim of avoiding the need for major bridges. Drifts and culverts provide alternatives to bridges over smaller sand rivers or seasonal streams (korongos). In 2000 and 2001 approximately 2000 km of roads were opened inside the Selous under this programme. In addition, a new access route was opened to Kingupira outside the Selous boundary, which has greatly improved access to the station (SGR GMP 2005).

3.1.3.5 Tourism potential

100. The visitor statistics for Selous Game Reserve (Table 3-2) shows that there was a four-fold increase of citizens using the reserve between the 2013/2014 (1,054 people) and 2014/2015 (4,418 people) seasons. The past two tourist seasons show that ¾ of visitor are non citizens and that there is a continued increase of citizens and a slight decrease in use by non citizens.

Table 3-2 Selous Game Reserve Visitor Statistics

Visitor Type	2013/2014	2014/2015	2015/2016
Citizen	1,054	4,418	4,750
Non citizen	16,620	14,200	13,447
TOTAL	17,674	18,618	18,197

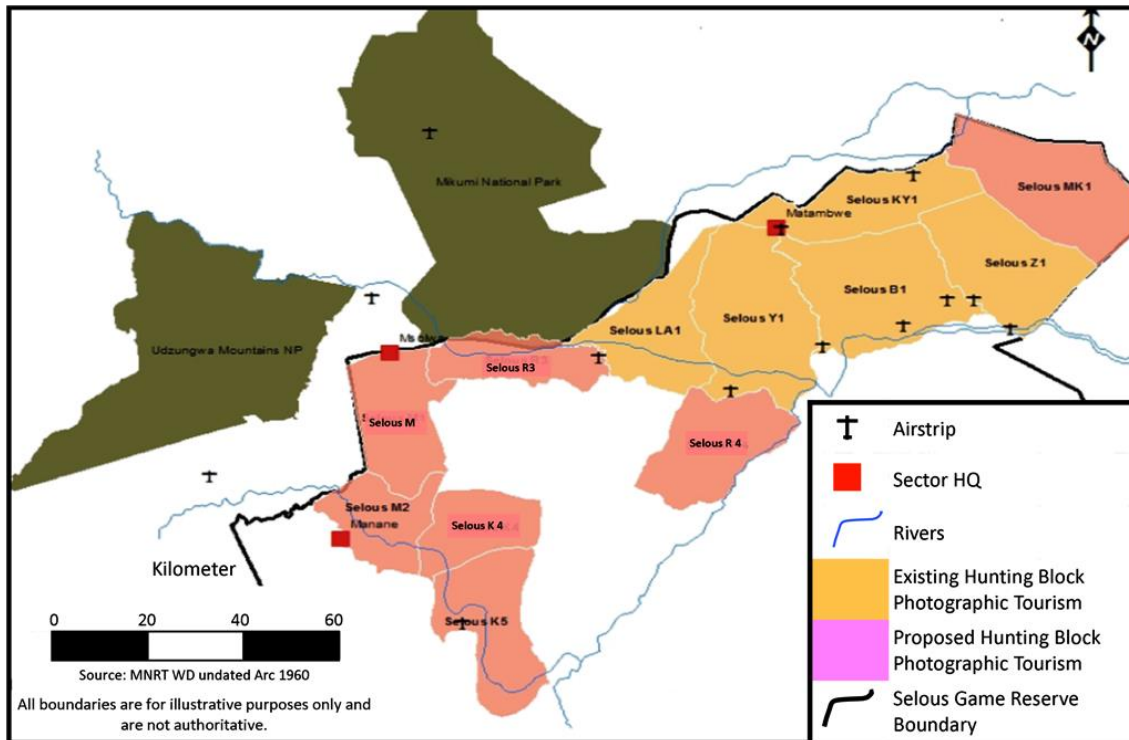
Source: Selous Game Reserve, comm. June 2017

101. The Game could also increase visitorship by considering the following:

- Improve the access to the game reserve by upgrading crucial access roads into all weather
- Tourism Experience: Reduction in the processing time for entry

- Converting hunting zone into photographic tourism zones initiated by private sector (See Map 3-3). The proposal for converting more blocks for photographic tourism is underway and was forwarded to the higher authorities last year (2016), this will include some of the suitable blocks for photographic tourism in the North western Sector (Comm. SGR Saanya, June 2017) This conversion of blocks suits well the concept of better connecting Selous with Udzungwa Mountain National Park.

Map 3-3 Proposed conversion of Hunting zone to Photographic Tourism Zone



3.1.4 Ruaha National Park (RUNAPA)

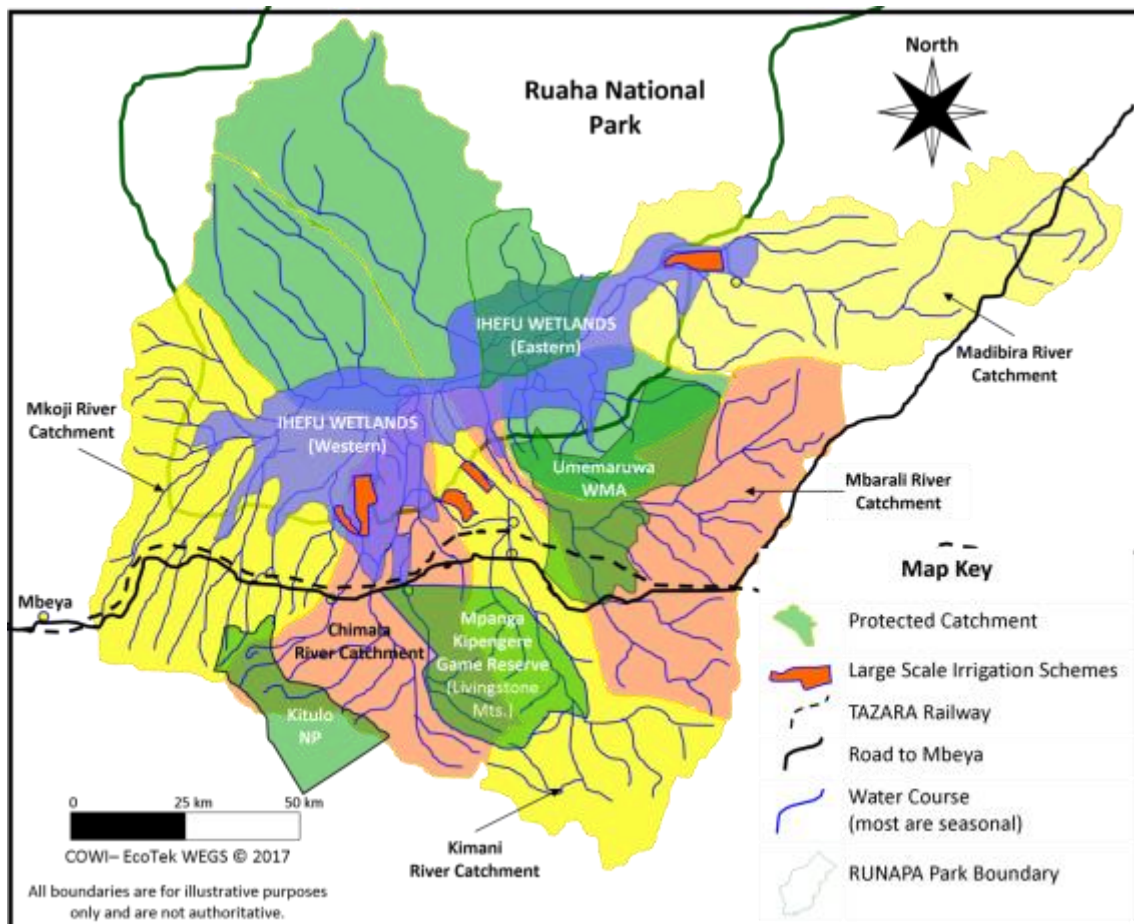
102. RUNAPA features an expansive bushland, fragmented open and closed woodlands, and a wetland. Three WMAs adjoin the Park, namely WAGA, MBOMIPA and UMEMARUWA. A recent land-cover map of the Park (NAFORMA, 2010), shows marginal patches of cultivated land along the Park's southern wetland, which is suggestive of agricultural encroachment from settlements situated in proximity to the Park's border.

3.1.4.1 Important Wetlands and Rivers

103. The Great Ruaha River and its upper catchment environments: Usangu Wetland⁷ and Livingstone Mountain catchment (that include Kitulo NP and Mpanga Kipengere Nature Reserve) are extremely important to agriculture, conservation/tourism and hydro power.

⁷Often referred to as Ihefu Wetlands which is a local word used to describe the vegetation that existing in the waters of the wetland (Communication RUNAPA Park Veterinarian)

Map 3-4 Important aspects of the Upper Catchment area of the Great Ruaha River



104. The Usangu catchment is defined by the boundary of the river basin that drains to N’Giriama where the Great Ruaha river exits from the Usangu Plains. The area covers some 20 800 km² of which 4 840 km² (23%) is in the alluvial plains below about 1 100 masl. The remaining 77% of the catchment area lies in the high catchment which ranges in altitude from about 1 100 masl to over 2 000 masl. The catchment of the Usangu wetland forms the headwaters of the Great Ruaha river, which itself is a major tributary of the Rufiji River. The project area is about 12% of the 174 800 km² area of the Rufiji basin. (SMUWC 2001)

105. The unnatural drying up of the Ruaha River, noticeable starting from the early 1990s, was caused predominantly from upstream abstraction for irrigation farming. Numerous and exhaustive studies for the past two decades have analyzed the situation and providing multiple approaches of how to mitigate this impact.

106. REGROW intends to attempt to ‘regrow’ the natural conditions of the Great Ruaha river ensure sustainable conservation for the Usangu Wetlands by implementing interventions that focus on i) water augmentation in the Ruaha River (to increase flow for wildlife in the park through artificial means) ii) agricultural water management and iii) improving livelihood through Farm to Food School initiatives.

3.1.4.2 Important Habitats of RUNAPA

107. The inaccessible and recovering Usangu extension of the Ruaha National park has a variety of habitats of which the most important the Usangu grasslands. Until now the unprotected areas,

once home to thousands of villagers, who were displaced due to the gazetting of the area, is slowly recovering from the degradation caused by over exploitation.

108. Additional habitats of conservation importance include the Forest/Woodland Ruaha miombo areas of Kiwale (catchment forest), Msangaji, Magangwe, Isukaviola, Mpululu areas (high altitude forest areas) also Ituku Forest area near Jongomero. The forested Kiwale area is currently under pressure for exploitation of the hardwood ‘Mninga’ (*Pterocarpus angolensis*) and Mpingo (*Dalbergia melanoxylon*)” which are both listed as endangered species.

3.1.4.3 Wildlife

109. RUNAPA covers the Rungwa-Ruaha ecosystem which bears an outstanding guild of large carnivores, harbouring an estimated population of 3,779 lions, representing one of four lion strongholds in East Africa (Riggio et al., 2012), a significant population of leopards and spotted hyenas, the third largest population of the endangered African wild dog in the world (Abade et al., 2014), and one of the only four Eastern African cheetah populations supporting at least 200 adults (IUCN, 2007). Due to its importance for threatened large carnivores, this area has been considered a priority for African carnivore conservation (Mills et al., 2001).

110. The 2013 to 2014 (wildlife census) surveys suggested a sharp decline of elephants over a period of one year; from 20,090 ($\pm 3,282$ SE) elephants estimated in 2013 to 8,272 ($\pm 1,652$ SE) in 2014 (Table 3-3). (TAWIRI, 2015). It is disputed that there are various factors of the source of this decline, such as; i) increased undeterred poaching ii) sampling biases, iii) mass emigration of population outside the historical protected area, iv) lack of carcass ‘evidence’ may be due to biomass coverage making carcass aerial sighting detection difficult. However, there is no concrete evidence yet that levels of elephant poaching are slowing down. (Jones, 2015)

Table 3-3 Summary results of Elephant Census

Year	Elephant Population Estimate	Standard Error	Population Estimate Range	Area Surveyed (km ²)
2006	35,461	$\pm 3,653$	31,808 – 39,114	43,601
2009	34,664	$\pm 4,178$	30,486 – 38,842	43,641
2013	20,090	$\pm 3,282$	16,808 – 23,372	50,889
2014	8,272	$\pm 1,652$	6,620 – 9,924	50,368
2015	15,836	$\pm 4,759$	11,077 – 20,595	52,462

Source: TAWIRI, 2015

111. The loss of nearly all older individuals based on 535 elephants sampled, less than 1% of the population are over 40 years old (Jones, 2015) may be surmised that this unusual emigration out of protected areas is due to the lack of “guidance” that older matriarchal individuals provide.

112. There is limited baseline data or information on the fisheries outputs of the Great Ruaha river even less information from Usangu Wetlands. However, moderate floodplain fishing used to occur on the Usangu floodplain that has been registered to be limited by road access (Bernacsek, 1990).

3.1.4.4 Tourism potential

113. RUNAPA could attract more park visitor than its current numbers if it considers the following:

- Attracting more investors to develop tourist facilities in the Usangu area following the GMP;
- Finding a way that WMAs like Umemaruwa, Waga and MBOMIPA can benefit from revising the single entry polity to increase use of tourism destinations outside the park;
- The improvement of roads in the Usangu area that facilitate a better patrol of the area as well as providing tourism activities of this lesser used area of the park.

3.1.5 Wildlife Management Areas (WMA)

114. There are two main benefit sharing mechanisms between communities adjacent to PAs and the Wildlife sector. These are the Wildlife Management Areas (WMA) and a Support for Community Initiated Project (SCIP) conducted by TANAPA. TAWA is to have similar objectives to those implemented by TANAPA under the SCIP.

115. WMAs were started in the late 1980s as a community based natural resource management (CBRM) approach in Tanzania. The WMA concept was conceived following failure of traditionally centralized wildlife management policies and practices. This strategic shift towards CBRM is emphasised in the 1998 Wildlife Policy of Tanzania (and its revision of 2007) that advocates for wildlife management at the village level by allowing “rural communities and private land holders to manage wildlife on their land for their own benefit” and “devolving management responsibility of the settled and areas outside unsettled PAs to rural people and the private sector.” For the WMA program, the communities are consulted and educated on the importance of natural resources conservation and they voluntarily set aside their land for conservation. The WMA CBRM approach benefits the PAs by providing a buffer zone to their areas as wildlife knows no boundaries, enhancing protection as villages also aid to limit poaching and enable sustainable co-existence with communities along the PA boundaries.

116. WMAs began to be formally implemented in 2003, following the development of Regulations first in 2002. The first WMAs were registered and gazetted in 2006 as Conservation Based Organisations (CBOs) through the Authorised Associations (AAs). In 2009, URT enacted a new Wildlife Conservation Act and reviewed the 2002 Regulations under the 2009 Act in 2012. The main focus in the 2012 regulations being the devolution of powers to the WMAs, strengthening the communities’ involvement and influence over trophy hunting concession allocations in WMAs, as well as providing greater clarity around benefit-sharing.

117. The WMAs that are most relevant in the REGROW project areas are: MBOMIPA (Pawaga-Idodi), Waga, Umemaruwa and Ukutu. Their location in relation to the REGROW PAs are illustrated in the map 3-6 below.

118. All the villages surrounding the WMAs have Village Land Use Plans (VLUP) except for WAGA WMA and have on-going activities, set their individual objectives and priorities for further development (See Table 3-4). The WMAs are all primarily focused on consumptive tourism (hunting concessions) with some trying to incorporate non-consumptive tourism by zoning the areas to include photographic tourism zone and campsites.

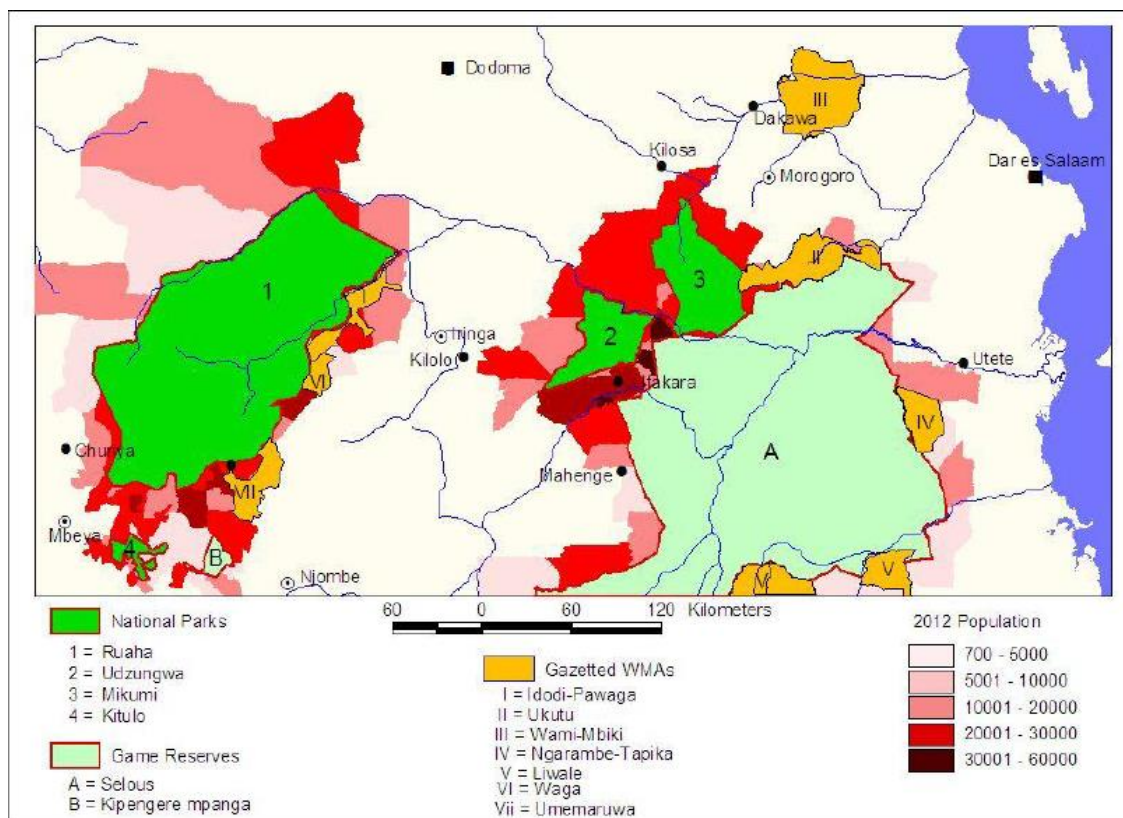
119. The WMAs in the REGROW area are currently faced with a number of challenges including financial stability, encroachment by farmers and pastoralists beyond the buffer zone, increased

competing development (e.g. a proposed sugarcane plantation, a Dam project), limited capacity/ ability to cope with natural disasters (floods and drought) and boundary conflicts with the PAs.

120. Under the existing system, MNRT collects all hunting and photographic tourism revenue directly from investors. But there are problems identified include the fact that revenue disbursements from MNRT to WMAs are not happening on a timely basis. This problem is compounded by the lack of a timetable that clearly stipulates the schedule for revenue collection and disbursement to WMAs and adhered to. The delays from MNRT to WMA also result in delays of disbursements of WMA revenue to member villages, which affect implementation of development projects at the village level and intensifies negative attitudes towards the WMAs form village leaders and villagers
121. Lack of transparency on the total revenue generated in WMAs MNRT disburses some amount to AAs and indicates it is a share of the total hunting or photographic tourism revenue generated in the WMAs. But the total amount generated is never disclosed. This makes it hard for AAs to know whether what they received is what they deserved. AAs are concerned that this lack of full disclosure will ultimately serve as a disincentive for communities to participate in wildlife management.
122. Consultations with UKUTU WMA reported that the WMA has lack of income and financial support (Consultations, 2017). This is mainly influenced by the closure of operations by Green Mile Safari Ltd when it's licence was cancelled in July 2014, after reportedly breaching some agreements on hunting regulations (Ibid). There are no investors currently interested in the WMA. Furthermore the current policy on single entry to the Protected Areas is intrinsically connected to the viability of WMAs. It is one of the areas why WMAs have difficulties in expanding their cultural tourism potential. Any component 2 interventions on improving community livelihood should investigate the issue of single entry policy and its association of being one of the barrier for local communities to develop or expand cultural tourism destinations and products. This is of particular interest for the villages of the UKUTU WMA for this could create an alternative livelihood source for them. There is a global demand for responsible tourism and cultural tourism in which there needs to be a link with a protected area where tourists can experience wildlife as well as cultural destinations, services and products that neighbouring communities can provide.
123. Improving the WMA financial performance is also important to enable them to protect and maintain their borders from encroachment by farmers and pastoralists beyond the buffer zone, poaching and large scale investment projects⁸.

⁸Consultations reported two boundary conflicts with large scale investment projects: RUBADA welcomed an investor to establish sugarcane plantation for which it's boundaries overlap UKUTU WMA. The Kidunda Dam project by DAWASA inside Mkulazi forest has about 4.2 sq.km of land allocated to JUKUMU inside the same project area for dam construction.

Map 3-5 WMA in REGROW landscape



124. All the villages surrounding the WMAs have Village Land Use Plans except for WAGA WMA. The WMAs lack resources to patrol and maintain their boundaries and are thus subject to border conflicts and encroachment from livestock keepers and farmers.

Table 3-4 Summary of WMAs in REGROW area

WMA	Ukutu	MBOMIPA (Pawaga-Idodi)	Waga	Umemaruwa
Area coverage	714 km ²	773 sq.km	365 km ²	6092 km ²
Villages	11 village members: Kiburumo, BwiraChini, Magogoni, Bonye, Mwade, Dakawa, Kongwa, BwakilaChini, Gomero, Nyarutanga.	21 village members (9 from Idodi division and 12 from Pawaga division)	5 villages namely; Nyakadete and Nyamakuyu (Mbarali District); Igoma and Ihanzutwa (Mufindi District) and Mahuninga (Iringa-Rural District)	16 villages members: Mbarali there are Mlungu, Manyenga, Isunura, Itipingi, Kangaga, Mkandami, Ipwani, Luhango, Uhamila, Ihanga, and Igomelo village. In Wanging'ombe we have Igando, Iyayi, Mayale, Rydebwe, and Ryamruki village.
VLUP	All		Nyakadete	All
Objectives	awareness on wildlife resources conservation Trained village scouts Establish benefit sharing methods	conservation of the cultural and natural resources. creation of conservation awareness WMA area protection against poaching – through patrols	9 Protect wildlife resources through trained and armed Village Game Scouts (VGS)	Wildlife corridor that connects RUNAPA and Mpanga-Kipengele GR to allow wildlife to move from Ihefu to highlands of Mpanga-Kipengele GR during wet season

⁹Traditional rituals sites are inside the WMA and local communities are allowed to access the site for cultural issues only

WMA	Ukutu	MBOMIPA (Pawaga-Idodi)	Waga	Umemaruwa
	from investors in hunting blocks promote and conserve local community cultural heritage	distribution of benefits amongst member villages protection of the borders against poach		
Activities/investments	None 10 Bordering villages access for firewood and fishing in Mgeta River	None	No investments in the WMA WCS supporting in paying for the VGS for wildlife protection	None
Challenges	Not financially stable encroachment by farmers and pastoralists beyond the buffer zone Proposed sugarcane plantation investment with RUBADA and Kidunda Dam project by DAWASA overlapping WMA boundary	The Nyaluu zone has been heavily encroached by farmers and pastoralists- WMA VGS do not have the capacity and during heavy rains, the entire Nyaluu gets flooded and inaccessible Nine villages out of 21 have not contributed land to the WMA area resulting in management and conflict issues ¹¹ MBOMIPA and former Investor (Mkwawa Hunting Safaris) have disputes over agreed area of investor leading to the WMA being sued and an outstanding TZS 60 Million debt the investor was apparently to pay. Not financially stable Doesn't have close relationship with RUNAPA	Pastoralists encroach into the WMA for grazing boundary conflicts between WAGA and Ulata village Conflicts between pastoralists and farmers escalated by climate changes (drought), and lack of VLUPs	No clear demarcations on WMA boundaries. Not financially stable Encroachment by farmers, pastoralists and residents beyond the buffer zone into the wildlife corridor increasing HWC Village boundary conflicts with RUNAPA(Ikanutwa, Vikae, Igunda, Igava, and Ivalanje villages no longer in WMA); Mpanga nd Igomelo villages with Mpanga-Kipengele GR Poaching activities increasing- declining patrols due to financial difficulties.
Plans/priorities	Establishment of three operation zones which are Photographic tourism zone and campsites; traditional hunting zones for local people hunting for consumption; tourism hunting for foreign hunters	Better control of the Nyaluu area where the little and Great Ruaha converges at Nyaluu area- has been left unattended by the WMA. None	Two potential investment zones which are hunting and photographic tourism which lies on the southern part of RUNAPA Utilising the weir that wildlife use to attract tourists	Two potential investment zones that are photographic and hunting zone; the former being the preferred choice

125. As a means to ensure sustainable conservation in the REGROW footprint MNRT has included as part of the project PDO, under component 2 interventions to enhance community led tourism investments and strengthen relationships with the neighbouring PAs. The existing benefit sharing mechanisms for WMA are to be improved to ensure that the WMAs are self

¹⁰Gonabisi hunting block - 451km² was operated by Green Mile Safaris Ltd but licence was cancelled

¹¹Some villages perceive unfair management decisions since all benefits are equally distributed amongst members while not all villages have contributed land.

sustaining and that conservation contributes to reduction of poverty. Collaboration with existing NGOs is to be enhanced coupled with creating a business environment where private investors and tour operators find the WMAs attractive. The type of activities that have been considered or tried in Tanzanian WMAs are summarized in Table 3-5 below.

Table 3-5 Livelihood Opportunities for WMA

Non consumptive Tourism	Conservation	Business Opportunities	Natural Resource Utilization for profit	Consumptive tourism
Balloon safari	Survival Skills	Guest house	Animal Capture	Resident Hunting
Game viewing	Research	Permanent Tented Camps	Bird capture	Fishing
Bird watching	Education	Camping	Fishing	Tourism Hunting
Canoeing	Training visits	Fly camps	Timber Harvesting	
Biking	Bush craft	Lodging	Bee keeping	
Natural trails	Film and photographic	Cultural Tourism		
Walking Safaris				
Picnic				
Horse riding				
Photo Safari				

Source: TAWIRI, 2012

3.2 Socio-economic Environment

3.2.1 Administration

126. The PAs in the REGROW area operate within a wider administrative context covering 10 regions and 19 districts that either overlap the PA boundaries or are adjacent to the targeted PA boundaries (Table 3-6). Mufindi and Wanging'ombe districts in Njombe region are in the immediate proximity of RUNAPA and are either associated with the bordering WMAs or potentially involved due to the irrigation network in the region under component 3.

Table 3-6 Administrative coverage of REGROW priority PAs (overlapping and bordering districts)

Project targeted areas	Regions	Districts
Udzungwa Mountain National Park	Iringa	Kilolo
	Morogoro	Kilombero
Mikumi National Park	Morogoro	Kilosa
		Mvomero
		Morogoro-rural
Ruaha National Park	Iringa	Iringa-rural
		Mufindi
	Mbeya	Mbarali
		Chunya
	Njombe	Wanging'ombe
Selous Game Reserve ¹²	Morogoro	Kilombero
		Morogoro-rural
		Ulanga
	Coast	Kibiti (new)
		Rufiji
		Kisarawe

¹² In SGR, the project will focus on the Matambwe sector, which is only photographic. While 90 percent of Selous allows for consumptive tourism (trophy hunting), 10 percent is being used for non-consumptive tourism (photographic tourism), and this is the only area in which REGROW will operate.

	Lindi	Liwale
		Kilwa
	Ruvuma	Namtumbo
		Tunduru

NB: Wanging'ombe district in Njombe region and Mufindi district in Iringa region are in the immediate proximity of RUNAPA either associated with the bordering WMAs or potentially involved due to the irrigation network in the region for component 3.

3.2.2 Mikumi National Park (MINAPA)

127. MINAPA, is bordered by Kilosa (to the west), Mvomero (to the north and east) and Morogoro Rural (to the east). The largest land area of the Mikumi Park is estimated to be in Kilosa district. It is approximated that about 200,000 km. sq. of the park is in Kilosa District. Kilosa District is composed of 40 Wards, and 139 villages of which 32 have adapted VLUP. 21 villages out of 139 in the entire district border Mikumi Park directly, including Luhembe/Ruhembe, Kitete, Msindai, Kielelezo, Kifinga, Mikumi, Mbamba, Kiduhi.

3.2.2.1 Population

128. The 2012 population census in the wards surrounding MINAPA was 121,684 (projected at 136,000 in 2017) with the highest population of 85,605 people and population growth of 2.4 per annum in Kilosa district compared to Morogoro rural with a population growth of 0.8 per annum. The population living in severe poverty¹³ surrounding MINAPA is 30.8% (for Morogoro Region) (See Table 3-7).

Table 3-7 Morogoro Region Demographic information

District	Population			# of Villages (2012)	Ethnic composition	Population in severe poverty ¹	Population growth rate per annum	
	1988	2002	2012				1988 - 2002	2002 - 2012
Morogoro Rural	225,857	263,012	286,248	144	Waluguru, Wasagara, Wakaguru, Wandamba and the Wapogoro	30.80%	1.1	0.8
Mvomero	204,345	259,347	312,109	100	Nguu (Walukungwi), Zigua, Luguru, Makua, Maasai, Sukuma and Barabaig		1.7	1.9
Kilosa	346,526	346,184	438,175	140	Kaguru, Luguru, Wapogoro, Maasai, Vidunda, Wagogo		-0.1	2.4
Kilombero	187,593	321,611	407,880	80	Ndamba, Mbunga, Ngindo, Pogoro, Hehe, and Bena.		3.9	2.4

¹³This is based on Multidimensional Poverty Index (MPI) computed in the preparation of the Tanzania Human Development Report, 2014. The MPI is a three-dimensional assessment that measures the extent to which an individual is deprived of three components (education, health and standard of living) and their 10 subcomponents. The 10 indicators in this measurement include: Health (Nutrition and child mortality), Education (Years of schooling and school attendance) and Living Standards (Type of cooking fuel, sanitation, availability of clean and safe water, access to electricity, type of floor and ownership of assets). Percentage of the population that lives below the poverty line (the poverty line being the minimum level of income regarded as adequate in a particular area and a particular time)

District	Population			# of Villages (2012)	Ethnic composition	Population in severe poverty 1	Population growth rate per annum		
	1988	2002	2012				1988 - 2002	2002 - 2012	-

Sources: 2012 and 2002 Tanzania Population Census; 2002 Population Census Analytical Report; Morogoro Rural Socio Economic Profile, 2013; Tanzania Human Development Report, 2014; Razack L. et al., 2007.

129. Special interest groups in the Districts surrounding MINAPA included, 6-11% of the population were recorded with a disability (See Table 3-8), 29.5% as female headed households and 2.04% as child headed households. HIV/AIDS incidence is low (1% of the various district populations). In Morogoro the largest factor contributing to orphans is death of one or both parents due to HIV/AIDS. Other factors include polygamy and parents leaving their children with grandparents either in search of livelihood opportunities; young females with early pregnancy and marriages feeling incompetent to raise the children; marital breakdown – the Luguru's matrilineal system allows a mother to leave her children with her parents, if she so chooses (Morogoro rural district CDO, 2017, Mvomero district CDO, 2017).

Table 3-8 Disability data in Morogoro Region

Category	Morogoro		Kilosa		Mvomero	
	Number	Percentage	Number	Percentage	Number	Percentage
Albino	101	0.04	175	0.04	139	0.05
Seeing	9,751	3.4	9,322	2.2	7,936	2.6
Hearing	4,854	1.7	4,410	1.0	3,744	1.2
Walking	6,673	2.4	5,540	1.3	5,057	1.6
Remembering	4,904	1.7	4,091	1.0	4,161	1.4
Self-care	3,716	1.3	3,815	0.9	2,727	0.9
Other disabilities	1,887	0.7	1,505	0.4	1,458	0.5
		10.61		6.86		8.25

Source: Morogoro Region Basic Demographic & Socioeconomic Profile, 2016

3.2.2.2 Ethnicity

130. The native ethnic groups surrounding Mikumi include Luguru, Zigua, Wakutu, Pogoro, Nguu (Walukungwi) and Wakwere in Mvomero and Morogoro Rural concentrated in the highland areas of the district; the Kaguru and Sagara in Kilosa district.

131. The Sagara maintain a matrilineal system of family and inheritance structures (descent and inheritance is traced through the female). The woman represents the clan and her children carry on the name of her clan. The Women hold very influential positions in their society and make decisions on important aspects including property rights. Under this socio-cultural set up, it is not surprising that traditionally girls are preferred to boys. The Sagara practice three types of religion, in order of dominance: Traditional Religion, Islam and Christianity. The Kaguru and Luguru people like the Sagara people, are matrilineal. The Luguru consider the traditional initiation of more rights than marriages. In their culture, adultery is not sufficient ground for divorce but impotence is indeed a very strong case for divorce, therefore placing higher value in the ability of having many children in the marriage.

132. The major ethnic groups in Mvomero are Zigua, Nguu and Luguru. The Zigua and Nguu are predominantly Muslim. Both Nguu and Zigua practice polygamy as their religion permits. The Zigua are known for their traditional dances which take place during key events such as harvest, wedding, circumcision, and funeral.

133. In recent years the area has witnessed the influx of other tribes, most notably the Sukuma agro-pastoralists, Maasai pastoralists, Gogo, Sandawe, Hehe, Vidunda, Pogoro, Kaguru Makua, Chagga, and Pare in search of employment, hunting grounds, and land for farming and

livestock rearing. Despite the diverse ethnic composition of the REGROW area, consultations did not reveal any ethnic conflicts. Conflicts reported were rather related to livelihood practices of some of these ethnic groups, primarily those who practice pastoralism and shifting agriculture.

3.2.2.3 Education

The literacy rates of persons aged 15 and above surrounding Mikumi is 70% (2012 census for Morogoro region). Mvomero has the highest primary school pass rate at 63% in 2014, although only one ward in Mvomero is adjacent to Mikumi and not representative compared to an average 2014 pass rate of 42.5% in Morogoro Rural and Kilosa districts surrounding Mikumi.

Table 3-9 Number of schools and pass rates in sampled districts

District	Number of schools					Average pass rates Primary (2014)*	Literacy
	Pre primary	Primary	Secondary	Tertiary	Vocational		
Kilosa	155	162	43	10	0	43%	75.0%,
Mvomero		142	24	1	2	63%	74.3%,
Morogoro Rural	167	147	24	0	2	42%	65.4 %,

Source: District profiles, consultations February 2017, *Opendata.go.tz, National Bureau of Statistics

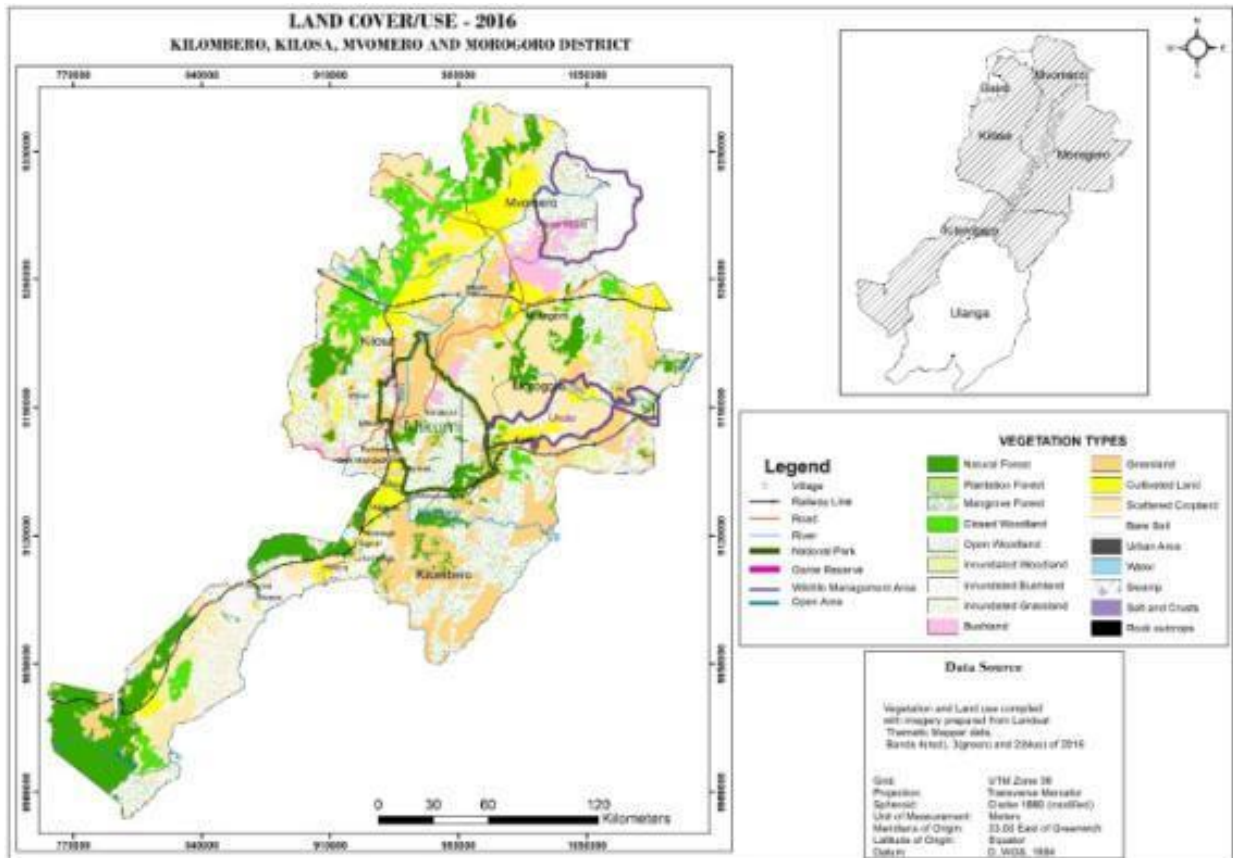
134. **Challenges in education in the districts. Kilosa:** School dropout, shortage of school facilities and declining pass rate pose a challenge to education sector in Kilosa. The district has inadequate teacher housing (deficit 79%), latrines (deficit 55%), classroom (deficit, 35%) among others. From 2010 to 2015, the number of primary school drop outs in the district increased from 256 in 2010 to 259 in 2015. The main reason for drop out was attributed to truancy, which accounted for more than two-thirds of total drop outs, and pregnancies which accounted for around 10% of total drop out in the same period. The district's primary school pass rate is a challenge – the number of pupils that passed standard seven examinations (i.e. joined secondary school) was only 52.6% in 2015, which was an increased from 38% pass rate recorded in 2013.(URT, 2017)

135. **Morogoro Rural:** Education improvement in the district is affected by acute shortage of school infrastructure and facilities. The district faces a 48.4% deficit in classrooms, 58% deficit in toilets, 79% deficit in teachers' houses and 23.8% deficit of teachers (URT, 2013).

3.2.2.4 Land cover and land use

136. Within MINAPA the dominant land cover is grassland and open woodland with patches of closed woodland to the west and southern borders of the park (see Map 3-6). Within the near vicinity of Mikumi, patches of cultivated land is concentrated towards the south west of Mikumi following the settlement patterns along the road and rail connection to Ifakara as well as to the east of Mikumi near Ukutu WMA concentrated along the railway line.

Map 3-6 Land Cover around MINAPA



137. **Kilosa District** has three Game Management Areas – namely, Twatwatwa (30830 ha) and Kidoma Society (17,203 ha). Other conservation areas within the district include:

- Natural Forest Reserve Area (97,789 Ha);
- Forest Plantation Area (8,535 Ha);
- Game Controlled Area (17,200 Ha);
- Village Forest Reserved (169,739 Ha); and
- Forest in General Land (253,000 Ha).

138. In all, forests/woodlands account for 50% of the District's land-use, the national park for 20%, agriculture for another 20% and urban land for 10% (Kilosa District Profile, 2017).

139. **Morogoro Rural District** includes 7.14 million Ha of forests which account for 60% of the District's land area of 11.9 million Ha. The forested area comprises of nine protective forest reserves, 16 productive forest reserves and one community forest reserve (Morogoro District Profile, 2013).

140. **Mvomero District** consists of general land (24,969 Ha), village land (544,708 Ha) and reserve land (162,822), which amount to 3.4%, 74.4% and 22.2% of the district area respectively. The general land includes 4,789 surveyed plots and 234 surveyed farms whereas the village land includes 99 surveyed villages and 68 villages with land use plans. However, the villages are still waiting to receive the village Land Certificates from the Ministry of Lands. Agricultural land, residential zones, forest land, mining land and institutional estates constitute the majority of land-uses within the District. The District's reserved land includes protected areas, wetlands, road reserves, land earmarked for public utility, water reserves and hazardous land. There are 19 forest reserves in the district, collectively spanning an area of 71,169 Ha. The forest reserves

are concentrated along the District's wider edges. In addition, the District extends across part of the Wami-Mbiki Wildlife Management Area (URT, 2014).

3.2.2.5 *Livelihoods*

141. **Agriculture is the predominant livelihood in all the districts surrounding MINAPA:** Farming and livestock keeping are the dominant livelihood activities in Morogoro Rural. Matombo Highlands are the key agricultural production area in the district. Agriculture is predominantly rain-fed and irrigated. The main crops that are grown include paddy, maize, beans, sorghum, cassava, sorghum and banana (food crops); sisal, cotton, sesame, coffee, fruits and spices (cash crops). Maize and paddy are mostly produced in the lowland areas of Kisaki, Duthumi and Mvuha towards Selous. The Matombo highlands is dominated by Luguru who have a preference for bananas as staple food, while the Sukuma agro-pastoral communities mostly occupy the lowlands.
142. In Kilosa District the main food crops include paddy, maize, beans, cassava, and banana and cash crops include sisal, sugarcane, cotton, sesame and sunflower. It is approximated that over 80% of the district inhabitants are engaged in farming which is predominantly smallholder. Paddy farming is the leading crop where it is produced for both food and cash.
143. In Mvomero 90% of population is engaged in agriculture and livestock keeping. The main crops grown include paddy, bananas, maize, beans, cassava, Irish and sweet potatoes, groundnuts, millet, sorghum, various cereals and several fruits. Major cash crops in Mvomero include sugar-cane, sunflowers, sesame and horticultural crops (tomatoes, onions, vegetables); and coffee and cotton on a smaller scale.
144. **Livestock keeping:** In Morogoro Rural, pastoralism is predominantly practiced along UKUTU valley and areas like Kisaki and Duthumi lowlands to the south of the district along the border with Selous GR. Pastoralism is predominantly free-range grazing dominated by the Maasai then Sukuma. Other livestock keepers in the district are Pare, Barbaig and Chaga. The Maasai were the first comers in the area with their herds, and after sometime local livestock multiplied. In the meantime, the Sukuma also arrived in the area and begun extensive farming along with livestock keeping. These settlements marked the beginning of the conflicts between farmers and pastoralists (fight over grazing areas and water, and encroachment issues).
145. In Kilosa a small percent (9%) of the population, predominantly people from the Maasai, Mang'ati and Sukuma tribes who immigrated from other regions are pastoralists. According to the district authority, about 90% of the pastoralists in Kilosa are the Maasai. Cattle is the leading livestock in the district followed by goats, sheep, pigs, local chicken and donkeys. Donkeys are used in farm operations as well. There are six wards in Kilosa (Mikumi, Luhembe, Kilangali, Tindiga, Muhenda and Ulaya) that are mostly occupied by Maasai pastoral communities in more than six villages namely; Kiduhi, Twatwatwa, Parakuyu, Ngaite, Mabwegere and Kwambe. These pastoral villages are dominated by the Maasai (almost 99%) and the village leaders are Maasai as well. There are 15-20 villages out 139 villages in the Kilosa that experience conflicts between farmers and pastoralists; however it was reported that none of the villages bordering MINAPA have these conflicts (Consultations 2017) Kiduhi village that borders Mikumi park directly has a boundary conflict with the park authority (ibid).
146. In Mvomero, livestock keeping predominantly includes cattle (beef and dairy), goats, sheep, pigs, chickens, rabbits, ducks, turkeys, guinea fowl and Livestock products such as leather and hides are used for bags and manure as agricultural inputs (Mvomero District Profile, 2014). The district has 5 abattoirs and 2 permanent livestock markets located in Dakawa ward.

147. **Fishing:** In Morogoro Rural, fishing activities are carried out in Ruvu, Mgeta and Mvuha rivers and in natural and constructed fish ponds. There are 9 natural fish ponds and 105 constructed fish ponds in the district. It is estimated that each constructed fish pond can produce at least 30 kg of fish per year (District profile, 2013; undated 2011 data).
148. In Kilosa there is widespread, subsistence-level fishing in the rivers of Mkondoa, Mdukwi, Ruaha, Berega and Wami, as well as in the Nalla Dam. Fishing activities peak in the rain season mostly for home consumption, with the sale of surplus catches. Claries (Kambare), Sardines and Tilapia are amongst the district's most common fish.
149. **Beekeeping:** Beekeeping in Kilosa is practised extensively, with a coverage of 649 ha. The establishments are largely traditional, although modern systems are becoming increasingly numerous, having totalled 439 units by 2015 (District Profile, 2017).
150. Mvomero has an estimated 800 modern bee-hives and 1,500 traditional bee-hives (pot, bark and log). Twenty-two hives are located in Doma ward which is the closest to MNP (Mvomero District Profile). Uses of bee products include honey, was and animal feed. Further, hunting licences are issued during the high season in Doma and Mkata village in Doma ward, Mlandizi-Melea village in Melea ward which are near the Mikumi National Park and some villages near the Wami-Mbiki area (Kunke, Mlumbilo, Kidudwe and Lukenge Villages all in Mtibwa ward and Mziha village in Kanga ward).
151. In Morogoro Rural, there are potential areas for beekeeping activities which involve both the agricultural and forest lands. By 2011, there were 17 beekeeping groups and projects in the district. The number of beehives increased from 276 in 2001 to 854 in 2010 with a significant increase in modern beehives constituting almost 80%. The estimated harvest/year for all beehives is 6,260 litres of honey, and 1 kg of beeswax from every 30 kg of honey (District profile, undated). **Irrigation:** Kilosa district has an estimated 32,295 ha potential for irrigation but only about 33% has been surveyed and designed, 17% is under improved irrigation system, and 15.8% is under traditional system. The district has 39 traditional smallholder schemes and 9 improved schemes. The crops irrigated include paddy, maize, beans, tomato, onions, vegetables and horticulture. Table 3-10 below summarizes irrigation prospects in wards that border Mikumi NP in Kilosa District by 2016.

Table 3-10 Existing and potential irrigation area in Kilosa District in wards bordering MINAPA

Ward	Name of Scheme	Potential area for traditional irrigation (ha)	Current Irrigated Area (ha)	Improved Area (ha)	Major Crops
Mikumi	Ihombwe	120	15		Sugarcane
	Msimba	600	45		Beans, Maize and horticulture
	Madudumizi	305	28		Paddy, beans, horticulture
Kilangali	Kilangali	0	0		Paddy
	Kilangali seed farm	0	0		Paddy
	Kivungu	460	84		Paddy and Onion
	Msolwa- madam	0	0		Maize, paddy, beans, horticulture
	Madizini	0	0		Paddy, and horticulture

Source: Kilosa District Profile

152. There is currently 10,780 ha of irrigated land in Mvomero particularly in Kinda, Kembeti and Dakawa wards using canal irrigation schemes and an additional 8550 ha have been identified for potential irrigation in the District; none of these borders the MNP (Mvomero District Profile). Existing irrigation schemes in the district include Mkindo (100 ha), Wami Luhindo

(250 ha), Dakawa (2,000 ha), Mgeta (2,000 ha), Kigugu (125 ha), Kanga (160 ha), Mtibwa (1,800 ha), Pinde (170 ha), Tchenzema (210 ha) and Vikenge (100 ha).

153. The existing irrigation schemes in Morogoro Rural district are targeting paddy production, and all are government-funded. The schemes are Mbalangwe (Mtununguo ward, well developed infrastructure), Kiroka (Kiroka ward, half of the drains have been constructed), Tulo-Kongwa (Kongwa ward, somehow improved) and Tulo-Kongwa.

3.2.2.6 Industries

154. In Morogoro District, a large factory and several small-scale industries still operate under different capacities with different lines of products. The only large industry is Alliance One Tanzania (T) Ltd located in Mkambarani, 3 medium scale industries (Fatemi Sisal Factory, African Fibres Ltd, UNNAT Fruits Processing Ltd), 2 small scale industries (Uluguru Fountain Ltd and African Stone Quarry), and 105 very small scale industries such as milling, bricks making, quarries, workshops etc.

155. In Kilosa, the largest industry is sugar with both small-scale processing facilities run by local residents, and Ilovo sugar factories in Kimamba, Rudewa and Msowero wards. The ILOVO Sugar Plant (K1) is the largest industry in the district, followed by other small-scale factories. There is reported debate over the use of Magombera area nearby Selous where ILOVO is interested to develop tourism activities while Selous GR wishes to annex that ecological hotspot¹⁴ for conservation and development of tourism activities around the area. The district's mining sector is at a rudimentary stage, limited to artisanal extraction of minerals including moonstone, whistone, copper and gold in Mabula, Ulaya, Rudewa Magubike, Masanze, Maguha, Uleling'ombe and Kideti.

156. Mvomero District has one large scale/heavy industry that is the Mtibwa Sugar Company and several medium scale industries primarily milling/grinding machines for grains and groundnuts, garages, brick makers, carpenters, welders and blacksmiths in both the rural and urban areas (Mvomero District Profile). Small scale mining and quarrying activities for gold in Mvomero and Melela wards and building materials in Melela ward in Mvomero District are typically using open pits. Building materials include stones, gravel and sand.

157. **Investments:** In Morogoro Rural, there are overlapping proposed projects in UKUTU valley adjacent to Selous GR. These are:

- Kidunda Dam (DAWASCO project partly inside Mkulazi forest that will require about 4.2 sq.km of JUKUMU/UKUTU WMA land for dam construction) (per. comm. JUKUMU WMA chairperson).
- A sugar plantation and processing plant by NSSF and PPF (proposed) and sugar plantation and processing plant by Italians located in Mkulazi farm (63,000 ha), closer to an elephant hot spot area (Morogoro Rural consultation).
- Special Economic Zone & Export Processing Zone (Star City): 8,000 acres integrated mixed-use development located in Tungi Estate. The land is under development by Star Infrastructure Development (T) Ltd.

158. In Kilosa district, the areas promoted for investment include:

¹⁴This area is said to be rich in diverse endemic animal and plant species like butterfly species, chameleons, Red colobus (Kilombero district consultation)

- Tourism: to improve accommodation facilities at Mikumi and establish a wildlife park near Ilole Forest Reserve
- Agriculture: to increase production of cash crops like Sisal, sugar cane, cotton, simsim and sunflower, rice, maize and beans. To achieve this the district identifies the need to improve irrigation infrastructure, fertilizer inputs, supply of seeds and farming equipment.
- Livestock products particularly milk and beef industries

159. In Mvomero District, the socio-economic profile notes an increase in irrigation agriculture investment in paddy and sugarcane, however the transport infrastructure needs to be significantly improved to enable access to agriculture land.

3.2.2.7 Infrastructure

160. Mikumi is traversed by the T1 trunk road from Dar es Salaam to the Tanzania-Zambia border in Mbeya (also known as the TANZAM highway). This is a major trade route for Copper from Zambia as well as timber products, agricultural produce from Mbeya, Njombe and Iringa regions to Dar es Salaam; and manufactured and industrial products from Dar es Salaam to the regions and Zambia. There are also several regional buses transporting people and small cargo along the TANZAM highway. The main mode of transport is by road; however connectivity is a challenge with over 50% of the roads are gravel and/or earth roads that are not passable especially during the wet season.

161. Morogoro district has two (2) railway connections. The Tanzania- Zambia Railway line (TAZARA) from Dar es Salaam to Zambia that runs in a parallel nature to the TANZAM highway south of Mikumi. The Central Railway line crosses Kilosa and Mvomero Districts and has a non-functioning link from Kilosa Station to Kilombero Sugar Factories in the south (Kilosa District Profile).

162. Airstrips near MINAPA include:

- 1 in Morogoro Rural: Kizuka TPDF in Ngerengere which does not provide civil services (Morogoro Rural District Profile data 2013).
- 2 in Kilosa District: Tende Airstrip is located at Magomeni Ward about 5 km south of Kilosa town and Berega Airstrip is located at Berega Ward 100km North of Kilosa town mostly used by flying Doctors and for emergencies.

163. **Energy:** All districts are connected to the national grid though communities also use alternate forms of energy as not all villages are on the grid. These alternates sources include, firewood, charcoal, and fuel, because they are cheaper compared to other sources like electricity and solar power.

3.2.3 Selous Game Reserve (SGR)

164. The SGR borders Kilombero district to the west, Ulanga to the south-west, Namtumbo and Tunduru to the south, Kilosa to the north-west, Morogoro Rural and Kisarawe to the north, Rufiji, Kibiti (newly formed district from Rufiji), Kilwa to the east, and Liwale to the south-east. The following villages in Kilombero district border Selous GR directly: Msolwa-Stesheni, Kanyenja, Msalise, Mhelule, Mpanga, Bwawani, Nyamwezi, Nkasu and Ziginali. All these villages have adapted VLUP except for Sanje and Bwawani villages. The districts surrounding the northern photographic zone that is included in REGROW include Morogoro Rural to the north, Kisarawe and Rufiji to the east and Kilombero to the west. In Morogoro Rural, Kisasi village (predominantly Maasai) and some villages in Duthumi ward border Selous GR directly. The district is made up of 151 villages whereby around 40 villages have

adapted VLUP. Information on Morogoro Rural is presented in section 3.2.2 above for MINAPA above and information for Kilombero will be presented in this section.

3.2.3.1 Population

165. The 2012 population census in the wards surrounding Selous the photographic zone was 3248 people in wards in Kisarawe district (projected at 3,605 in 2017) and 31,801 people in 2012 in wards in Rufiji district (projected at 35,299 in 2017) with a low population growth of 0.6 per annum. Population in severe poverty is on around 29% in coast region (See Table 3-11).

Table 3-11 Summary of population and ethnicity in districts surrounding SGR

District	Population			# of Villages (2012)	Ethnic composition	Population in severe poverty	Population growth rate per annum	
	1988	2002	2012				1988 - 2002	2002 - 2012
MOROGORO REGION								
Morogoro Rural	225,857	263,012	286,248	144	Waluguru, Wasagara, Wakaguru, Wandamba and Wapogoro	30.8%	1.1	0.8
PWANI REGION								
Rufiji	153,938	202,001	217,274	115	Wandengereko, Wanyagatwa, Wamatumbi, Wapogoro and Wangindo	28.7%	1.9	0.7
Kisarawe	78,290	95,323	101,598	77	Wazaramo, Wakwere, Wadoe and Wandengereko		1.4	0.6

Sources: 2012 and 2002 Tanzania Population Census; 2002 Population Census Analytical Report; Coast Region Investment Profile, 2015; Morogoro Rural Socio Economic Profile, 2013; Tanzania Human Development Report, 2014; Razack L. et al., 2007.

166. Special interest groups: Almost 30% of the households in 2012 were headed by females and 2,894 household heads were 19 years and below in the Coast region (See Table 3-12). Kisarawe District has a higher percent population with a disability (13%) compared to Rufiji (8%) (Table 3-13).

Table 3-12 Special Interest Groups districts surrounding SGR

Group	Rufiji	Kisarawe
Dependents (2012)	116,102 children and 14,908 retirees (>65 years of age) made up the non-working population in Rufiji District	the dependent population of Kisarawe District comprised 45,869 minors and 9,365 elderly residents over the age of 65
HIV/AIDS prevalence	There are no available statistics on HIV/AIDS incidence in Coast Region, albeit the recent Tanzania HIV/AIDS and Malaria Indicator Survey (2012) estimated the regional HIV prevalence at 5.9%	
Female-headed households	A total of 48,631 (28.6%) female-headed households were enumerated in 2012 in rural Coast Region (NBS, 2016).	
Child-headed households	As many as 2,894 households within the rural parts of Coast Region were found to be headed by residents below 19 years of age, in 2012 (NBS, 2016)	

Sources: Tanzania HIV/AIDS and Malaria Indicator Survey (2012); NBS 2013, NBS 2016

Table 3-13 Groups with disability in Rufiji and Kisarawe Districts

Disability Category	Rufiji District		Kisarawe District	
	Population	Percentage	Population	Percentage
Albino	71	0.03	50	0.05
Seeing	6,643	3.1	4,655	4.7
Hearing	3,056	1.4	1,796	1.8
Walking	3,719	1.7	2,884	2.9
Remembering	2,672	1.3	2,062	2.1

Self-care	1,830	0.9	1,548	1.6
Other disabilities	601	0.3	436	0.4
	Sub total	8.7	Sub total	13.55

Source: Coast Region Basic Demographic & Socioeconomic Profile, 2016

3.2.3.2 *Ethnicity*

167. The main ethnic groups in Morogoro Rural district are Luguru, Sagara, Kaguru, Ndamba and Pogoro. Kilombero district is composed of Ndamba, Mbunga, and Ngido who considered as the natives and major ethnic groups. The Ndengereko, Nyagatwa, Matumbi, Pogoro, Doe and Zaramo are the main ethnic groups in Coastal and Lindi regions

168. Other groups who have migrated and present in the district include Pogoro, Hehe, Bena, Nyakyusa, Sangu and other immigrant agro-pastoral tribes, most notably the Sukuma and Maasai.

3.2.3.3 *Education*

169. The literacy rate in Rufiji District is 63.3%, which is 24.6% higher than the rate established in 2002 (NBS, 2016). The literacy rate in Kisarawe District is 73.6%, which represents a 21.6% rise from the district's literacy level in 2002 (Ibid).

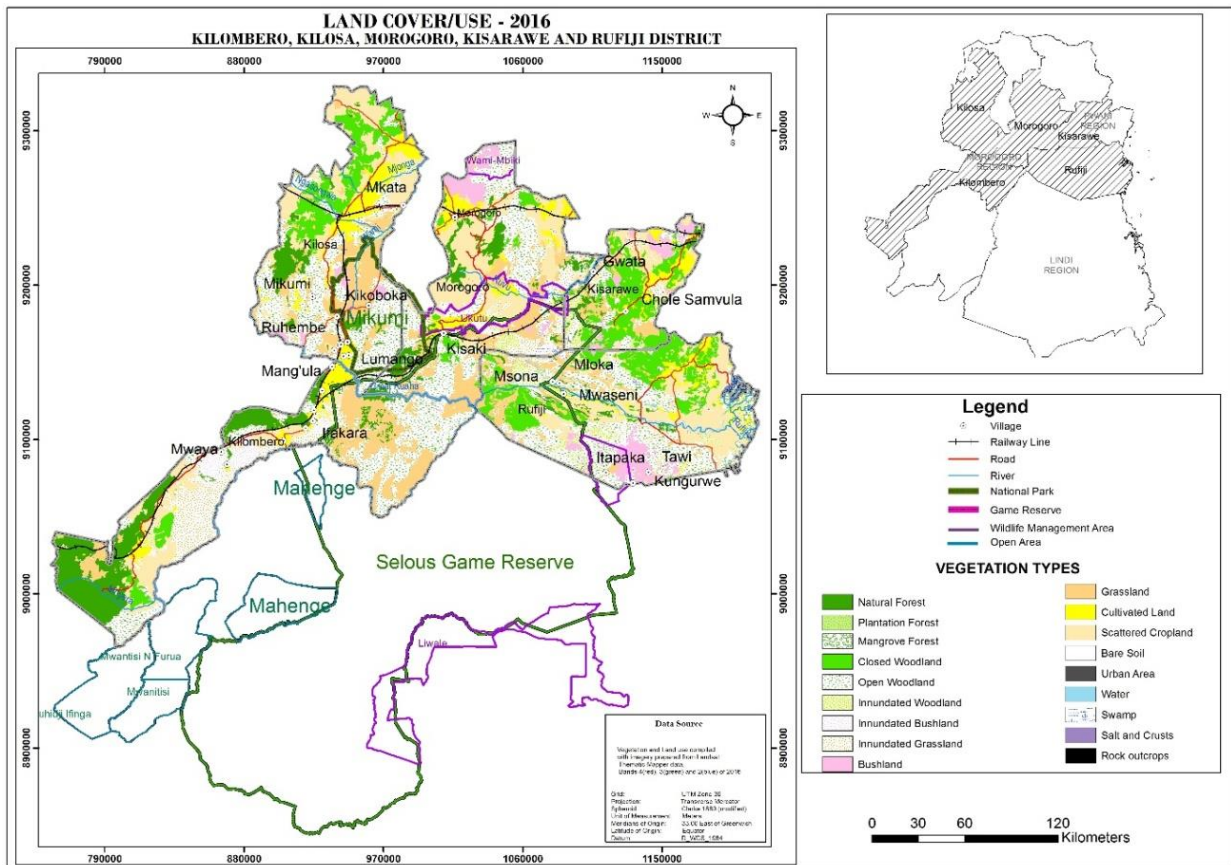
170. The main education challenge in Rufiji and Kisarawe districts is the shortage of essential school resources and facilities, including qualified teachers, staff housing, dormitories, libraries, laboratories, toilet facilities and desks. Access to clean and safe water is also an issue in some of the schools within the districts' rural areas. In 2012, the deficits of toilets in Rufiji and Kisarawe districts were 2,313 and 1,043 units respectively, whereas toilet deficits totalled 185 and 210 units respectively (NBS, 2013).

171. There were a total of 872 school dropouts in Rufiji district, in 2012. The leading cause of these was established to be truancy (722 dropouts), with pregnancy accounted for 28 of the cases, and demise for 17. Kisarawe district had a lower number of dropouts in the same year. Of the 202 reported dropouts, 182 were caused by truancy, four by pregnancy and six by demise (NBS, 2013).

3.2.3.4 *Land use and land cover*

172. The Land cover in the northern photographic zone of Selous (Map 3-7) is predominantly grassland and woodland partly inundated and some areas with permanent swamp towards the east. Small patches of natural forest are found towards the Great Ruaha River in the west. The western boundary is bordered with cultivated land along the regional road to Ifakara town and the railway line.

Map 3-7 Land Cover Land Use of Selous Game Reserve



3.2.3.5 Livelihoods

173. Over 60% of the residents in Morogoro and Coast region are engaged in agriculture, followed by formal and informal employment (Table 3-14).

Table 3-14 Employed population aged 10 years and above main occupation in Morogoro and Coast regions

Region	Formal Employment 1 %	Agriculture			Informal Employment 2 %	Casual Labour 3 %	Other not specified %	Occupation Unknown %
		Farming %	Livestock %	Fishing %				
Morogoro	8.7	71.2	1.9	0.2	10.9	4.1	3.1	0.3
Coast	8.8	61.2	2.8	2.7	15	6.2	3.3	0.2

1. Formal Employment- Legislators Administrators and Managers, Professionals, Technicians, Associate Professionals, Clerks, Plant Machine Operators and Assemblers including Drivers.

2 Informal Employment- Small Business Managers Service Workers Shop, Stall Sales Workers Street Vendors/Related Workers and Crafts/Related Workers.

3 Casual Labour- Elementary Occupations (consist of simple and routine tasks which mainly require the use of hand-held tools and often some physical effort classified into the following main groups: sales and services, agricultural, fishery and related labourers, and labourers in mining, construction, manufacturing and transport¹⁵).

Sources: 2012 Census Basic Demographic and Socio-economic Profile (Morogoro, Pwani).

174. Agriculture: Arable land accounts for 482,466 ha (24%) of Rufiji district's total land area. Of the arable land, only 90,503 (18.3%) is under cultivation. The main food crops grown in the district include maize, paddy and cassava, the major produced cash crops being cashew nuts, sesame, coconuts and fruits (NBS, 2013).

¹⁵ <http://www.ILO.org/public/english/bureau/stat/isco/isco88/9.htm>

175. Kisarawe district has 309,000 ha (15.6%) of arable land, of which only 111,355 ha (22.5%) is cultivated. The district's staple food crops are cassava, sweet potatoes and sorghum, whereas cash crop production within the district is limited mostly to fruits, coconuts and cashew nuts (NBS, 2013).
176. **Livestock keeping:** There are an estimated 106,734 cattle, 16,980 goats, 18,357 sheep, 171 donkeys, 1,488 pigs, and 450,548 indigenous chicken in Rufiji district. The latest census established the number of households involved in livestock keeping to be 14,973 (NBS, 2016). Over 48,000 ha of pasture land is available in the district, but only 24,474.9 ha (50.8%) is currently grazed (NBS, 2013).
177. A total of 34,824 cattle, 9,937 goats, 1,239 sheep, 425 pigs, 40,348 broilers and 158,527 indigenous poultry were enumerated in Kisarawe district. Over 12,000 households in the district engage in livestock rearing (NBS, 2016). The district features a grazing area totalling 52,067.92 ha, of which only 28,732 ha (55%) is utilized (NBS, 2013). By 2012, beyond the indigenous cattle reared, both districts harboured improved dairy cattle, but improved beef cattle were reared only in Kisarawe district (NBS, 2013).
178. **Fishing:** Fishing is practised to a very limited extent in Kisarawe district, with 97 households engaged in fish farming (NBS, 2016). In Rufiji district, fishing is a prominent sector employing 5,197 fishers, 256 registered fishing vessels and 13 fish ponds, with annual productions averaging 1,009,200 kg. In 2012, the district's fisheries sector generated a revenue of TZS 37,357,200 (NBS, 2013).
179. **Beekeeping:** By 2012, Rufiji and Kisarawe districts had 3,825 traditional and 3,187 modern beehives, as well as 113 traditional and 364 modern beehives respectively. In the same year, the industry yielded 14,760 litres of honey and 4,002 kg of bee wax in Rufiji. The production in Kisarawe stood much lower, with 272 litres of honey and 9 kg of bee wax (NBS, 2013).
180. **Irrigation:** Of the 80,000 ha of irrigable land in Rufiji district, only 127.5 ha (0.15 %) is irrigated. The majority of the irrigated area (120 ha) is covered by the Segeni irrigational scheme, with traditional schemes collectively extending over the remaining 7.5 ha. Most of the irrigational water is sourced from River Rufiji (NBS, 2013).
181. In Kisarawe district, 196.75 ha of land are irrigated of the 27,999 ha of land with irrigation potential. The district relies entirely on traditional farmer-owned schemes (NBS, 2013).

3.2.3.6 Industries

182. Small-scale industry in Rufiji district includes two sunflower oil processing facilities, five garages, 90 carpentry workshops, five food factories, 84 grain milling plants, 19 welding workshops and 22 timber processing facilities (NBS, 2013).
183. As with Rufiji district, Kisarawe district's industry is wholly small-scale in nature and comprises 72 carpentry workshops, two wood-processing factories, 60 grain-milling centres, five welding workshops and one timber processing centre (NBS, 2013).
184. Both districts deal in charcoal production, which in Rufiji was valued at TZS 897,547,150 and in Kisarawe at TZS 1,123,500,000, in the year 2012. The districts have experienced rapid industrial growth in recent years, which has been ascribed to the following developments:
- Reliable infrastructure/tarmac roads: linked district roads which are passable throughout the year;

- Market availability: competition at both local and foreign level due to improved technology; and
- Access to airports and ports: Pwani is close to Dar es salaam which an airport and the port (NBS, 2013).

185. **Investments:** In Coast region (which includes Kisarawe and Rufiji Districts) the sectors earmarked for more investment (URT, 2007) include:

- Agriculture: increased crop production of food crops (maize, paddy, sorghum, cassava and legumes) and cash crops (cashew nut, sesame, coconut, fruits, oil palm and cotton). with a particular interest in developing industries for cashew nut and fruit products.
- Livestock: increasing Short Horn Zebu cattle and dairy products.
- Natural resources: a general statement on increasing tourism, fisheries and forest products but specific investments to be identified
- Social services: to increase rural water supply, health facilities and secondary schools

3.2.3.7 Infrastructure

186. Kisarawe district hosts one Tanzania-Zambia Railway station in Mzenga and Rufiji District features a total of five airstrips at Utete, Jaja, Mchukwi, Kingupira and Mloka.

187. By 2012, Rufiji district accounted for 353 landlines in the Coast region, and had four internet cafés and one post office. In Kisarawe district, the telecommunication infrastructure included 54 landlines, two Internet centres, one post office and one sub-post office (NBS, 2013).

3.2.4 Udzungwa Mountains National Park (UMNP)

188. UMNP is bordered by Kilombero and Kilolo districts to the east and west respectively, and Kilosa to the north. The park marks the boundary between Kilombero district and Iringa region (Kilolo district), but the largest proportion on UMNP is in Kilombero district. Villages in Kilombero bordering Udzungwa directly are: Mkamba, Kidatu, Msolwa-Ujamaa, Sanje, Mkula, Sonjo, Sole, Mang'ula A, Mang'ula B, Mgudeni, Ichonde, Kisawasawa, Kanoro, Mkasu, Kiberege, Sululu, Ziginali, Samaganga, Idete A, Idete B, and Namawala. The Namawala village is within Kilombero Nature Reserve as well. Kilombero district is made up of 99 villages, one of which has a border conflict with the neighbouring district. If the conflict is resolved the district will have 100 villages. However, only 54 of the villages have adapted VLUP. To the west, the UMNP borders two villages directly that are within Kilolo district. By the end of 2012, the district had managed to survey 83 villages out of 106 villages. A total of 57 villages have been offered village land certificates (URT, District Profile, 2013).

3.2.4.1 Population

189. The 2012 population census in the wards surrounding UMNP was 223,749 in 2012 (projected to increase to 248,142 in 2017) with the highest population in Kilombero district with population growth of 2.4% per annum (

190. **Table 3-15).** The bordering wards in Kilolo District have a much lower population of 37,798 and a growth rate of 0.7% per annum.
191. The population in severe poverty ranges from 22.4% in Iringa region (representative for Kilolo district) to the west of UMNP to 30.8% in Morogoro region (representative for Kilosa and Kilombero districts).

Table 3-15 Summary of population and ethnicity in the REGROW regions

Region	District	Population			# of Villages (2012)	Ethnic composition	Population in severe poverty 1	Population growth rate per annum	
		1988	2002	2012				1988 - 2002	2002 - 2012
IRINGA	Kilolo	156,989	204,372	218,130	106	Hehe, Kinga, Bena, Maasai, Barabaig, Safwa and Sagala	22.40%	1.9	0.7
Morogoro	Morogoro Rural	225,857	263,012	286,248	144	Waluguru, Wasagara, Wakaguru, Wandamba and the Wapogoro	30.80%	1.1	0.8
	Kilombero	187,593	321,611	407,880	80	Ndamba, Mbunga, Ngindo, Pogoro, Hehe, and Bena.		3.9	2.4

Sources: 2012 and 2002 Tanzania Population Census; 2002 Population Census Analytical Report; Kilolo District Socio Economic Profile, 2013; Morogoro Rural Socio Economic Profile, 2013; Tanzania Human Development Report, 2014; Razack L. et al., 2007.

192. **Special interest groups:** Less than 10% of the population in Kilombero and Kilolo were recorded as having a disability. An average of 30% of households were headed by women and an average of 2% headed by children in 2012. Deaths of parents due to HIV/AIDS is the leading cause of orphans in the district. This is followed by parental abandonment where some parents leave to seek businesses opportunities elsewhere or parents who migrate to the district leave their children behind once their business is concluded (Kilombero district CDO, 2017).

3.2.4.2 Ethnicity

193. The main ethnic groups in Kilombero are the Ndamba, Mbunga, and Ngido. The Hehe, Kinga, Bena, Maasai, Barabaig, Safwa and Sagala are the main ethnic groups in Kilolo district. Other groups who are present around UMNP include the Pogoro, Hehe, Bena, Nyakyusa, Sangu and Sukuma.

194. The Ndamba are predominantly a fishing community, skilled in controlling canoe transport and have a great knowledge of riverine, which enables them to navigate through vast and complicated water channels.

195. The Bena and the Hehe, are Bantu-speaking agriculturalists who practice polygamy. The Bena women after the death of first husband are expected to marry their husband's brother; failure to do requires the original bride-wealth (dowry) to be returned. The Bena practice both Christianity, Islam and their traditional religion. The Kinga are agriculturalists and business people known for their good business skills. Majority of the Kinga practice Christianity.

3.2.4.3 Education

The literacy rates of persons aged 15 and above surrounding UMNP is above 75%. The primary school pass rate is higher in Kilolo District (61%) compared to Kilombero (46%) and Kilosa (43%).

Table 3-16 Number of schools and pass rates in sampled districts

District	Number of schools					Average pass rates Primary (2014)*	Literacy rates
	Pre primary	Primary	Secondary	Tertiary	Vocational		
Kilosa	155	162	43	10	0	43%	
Kilombero	128	167	43	0	3	46%	82.9%
Kilolo	101	111	36	0	6	61%	78.8%

Source: District profiles, consultations February 2017, *Opendata.go.tz, NBS, 2016.

196. Kilombero district faces deficit of school facilities and infrastructure and education outcomes are impeded by school dropouts. In 2012, there were 365 dropout cases which is a decline from 701 cases in 2010. The leading cause for drop out is due to truancy followed by pregnancy and death. The number of school dropouts due to pregnancy has declined, however, from 83 cases in 2008 to 14 cases in 2012. By 2013, the district's primary school facilities faces shortages in infrastructure with the highest being 80% of teachers' houses and 60% of offices and 45% of classrooms. The students' primary to secondary school transition rate has steadily increased from 60% in 2005 to 66% in 2012, despite dropping to 51.3% in 2010 (URT, 2014b).

3.2.4.4 Land use land cover

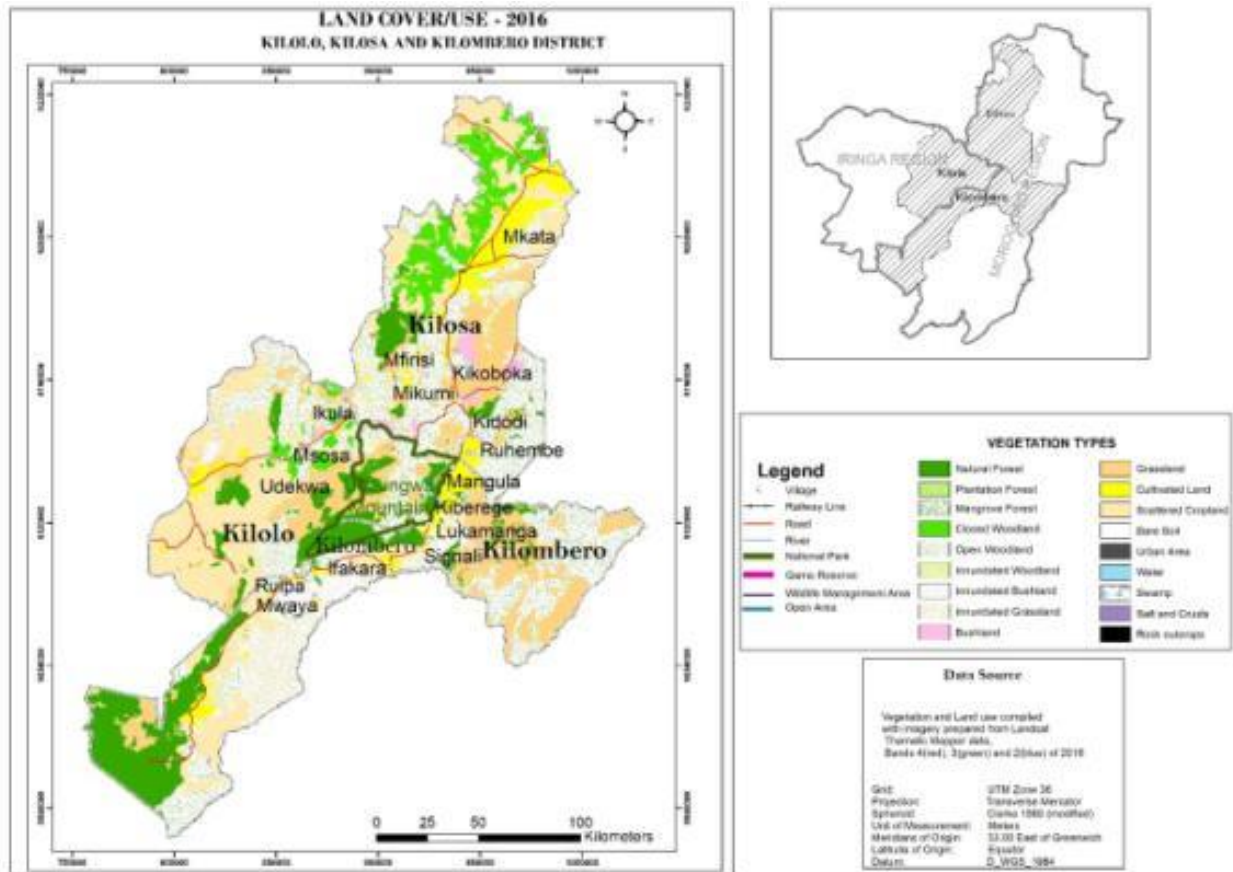
197. The Land cover in UMNP is dominated by natural forest in the southern boundary with a mix of open woodland and grassland towards the north. The park is surrounded by extensive cultivated land along its eastern boundary along the regional road from Mikumi town to Ifakara (See Map 3-8).

198. The eastern boundary of the UMNP along Kilombero is exposed to encroachment due to its proximity to settlements and continuous expansion in areas such as Kidatu and Msolwa villages. The park's boundary and growing settlements are almost contiguous in some places separated by roads only hence making the park very prone to poaching, encroachment and other illegal activities. The Kilombero valley initiated interventions to ensure environmental conservation especially of land and water resources included evictions of residents who settled in the area at the end of 2011. By August 2012, most of the livestock and farmers were removed from the site; however, Currently, according to the Kilombero district officials, people are relocating back into the Kilombero valley 'illegally' in increasing numbers.

199. The park is bordered by 17 villages on the east side which are all based in Kilombero District and 2 villages on the West which are in Kilolo District. Most of communities surrounding the Park are engaged in farming activities as compared to pastoralism. Before the beacons were established around the park because there were few settlements and low population in the Kilombero side of the park. With the immigration of labour in the industries and pastoral communities the population growth and expansion of economic activities became a challenge to prevent poaching, illegal timber harvesting and encroachment to the park boundaries. Currently, permanent beacons are being installed (Consultation, 2017). Boundary disputes and tensions with residents are reported in Kidatu, Msolwa and Mkamba villages (ibid).

200. Road access within the park is poor reportedly particularly on the western side which where the road needs urgent rehabilitation to allow smooth movement of game-patrols on respective areas. In addition connectivity of Udzungwa to Iringa Town or Ruaha NP via Kilolo is poor where the district road is not all year accessible. The cross linkage of component 1 and 2 to give more opportunities to connect tourists from Udzungwa to Ruaha (at Mahondo) should be considered. Albeit this connection will have to consider the forest and sugar plantation

Map 3-8 Land Cover/Land Use of UMNP area



201. Natural and planted forests of Kilombero district have a coverage totalling 202,282 Ha. These include four privately owned tree plantations and 14 forest reserves. The District features residential, institutional, commercial, industrial, agricultural, conservational and recreational land uses, as well as a land bank totalling 13,922 Ha (Kilombero District Profile, 2014).

202. Of Kilolo District's total land area (7,874.6 km²), 54% is partially cultivated agricultural land, 24% is forested land and 22% is undesignated land utilized for grazing. Between 2011 and 2013, the demand for surveyed land plots in the District's urban centres exceeded the supply (Kilolo District Profile, 2013).

3.2.4.5 Livelihoods

An average of 70% of the population between Morogoro and Iringa regions are engaged in farming activities and an average of 19% either formally or informally employed.

Table 3-17 Employed population as main occupation in Morogoro and Iringa regions.

Region	Formal Employment 1 %	Agriculture			Informal Employment 2 %	Casual Labour3 %	Other not specified %	Occupation Unknown %
		Farming %	Livestock %	Fishing%				
Morogoro	8.7	71.2	1.9	0.2	10.9	4.1	3.1	0.3
Iringa	8.1	69.7	1.4	0.5	11.4	5.8	2.8	0.2

1. Formal Employment- Legislators Administrators and Managers, Professionals, Technicians, Associate Professionals, Clerks, Plant Machine Operators and Assemblers including Drivers. 2 Informal Employment- Small Business Managers Service Workers Shop, Stall Sales Workers Street Vendors/Related Workers and Crafts/Related Workers. 3 Casual Labour- Elementary Occupations (consist of simple and routine tasks which mainly require the use of hand-held tools and often some physical effort classified into the following main groups: sales and services, agricultural, fishery and related labourers, and labourers in mining, construction, manufacturing and transport¹⁶

Sources; 2012 Census Basic Demographic and Socio-economic Profile (Morogoro, Pwani, Mbeya and Iringa).

203. **Agriculture:** Farming, fishing and pastoralism are the dominant livelihood activities in Kilombero district. The major part of the district lies in the Kilombero valley in a vast floodplain to the south-east of UMNP whereby more than 80% of the population are engaged in agriculture as their primary source of income and food. Crops grown are paddy (major crop), maize, sesame, banana, sunflower, sugarcane, and cocoa at a very low scale. Sugarcane, sesame, sunflowers and cocoa are grown for commercial purposes. The Sukuma are mostly agro-pastoral and dominates farming throughout the district. Other farming communities are Ndamba, Hehe, Nyakyusa, Bena, and Pogoro.

204. Kilolo district is predominantly rural with agriculture being the first and major income generating activity for about 90% of the district workforce. Arable land in the district covers 82.6% of the total district land area of 787,456 ha; 127,889 ha are under cultivation. The district produces maize, paddy, and beans, round potatoes, wheat, onions, sorghum, sweet potatoes, finger millet, garden peas, cassava and pigeon peas as food crops while coffee and pyrethrum are produced as cash crops. Maize and beans are the dominant food crops; while sunflower, tomatoes and onions are the dominant cash crops in the district. However, sometimes food crops are used as cash crops in order to supplement household income. Compared to other districts in the region, Kilolo has the smallest area under permanent crops which was dominated by banana. Small quantities of mango and coffee are also grown in the district (District Profile, 2013).

Table 3-18 Summary of agricultural crops in sample REGROW districts surrounding UMNP

District	% of district residents engaged in agriculture	Main crops	Other food crops	Cash crops
Kilombero	80%	Paddy	Maize, peas, bananas) and cash crops (sugarcane, simsim, sunflowers and cocoa).	--
Kilolo	90%	Maize, sunflower	Maize, paddy, beans, round potatoes, wheat, sorghum, sweet potatoes, finger millet, garden peas, cassava and pigeon peas)	Sunflower, onions, garlic, coffee and pyrethrum

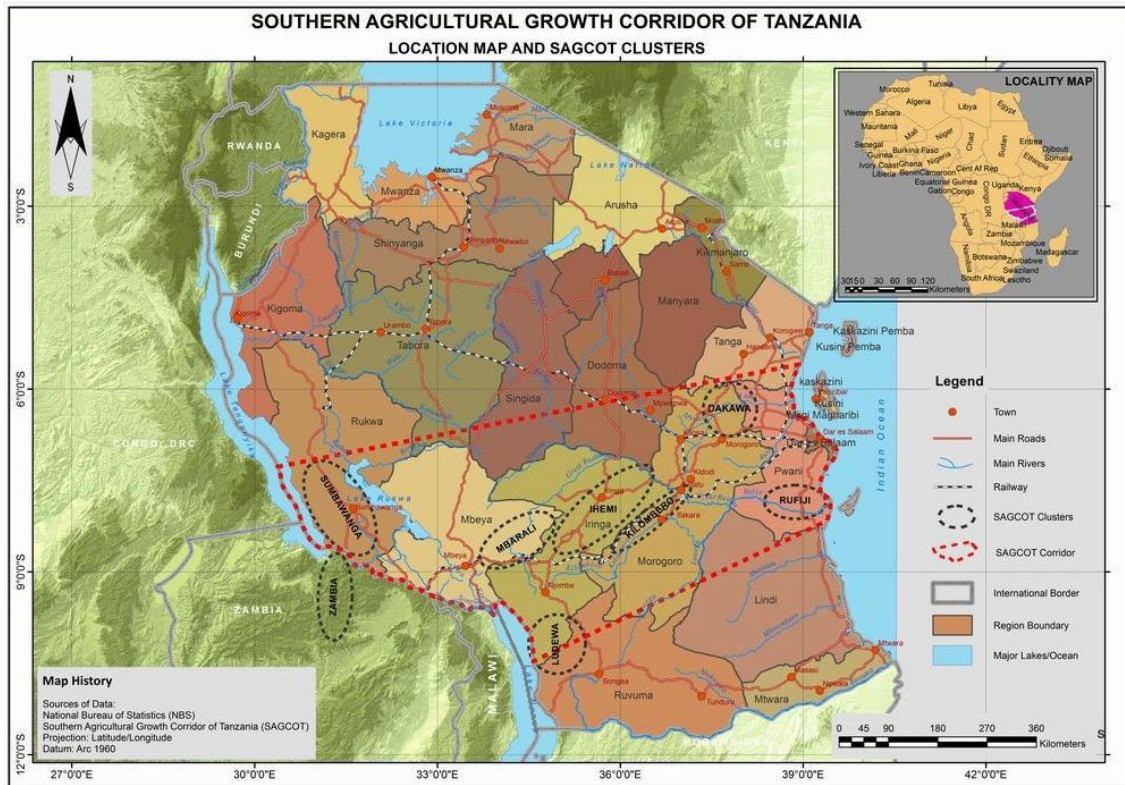
Source:

205. The Southern Agricultural Growth Corridor of Tanzania (SAGCOT) is a public private partnership organization purposed to improve agricultural productivity, food security and agro-livelihoods in the country through the coordinated development of the southern agricultural corridor (URT-PMO, 2013). The overriding objective of the programme is to

¹⁶ <http://www.ILO.org/public/english/bureau/stat/isco/isco88/9.htm>

increase the adoption of new technologies and marketing practices by smallholder farmers by expanding and creating partnerships between smallholder farmers and agribusiness ventures. The programme spans the districts of Kilombero, Mbarali and Rufiji, amongst others. Of greatest bearing on REGROW, are Kilombero and Mbarali, which are in proximity to SGR and RUNAPA respectively (See Map 3-9).

Map 3-9 SAGCOT corridor in Tanzania



206. SAGCOT is composed of three elements a Center a Catalytic Fund Company and a Partnership Forum, that latter of which includes MNRT. Currently SAGCOT has started activity in Iheimi (outside the immediate REGROW area), Morogoro Region as a piloting cluster with the intention to expand to the other areas gradually. The major risks and challenges associated with the programme include – inter alia – environmental degradation, involuntary resettlement, the absence of regional land-use planning and technical weaknesses of implementing local government institutions (URT-PMO, 2013).

207. **Irrigation** is practiced in Kilombero district with specific emphasis on paddy. It is estimated that 35,238 ha are potentially irrigable throughout the district. The district has 16 small-scale irrigation schemes, the largest of which are Mpanga/Ngalimila (31,500 ha), Kisegesa (7,000 ha), Mgugwe (2,200 ha) and Udagaji (1,927 ha). These schemes are in different stages, and are being jointly developed by Zonal Irrigation Office (ZIO) - Eastern Zone and the district council as highlighted below:

- Improved schemes: Msolwa, Mkula, Mang'ula-Youth, Signali, and Njagi.
- Traditional schemes that have intake weir only, primary and secondary canals are absent: Kisawasawa, Kiberege, Ikule and Udagaji.
- Communal schemes: Sanje, MAKI, Mgugwe and Sonjo (schemes are not yet operational)
- Institutional schemes: Idete (Idete Prison and still under construction), Kilombero and Illovo Sugar plantations.

- schemes bordering SGR: Mang'ula Youth
- schemes bordering UMNP: Mkula scheme (human-wildlife issues on crops and irrigation infrastructure destructions), MAKI, Msolwa-Ujamaa, Ziginali

208. Kilolo district is also well endowed with a large potential area for irrigation, but only a limited area has been developed. Out of the total arable land area of 650,282.2 ha, the potential area for irrigated agriculture is estimated to be 4,735 hectares of which only 1,810 hectares are under irrigation which occupies 38 percent of the total potential area. The most common source of water for irrigation is from rivers using gravity. Irrigated agriculture is mostly practiced in the following wards: Mahenge, Ruahambuyuni, Ihimbo, Ukumbi, Ng'uruhe, Ikula, Image, Lugalo, Irole, Mlafu and Udekwa (District Profile, 2013).

209. Infrastructure development is the greatest challenge in all the schemes. Some have main canals only which are also not fully developed, some are not improved at all leading to poor water use efficiency due to the application of flood irrigation system.

210. **Livestock keeping:** Pastoralism is an important livelihood activity in Kilombero district. The grazing area is estimated to be 120,000 ha whereby 60,084.68 ha is used for grazing, 10,000 ha is Tsetse flies infested, and 49,9915.32 ha is wetland and/ or conservation land. Most of the pastoralists are Sukuma, Maasai and Barabaig immigrants from other parts of the country who came into the districts more than 20 years ago. There are no villages that are entirely occupied by pastoralists, only some hamlets/sub-villages in some areas are dominated by the Maasai, for example, Nyange and Ibike hamlets in Bwawani village. In Kilombero, the pastoral communities prefer to reside in the wilderness, far from other communities, where they can easily access water in the catchment areas and grazing pastures

211. Kilolo district has 114,394.18 ha of grazing land, equivalent to 14.35% of total land area of the district. Out of the 114,394.18 ha of available grazing land, only 15,968.07 hectares of land is used for grazing. The District practises dual use of agricultural land whereby following crop harvest that land is grazed. Livestock keeping is still largely traditional and involves mostly indigenous cattle (96%) and the exotic breeds (dairy and beef cattle) account for the remaining 4% of the total cattle population in the district. In 2013, the estimated number of cattle in the district was 63,922. The largest number of cattle was found in Mahenge Ward which also hosts most of the Maasai in the district. The large scale farms for beef cattle production are found in Rutuba Farm (Ukumbi ward) and Mtanga Farm (Ng'uruhe ward); while small scale farms for dairy cattle are in Tomy Dairy Farm and Ndoto Dairy Farm in Ihimbo ward (District Profile, 2013).

212. **Fishing:** Artisanal fishing is the second largest livelihood activity in Kilombero district contributing to about 25% of income. It is mostly practiced along Kilombero valley, dams and wetlands. The district has a total of 193 fish ponds 90 of which are natural ponds and swamps while 103 are constructed ponds. Recently these wetlands have been affected by droughts causing rivers and streams to dry up.

213. Artisanal fishing contributes more as a livelihood activity in Kilombero district than in Kilolo district. Fishing in Kilolo District takes place in the Great Ruaha, Little Ruaha and fish ponds. Fishing activities in the district is carried out entirely at artisanal level whereby in 2013 there were 188 fishers concentrated mostly in Ukwega, Idete and Ruaha Mbuyuni wards (District Profile, 2013).

214. **Beekeeping:** Kilombero District has initiated pilot projects in beekeeping in several villages by using modern technology whereby there are 132 groups involved in beekeeping (youths,

women and elderly groups), 4,800 traditional beehives and 3,200 modern beehives. The investors in beekeeping include Lungongole Bee Farm (60 ha), Msuya Bee Farm (70 ha) and Green Resources Ltd that support beekeeping groups with equipment. Nine different forests within the district amounting to 11,378.44 ha have been reserved for beekeeping activities. (District Profile, 2014b).

215. Compared to Kilombero district, production of honey and wax in Kilolo district are still low due to the use of traditional methods and the community's disinclination towards beekeeping. Potential areas for beekeeping are Image, Udekwa, Mtitu, Dabaga, Idete, Ng'ang'ange and Kimala wards. In 2012, there were 5,551 traditional and 4,157 modern beehives.

3.2.4.6 Industries

216. The agro-industrial activities in Kilombero include Udzungwa water purification plant, Kilombero Valley Teak Company (KVTC), small-scale rice milling, weaving and timber industries, Kilombero Sugar Company (Illovo) and a number of micro and small-enterprises. The Kidatu and Kihansi Hydropower Electric Plant stations are located in Kilombero district.

217. Micro, Small and medium sized enterprises in Kilolo district are mainly food processing and timber and pole treatment. In 2013 there were 22 establishments in the district, one of which was medium sized involved in water processing and packaging.

218. **Investment:** In Kilombero District the three main investment areas earmarked by the District Council (Kilombero District Council, 2015) include:

- Irrigation agriculture particularly of paddy has been earmarked by the district council to increase production in Kidatu, Mang'ula, Ifakara, Mngeta and Mlimba areas.
- A proposed Kilombero Agro-processing Special Economic Zone (KASEZ) at Lungongole Village about 20 km from District head quarter. The purpose of this special zone is to be an international business centre for processing of agricultural and animal products and canning vegetables and fruits.
- Increasing hotel and conferencing facilities near Udzungwa National Park to accommodate tourists visiting the park.

219. In Kilolo District, the investment opportunities (Kilolo District Council, 2013) identified include:

- Increasing dairy farming by giving residents credit facilities to purchase dairy cattle
- Hydropower power production by developing rural electrification at waterfalls found in the district. There is an existing Faith Based Organisation generating hydropower at Madege. Other areas identified by the District include Udzungwa, Kitonga and Kifungá (Ndengisivili village).

3.2.4.7 Infrastructure

220. The T1 trunk road from Dar es Salaam to the Tanzania-Zambia border in Mbeya passes UMNP to the north in Kilosa district. The TAZARA railway also traverses south of UMNP in Kilolo District.

221. Kilolo district has a total road network of 884.1 km; about 211 km are trunk or regional roads, 455 km of district roads and 218.1 km of feeder roads; of which 90% of the road network is gravel or earth surface.

222. **Energy:** Kilombero district has two major source of Hydro electric power, these are Kidatu (247.8 Mw) and Kihansi (180 Mw), hence ensure 4 divisions of Kidatu, Mang'ula, Mlimba

and Ifakara with permanent supply of electricity for domestic and commercial uses. Also there are two small hydro electric production of Mngeta in the Kilombero Plantation Limited (KPL) (1 Mw) and Mbingu (1 Mw) which owned by the Roman Catholic Diocese of Mahenge.

Despite the hydropower production, about 97.7 % of the households in Kilombero District rely wholly or partly on wood fuels (firewood, charcoal and rice husk) for their energy needs (See Table 3-19). The rate of consumption of fuel wood greatly exceeds the rate of natural growth.

Table 3-19 Sources of energy for cooking and lighting around UMNP

Source of energy	Cooking		Lighting	
	Households	Households	% of households	% of household
Petroleum products	692	66,041	0.94%	89.25%
Wood fuels	72,237	2,232	97.62%	3.02%
Electricity	815	5,653	1.10%	7.64%
Gas	23	20	0.03%	0.03%
Solar				0.07%
Others	231	52	0.31%	100%
TOTAL	73,998	73,998	100%	

Source: Kilombero District Profile 2002

3.2.5 Ruaha National Park (RUNAPA)

223. Ruaha National Park borders Mpwapwa and Dodoma Rural to the north Iringa Rural to the east, Chunya to the west, Mbarali to the south and Manyoni to the north-west.

3.2.5.1 Population

224. The 2012 population census in the wards surrounding RUNPA was 105,940 in 2012 (projected at 118,193 in 2017) with the highest population of 23,996 people in wards in Iringa Rural with a population growth rate of 0.4 compared to 61,768 people in wards in Mbarali district and population growth of 2.5% per annum (See Table 3-20).

Table 3-20 Summary of population and ethnicity in the REGROW regions

Region	District	Population			# of Villages (2012)	Ethnic composition	Population in severe poverty	Population growth rate per annum	
		1988	2002	2012				1988 - 2002	2002 - 2012
Iringa	Iringa Rural1	205,504	245,033	254,032	123	Hehe, Bena, Kinga, Pangwa, Wanji, Sukuma, Barabaig and Masai	22.40%	1.3	0.4
Mbeya	Mbarali	153,182	234,101	300,517	196	Sangu, Hehe, Safwa, Bena, Baruchi, Sukuma, Wanji, Barabaig, Masai, Kinga, Nyakyusa, Ndali and Gogo.	23.60%	3	2.5

Note 1: The decline in the population of Iringa District from 1988 to 2002 was primarily due to the division of the original District into the newly established Kilolo District and Iringa Rural District

Sources: 2012 and 2002 Tanzania Population Census; 2002 Population Census Analytical Report; Chunya District Social Economic Profile, 1997; Iringa Rural District Council Socio-economic Profile, 2013; Mbarali District Socio Economic Profile, 2014; Tanzania Human Development Report, 2014; Razack L. et al., 2007.

225. **Special interest groups:** Between 6-10% of the population in Iringa Rural and Mbarali district have been recorded to have a disability. An average of 36% of households are headed by females for both Iringa and Mbarali district. Iringa Rural had a 15% HIV/AIDS incidence rate in 2013. Death of one or both parents due to HIV/AIDS is the largest cause of orphanage 17 in the Iringa rural and Mbarali district. Iringa has the second highest HIV prevalence rate in the country second to Njombe region (URT, 2013); another factor is family issues – In Iringa, women bare most of the burden in taking care of the children as men often leave them in search of livelihood elsewhere such as shifting between pastoralism and agriculture. Family disputes and poverty levels in the district are other reasons (Iringa Rural district CDO, 2017).

3.2.5.2 Ethnicity

226. The dominant ethnic groups in Iringa District are the Hehe, Bena, Kinga and in Mbarali District it is the Safwa and Sangu tribes. The area has experienced in-migration of other tribes including the Sagala, Maasai, Barabaig, Baruchi, Sukuma, Wanji, Nyakyusa, Ndali and Gogo, amongst others.

227. The major ethnic group in Iringa Rural district is the Hehe people. The Hehe are Bantu-speaking agricultural people. They are divided into dispersed patrilineal and exogamous clans and traditionally polygamous. They practice three types of religion: their traditional religion, Christianity and Islam.

228. The major ethnic groups in Mbarali district are Sangu, Hehe, Safwa and Bena. The Sangu are Bantu-speaking people who are the native inhabitants of the Usangu plains. On the other hand, the Safwa are mountainous people. Majority of the Sangu and Safwa practice their traditional religion and few are Christians.

3.2.5.3 Education

The literacy rates of persons aged 15 and above surrounding RUNAPA is above 70% in both Iringa Rural and Mbarali Districts. The primary school pass rate is higher in Iringa rural District (62%) compared to Mbarali (46%) (See Table 3-21).

Table 3-21 Number of schools and pass rates in sampled districts

District	Number of schools					Average pass rates Primary (2014)*	Literacy rates
	Pre primary	Primary	Secondary	Tertiary	Vocational		
Iringa Rural	0	144	32	0	0	62%	75.8%
Mbarali	0	111	22	0	1	42%	73.4%

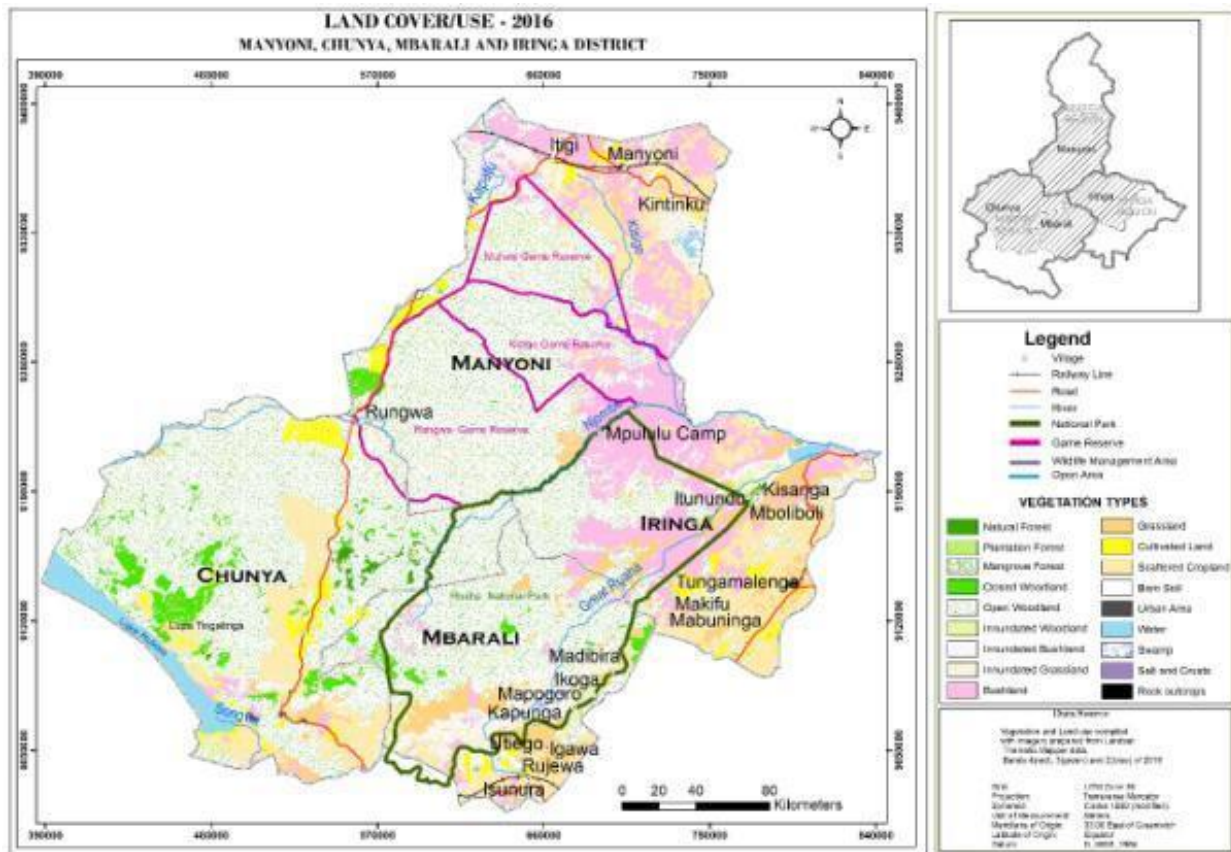
Source: District profiles, consultations February 2017, *Opendata.go.tz, NBS 2016

3.2.5.4 Land use land cover

229. The land cover in RUNAPA is mainly bushland in the north east and predominantly woodland towards the south west. The southern boundary has some inundated grassland and permanent swamps within the park boundary. Scattered portions of cultivated land border the parks' boundary in Mbarali district in the south and Iringa rural district in the west (See Map 3-10).

¹⁷NBS definition of an orphan is a child without one or both parents.

Map 3-10 Land Cover Land Use around RUNAPA



230. Of **Iringa District's** total area of 20,414 km², 48.3% is habitable (9,857.5 km²), 46.2% (9,437.5 km²) is covered by RUNAPA and 5.5% (1,119 km²) is occupied by water bodies. Nearly 23% of the total land area is classified as arable, of which only 184,465 Ha is under cultivation (Iringa Rural District Profile, 2013).

231. Agriculture and conservation (i.e., PAs, WMAs and Game Reserves) are the principal land uses in **Mbarali District**, making up 20% (321,500 Ha) and 60% (960,000 Ha) of the district area respectively. Other land-use activity in the District includes 124,500 Ha of settlements and 40,000 Ha of forest reserves (Mbarali District Profile, 2015).

232. **Settlement expansion:** In Iringa Rural, continuing expansion has resulted in the encroachment of the MBOMIPA WMA area, the Nyaluu bloc in Mboliboli ward of Pawaga Division. The zone was designated by MBOMIPA for hunting purposes but it was later left unattended without supervision. The area is ecologically important hosting abundant wildlife, and is an area where Little and Great Ruaha converges and enters Mtera, thus the wildlife are attracted to it as a permanent water source. The area provides an extensive wildlife corridor connecting RUNAPA and MINAPA, and the Udzungwa-Mikumi-Ruaha corridor. During the dry season when water flow in Great Ruaha is low, wildlife cross to Nyaluu for watering and feeding. Communities encroached the area to establish paddy farms, carry out livestock keeping, build settlements among other livelihood activities such as rice milling and retail trade. Poaching is reported to be rampant with suspect individuals having moved into the area under the pretext of farming. Nyaluu is considered the heart and safe haven for elephant poachers and a transit corridor to Lunda, Ruaha and MBOMIPA (Pers Comm. Iringa Rural Game Officer, MBOMIPA WMA Manager and the District Executive Director of Iringa Rural, 2017). In December 2016, an operation to evict all migrants in Nyaluu zone was implemented by the

district authorities in collaboration with other law enforcement agencies, but it has been reported that residents are moving back into the Nyaluu area (ibid).

233. In Mbarali similar to Iringa Rural, settlements are rapidly expanding along RUNAPA borders due to farming and livestock keeping. The Ruaha-Mpanga-Kipengere corridor under UMEMARUWA WMA is increasingly subject to encroachment for settlements and farmlands. Tension between RUNAPA and surrounding villages is escalating due to border issues and this is considered the most significant conflict in the REGROW area. The park boundary was expanded to include this area in 2008 and initially 21 villages had border issues with RUNAPA during the phase one annexation, and currently about 32 farming and pastoral villages will be affected by the boundary demarcation exercise implemented by RUNAPA. The previous 21 villages will have double conflict with the park. In the meantime, some villagers have lodged their complaints against RUNAPA in the court.

234. There are boundary conflicts between RUNAPA and surrounding villages, particularly towards the south. With appropriate investment into these ranches to ensure adequate water supply for livestock and rangeland for grazing can reduce these conflicts and could potentially offer community benefits from the sale of livestock products to the neighbouring supply towns and tourism facilities of RUNAPA. Cultural tourism opportunities with the ranches can also be explored in component 2 of REGROW.

235. The Removal of villages in the annexed area, reportedly without involvement of respective communities has created a negative attitude, misperception and confusion among communities towards the government and TANAPA (Consultations Mbarali District 2017). This has left the residents regarding TANAPA as a foreign firm that partners with the government on grabbing peoples land for their interests but in the name of 'conservation'. The district and RUNAPA have actively attempted to address the boundary issues through dialogue and meetings with PAP and Regional authorities. Since January 2017, a consultative process, lead and directed by the Regional Consultative Committee, has involved dozen of meetings with various residents and stakeholder to resolve outstanding boundary issues.

3.2.5.5 Livelihoods

Over 60% of the population in Iringa and Mbeya regions are engaged in farming activities as their main source of employment, followed by formal and informal employment (Table 3-22).

Table 3-22 Employed population as main occupation in Mbeya and Iringa.

Region	Formal Employment 1 %	Agriculture			Informal Employment 2 %	Casual Labour 3 %	Other not specified %	Occupation Unknown %
		Farming %	Livestock %	Fishing %				
Mbeya	9.1	63.1	1.4	0.4	13.9	7.1	4.5	0.5
Iringa	8.1	69.7	1.4	0.5	11.4	5.8	2.8	0.2

Sources; 2012 Census Basic Demographic and Socio-economic Profile (Mbeya and Iringa).

236. **Agriculture:** In Iringa Rural district, agriculture constitutes more than 80% of the residents' income generating activities. Several crops are produced, mainly maize, sunflower and paddy. The agricultural sector accounts for 81.7% of the district's GDP. Agriculture is the mainstay of the district's economy, employing nearly 95% of rural residents. Of the 440,158 ha of arable land available for agriculture, only 209,478 are cultivated and 100,064 are exploited for livestock pasture. Despite the district's widespread polyculture and crop diversity, agricultural production is markedly low. The sector's abject productivity is attributable to the single harvesting season, soil degradation and high costs of production. Maize is accounted the district's staple cash crop, other cultivated crops including coffee, tobacco, beans, sunflower, millet, cabbage, potatoes, paddy and a miscellany of vegetables and fruits. The delicate state

of production rests on limited agro-infrastructure consisting of 37 warehouses, 38 -Quality Declared Seed (QDS) farms, two fruit-tree seed nurseries and numerous irrigational schemes (District Profile, 2013).

237. In Mbarali district, agriculture and livestock keeping are the major livelihood activities. Agriculture is the second largest land use next to conservation, and more than 83% of the residents are engaged in the agriculture sector. Farming activities constitute 20.1% of the entire district land (16,000 km²) while protected areas comprises about 63% (District Profile, 2014). The main crop grown in the area is paddy, which accounts for over 90% of total crops produced due to the supportive lowland flat terrain and wetlands that supports paddy farming. Paddy production from private estates and smallholders in the district amounts to annual outputs averaging 200,000 tonnes, ranking Usangu Plains as the country's top rice producing area. Paddy cultivation is carried out in the wet season with secondary reliance on irrigation systems (URT-PMO, 2013). Other crops are maize, sunflower, onions, tomatoes, beans, peanuts, peas, and potatoes. According to the district authority, total land used for cultivation is about 40,000 - 50,000 hectares annually.

238. **Irrigation:** Iringa Rural's arable land features over 43,000 ha favourable for irrigated agriculture. There are 17 irrigation schemes operating in the district, and most of them are traditional with less supportive infrastructure (i.e. only weirs are constructed) and incomplete. The network includes the schemes of Pawaga, Kikavu China, Mlenge, Mkombozi and Magozi. Paddy is the main crop. Schemes that borders RUNAPA directly are Idodi, Tungamalenga, Mapogoro, Ipwasi, Mlambalasi and Makifu. Elephants frequently attack the schemes especially during the dry season leading to extensive food losses because in most cases the farms are about to be harvested. Farmers have tried to cope by adapting new seeds that grow faster and can be harvested early ahead of 'elephant invasion season/timing. Farmers do apply other traditional techniques such as mixture of crude oil and pepper. By the end of 2013, the District Council had been administering the construction of eight rainwater-harvesting dams with the aim of reinforcing the water supply base for irrigation and livestock watering. Amongst the Council's agricultural initiatives is the introduction of training and supply centres for mechanized agriculture, which has seen the capacity building and equipment of local farmers with power tillers, tractors and draft animals.

Irrigation and drainage in the (Usangu) Flats is anchored by three formal schemes, Kapunga in the west, Mbarali in the centre and Madibira in the east. Between these schemes and extending into the RUNAPA a set of smaller scale schemes and informal smallholder irrigation have been developed (See **Table 3-23**). In Mbarali district, there are 80 irrigation schemes that have been established in support for paddy production whereby 34 schemes are registered as cooperatives/associations which are under the District Council (Consultations, Feb 2017). Most of these schemes are seasonal and active between November and May annually. The irrigation potential of Mbarali district is approximately 196,000 ha of the total arable land, however, currently; land under irrigation is only 30,494 ha equivalent to 15.5% of the land (District Profile, 2014). The main crops under irrigation are paddy, maize, beans and vegetables. The coverage of paddy irrigation can be expanded through the introduction of shorter season varieties, strict adherence to a compact cropping calendar and a more stringent implementation sharing mechanisms for abstracted water (URT-PMO, 2013). Irrigation schemes that are adjacent to RUNAPA include; Madibira, Mbarali Estate, Mnazi, Mpunga-moja, Ukwavila, Muungano, Mwendamtitu, Luhanga and Kilambo; Igomelo scheme is adjacent to Mpanga-Kipengere GR. Apart from the District Council and ZIO – Southern Highlands, JICA is also involved in supporting these irrigation schemes.

Table 3-23 Summary of irrigation schemes bordering RUNAPA

Target Protected Areas (TPA)	Bordering Irrigation Schemes	Districts	Ward/Village	Area of land (ha)
Ruaha National Park	Idodi	Iringa Rural	Idodi village	NA
	Tungamalenga	Iringa Rural	Tungamalenga village	NA
	Mapogoro	Iringa Rural	Mapogoro village	NA
	Makifu	Iringa Rural	Mahuninga ward	NA
	Ipwasi Ndorobo	Iringa Rural	Mziha ward	1500
	Mlambalasi	Iringa Rural	Kiwere ward	500
	Madibira	Mbarali	Madibira ward	3000
	Mbarali Estate	Mbarali	Ubaruku	3000
	Mnazi	Mbarali	Imalilosongwe	2500
	Mpunga moja	Mbarali	Itamboleo	2500
	Ukwavila	Mbarali	Mapogoro	254
	Muongano	Mbarali	Igava	NA
	Mwendamtitu	Mbarali	Ubaruku	3000
	Luhanga	Mbarali	Luhanga	NA
	Kilambo	Mbarali	Mwatenda	NA
Igomelo	Mbarali	Rugelele	312	

NA = Not Available

Source: COWI EcoTek WEGS Consultations, February 2017

239. **Livestock keeping:** Livestock rearing is Iringa Rural's second largest economic activity, contributing roughly 9% to the district's GDP. It is more prevalent in the southern lowlands, where it is reported to cause environmental degradation. The district's livestock comprises 152,433 cattle, 104,784 goats, 45,625 sheep, 2,745 donkeys, 36,171 pigs, 579,716 chickens and 16 horses. In the district, livestock rearing is practised for subsistence, is free-ranging, with minimal commercial revenue. As a result, the Council, in collaboration with a number of stakeholders in the livestock industry, have drawn up development plans for the under-resourced sector. The sector as a whole includes 48 dips, 21 pools, 11 watering dams, four livestock development centres, seven auction centres, six abattoirs, 47 slaughter slabs and 3 breeding centres (District Profile, 2013).

240. In Iringa Rural, almost more than 60% of all cattle in the district are located in Pawaga, Idodi divisions (borders RUNAPA directly) and Isimani. The Maasai, Sukuma and Barabaig are the leading tribes in respect to livestock keeping. Pawaga and Idodi divisions have 24 villages and all of the villages have adapted VLUPs. However, the plans are not adhered to and some of them need to be updated/revised. Some of the pastoralists graze their livestock along the RUNAPA borders due to the scarcity of productive grazing zones, rapid population increase and the fact that allocated grazing areas in VLUP are mostly barren and unproductive. Encroachment by farmers and pastoralists is common in villages such as Kisanga, Mapera-Mengi and Nyalui hamlet in Mkumbwani village that border RUNAPA directly.

241. In Mbarali district, livestock keeping is the second livelihood activity next to crop husbandry even though most communities have adapted agro-pastoralism recently. Most livestock are grazed in communal grazing lands, village woodlands, open farms (on post-harvest crop residues). About 154,000 ha of land (9.6% of the district land) is suitable for grazing, but 123,200 ha is under grazing. The rest, 30,800 ha is tsetse fly infested area. Further, there are 32 dips (6 are not working), 5 charcoal dams, 7 veterinary centres (none is operational), 4 hides/skins sheds, and 8 livestock market/auction (District Profile, 2014). According to the district officials, it is estimated that there are 198,316 cattle, 93,707 goats, 38,291 sheep and 4,486 donkeys. Pastoral communities are mostly found in Iwalanje village, Igawa ward; and Mabadaga village specifically Machimbo hamlet, Mapogoro ward. There are four tribes involved with pastoralism: Sukuma who are leading, Masai, Sangu and Gogo.

242. At present the assigned grazing areas are unproductive and thus pastoralists are forced to opt free-range grazing and encroachment. 28 villages were mapped earlier and grazing areas earmarked but 25 villages have border conflict with RUNAPA. The district has two main ranches used as official grazing areas: Matebete and Usangu. The Maasai pastoralists own Matebete ranch located in Matebete village. The village is within the ranch and the ranch occupies about 75% of the entire village's land. However, sometimes livestock from the ranch have to access water outside the village area due to shortages. Alternatively, charco dams and water pumps are used by pastoral communities for livestock watering. The Usangu ranch was previously government-owned under NARCO but it has been sub-divided into 16 different blocs of varied sizes and leased to private individuals and institutions.
243. The REGROW interventions to address competing water users between wildlife and irrigation agriculture under component 3 should link with study tours in component 2. These efforts are important for the villages long Umemaruwa as they experience human wildlife conflict especially with elephants. Elephant attacks to communities especially those close to UMEMARUWA and destroy crops, this is highly influenced by massive encroachment along the wildlife corridor with paddy fields and also lack of clear boundary demarcations that would restrict people from encroaching in the WMA.
244. **Fishing:** The Iringa district's fisheries sub-sector is of appreciable economic importance, having reached an annual production of 1,781.6 tonnes in 2014 and valued at TZS 5,344,770,000. Two large fish dams – namely Mtera and Kibebe – and 32 other such dams have been constructed in the district, 13 of which are privately run, 13 are group owned and 10 are village owned.
245. In Mbarali fishing is practiced at the small scale, mainly along rivers Mbarali, Kimani, Mkoji, Mpapain Maperemehe and Little Ruaha. In 2013, the district issued 61 fishing licences to 108 fishers, and a single registered fishing vessel. Fish supplies are normally imported from Rukwa and Morogoro to supplement the small catch in the district (District Profile, 2014).
246. **Beekeeping:** In Iringa Rural, beekeeping is concentrated in the central and southern zones which are the most environmentally conducive to the activity. Being largely traditional, the district's bee-keeping sector holds at low production levels, with only 3,150 modern beehives of the total 13,140 (District Profile, 2013).
247. In Mbarali district, the beekeeping subsector has been practiced for many years but it still at subsistence level and less developed dominated by traditional production practices. Thus, the production of honey and bee-wax in the district is very low and rarely exported. In 2013, there were 3,985 beehives. With the potential that exists in the highland areas of the district, beekeeping can become a very lucrative business thus becoming another source of income for the households living in the highland areas (District Profile, 2014).

3.2.5.6 Industries

248. Iringa Rural district has 14 workshops and a single medium-scale industry for water processing.
249. Rice milling is the major industrial activity in Mbarali district. There are small-scale industries such as carpentry, workshops micro-enterprises.
250. In Iringa some of the strategic objectives set for between 2016 and 2021 (Iringa District Council Strategic Plan, 2016) include:

- Increasing security tenure in land ownership and increasing number of villages and plots surveyed
- To train/sensitize villages on importance of conservation of wildlife reserved areas and preventive measures against problem animals
- Increase the number of Community Based Forest reserves
- Promote 24 tourism attractions and implement Cultural and Ecotourism in 27 villages.

The major investments planned in Mbarali District include the SAGCOT program briefly described in paragraph 188 above.

3.2.5.7 Infrastructure

251. The T1 trunk road meanders south of Ruaha NP in Iringa region towards Mbeya region. The TAZARA railway line traverses south of Udzungwa NP through Kilolo and Iringa Rural towards Njombe region into Mbeya via Mbarali.

252. There are 5 airstrips in Mbarali District

253. In Iringa Rural district has 1,817 km of road network of which 733km are earth roads, 491km gravel roads, 268km regional roads gravel condition, 52km trunk road and 543km district/feeder roads.

254. Mbarali district has an estimated 96km of tarmac trunk road, 185km of regional roads (160km gravel and 25km earth), and 834km district roads (209km gravel and 625km earth).

255. Road connectivity outside the park to the proposed access gates at Kiwale (Chunya), Nyota and Ikoga is important to enable a circuit for tourists from southern Africa to RUNAPA via Mbeya and to Udzungwa from Mahondo. Ikoga and Nyota gates are the closest to Umemaruwa WMA, therefore connectivity outside the park from Madibira to Ikoga can create a circuit between the WMA and the park giving more tourism experiences; however the single entry policy is to be investigated for RUNAPA to enable this. Component 2 livelihood interventions should be considered at Ikoga and Nyota so that villages in Umemaruwa WMA can benefit and if the WMA is strengthened to offer social and cultural emersion activities for tourists.

256. **Sources of energy:** According to the National Sample Census of Agriculture 2007/08, 98% of the households in the Iringa Rural District use firewood for cooking, followed by charcoal (2.0 percent). Only 3% of households use electricity for lighting. Hurricane lamp was found to be the main source of lighting energy in Iringa Rural District (48% of total households) followed by wick lamp (44%). In 2012, the District collected a total of TShs. 2,112,000 as revenue from sold 352 charcoal bags. Good management of forest products supported with restrictions imposed in charcoal burning helped the District to protect its forests as well as reduce charcoal business (District Council profile, 2013).

257. Fuel wood and charcoal remain the only reliable source of energy for cooking and other domestic energy needs both in rural and urban areas in Mbarali District. It is estimated that an average household requires between one to two tons of firewood each year. Alternative sources of energy are relatively expensive and this makes a small portion of the population, especially with township influence, use kerosene as an alternative energy for cooking (District Council profile, 2014).

3.3 Existing impacts/issues in the Priority PAs without REGROW

The REGROW PDO is intended to mitigate existing impacts in the Priority PAs whilst promoting community benefits in the adjacent communities. Table 3-24 summarises the environmental and social impacts in the Priority PA area and how REGROW's PDO aims to address the same.

Table 3-24 Impacts to be addressed by REGROW

EXISTING ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS		EXPECTED REGROW MITIGATION AFFECT OF EXISTING ENVIRONMENTAL AND SOCIAL IMPACTS	
Impact Topic	Existing Impacts "No Project" Option	Specific Implementation Activities	REGROW expected positive impacts
Undeterred illicit activities	Limited patrol coverage in areas with no ranger post or temporary ranger posts resulting in degradation of habitat (grazing) and/or declining wildlife populations (poaching) especially elephants	Monitoring equipment and training	Recovery of elephant and other wildlife populations decimated by poaching.
	Poor condition or lack of roads to ranger posts means less patrols, especially during rainy season means less deterrence affect on illicit activities	Build RP, Airstrip, access tracks and all weather roads	Increased infrastructure and means for patrolling, resulting in deterrence affect of illicit activities in the Priority PAs
Seasonality of Existing Roads	General degradation and impassability of roads due to lack of drainage control especially in low laying water log areas	Improve roads and install drainage control structures (box culverts, box bridges, drifts)	Improved road conditions, some to all weather, resulting in overall increase in conservation and tourism activities
	Diversion of administrative duties and resources to working out logistics for 20 days rotation schedule at temporary post	Build RP, Airstrip, access tracks and all weather roads	Increased efficiency in administrative and logistical duties
	Inability to reach patrol areas (ranger posts) decreasing effective patrol months	Build RP, Airstrip, access tracks and all weather roads	Increased number of ranger post
	Limited time for regular O & M and excessive wear and tear of equipment due to diverted use to fix problem areas (blocked culverts and drifts)	Procurement of road improvement equipment and machinery	Increased hours of heavy equipment repairing roads and building erosion control facilities
	Low tourism experience due to long travel times to tourist sinks	Develop new tourist sinks and access to them	Improved road conditions resulting in decreased travel time between selected tourism attractions
	Poor condition of internal access roads: Long distances and extra time to travel. Areas of tourism potential are not accessible, especially Usangu area and Mikumi south tourism potential not realized	Component 1 road improvements	Improved accessibility to underutilized areas of Priority PAs resulting in increased tourism diversity/destinations
	Shifting sand rivers and stream prevent crossing during flash floods - rainy season: Closure of access to tourist sinks and parts of the PA due to flash floods - rainy season	Install erosion prevention and drainage control structures	Improved river crossings resulting in enhanced patrols and tourism
	Blocked river crossings leading to sporadic access to Kisasi village creating scarcity of food and lowering staff morale	Component 1 road improvements	Improved river crossings resulting in year round access to supplies which boosts staff morale

EXISTING ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS		EXPECTED REGROW MITIGATION AFFECT OF EXISTING ENVIRONMENTAL AND SOCIAL IMPACTS	
Impact Topic	Existing Impacts "No Project" Option	Specific Implementation Activities	REGROW expected positive impacts
	Diversion of administrative duties rescuing stuck rangers and tourists		Decreased incidents of rescues resulting in increased administrative man days and vehicles use for normal duties.
	Months of low visitorship due to closed (not all weather) roads during rainy season, particularly in Selous		Increased visitorship in Priority PAs
	No connection to other PAs due to lack of bridges at critical locations. Seasonal flash floods block roads	Build Husman and Mgeta Bridges	Improved connection between Priority PAs resulting in increased tourism
	Need for updated PEA road improvement procedures to include standard drainage control designs, and E & S procedure	Review and revise PEA road improvement	Surface disturbance from road grading, site clearance and cut-and-fill during construction causing erosion/siltation especially on slopes > 7% gradient.
	Lack of road maintenance equipment as well as limited service and repair capacity at workshops	Procurement of heavy and light equipment and rehabilitate workshops	Ensured implementation of OSHA and heavy equipment traffic safety procedures.
Substandard infrastructure in PAs	Safety concerns of runway condition especially during rainy season often shuts down airstrip. Planes get stuck in mud due to poor drainage and/or lack of compacted murrum surface	Improve airstrip access	Increased tourist flights to and from Priority PAs due to improved conditions of airstrips
	No clear markers of runway. Difficult with aerials visual of airstrip, especially during inclement weather.	Install and maintain TCAA regulation markers	Increased flights to and from PAs due to improved conditions of airstrips
	Substandard conditions of ranger post (temporary): Increase need for administration logistics to coordinate supply's and transport to temporary outposts every 21 days	Build RP, Airstrip, access tracks and all weather roads	Increased patrol search effort % resulting in increased km ² coverage. Reduced administrative work.
	Substandard conditions of ranger post (temporary): Lack of permanently manned posts that limits deterrence affect on encroachment (grazing) and poaching incidents when station is not manned	Increased deterrence results in decreased incidents (?)	Recovery of degraded habitat due to grazing and other livestock activities PAs
	Substandard conditions of ranger post (temporary): Staff welfare, difficult living conditions and associated issues	Improved or building ranger post (incl. BH and solar)	Improved living conditions and welfare for rangers
	Substandard park visitor facilities: Low tourism experience as passengers wait in direct sun or shading is inadequate.	Build shaded waiting areas for Passengers	Improved customer satisfaction with tour operators and park visitors
	Limited ability to undertake aerial census and patrol. Lower rate of detecting poaching activities and poached elephant carcasses.	Improve airstrip access	Increased knowledge of wildlife populations and migration patterns

EXISTING ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS		EXPECTED REGROW MITIGATION AFFECT OF EXISTING ENVIRONMENTAL AND SOCIAL IMPACTS	
Impact Topic	Existing Impacts "No Project" Option	Specific Implementation Activities	REGROW expected positive impacts
	Limited patrols capacity and access in certain areas of PAs, especially in Usangu Area, leading to undeterred poaching and underutilized tourism potential.	Build various infrastructure: Entry Gates at Kiwale, Ikoga, Nyota. Husman Bridge, all weather roads with erosion and drainage control plus sand river crossings (Drifts and Box bridge)	Establishment of permanent ranger post and support infrastructure (roads, airstrips, water supplies) resulting in improved protection of Pas
	Lack of standardized design criteria ensuring buildings blend in naturally with surroundings, making them invisible to PAs visitors	Needs to develop viewshed mitigation design criteria for REGROW funded building	Viewshed impact from unsightly project activities and/or buildings
Access to PAs	No entry gate at popular Sanje Waterfalls trailhead resulting in park visitor inconvenience	Build Entry Gate at Mini Sanje	Improved tourist experience and decreased fee process time leading to increased park visitorship
	No park entry in Doma and Kikwaraza leading to park visitor inconvenience and substandard tourism experience due to lack of alternative access to park; highway used	Build Entry Gate at Doma and Kikwaraza Ranger posts	Improved customer satisfaction with tour operators and park visitors
	Lack of accommodations that limit access to Priority PAs for Tanzanians, especially youth for tourism purposes: Lack of accommodations especially for study tour groups (Local schools, village leaders, etc.) prevents use of park by Tanzanians.	Build youth hostel and support facilities	Increased access to Priority PA by TZ citizens and local communities: Increased conservation awareness especially among i) school age youth, ii) village leaders bordering PAs, iii) communities impacted by HWC iv) irrigation farmers upstream of Usangu.
	Difficult connection between Selous/Mikumi to Udzungwa due to poor roads and lack of entry gates	Build Entry Gates at Lumanga and Mahondo	Improved connection between southern circuit PAs resulting in increased tourism
	Technical barriers that limit access to Priority PA for Tanzanians, local communities and the poor: Credit cards are the only way to pay to entry the PAs. Most local individuals do not have credit cards to pay entry fees.	TANAPA Policy to address inclusive access to PAs	Increased access to Priority PAs by TZ citizens and local communities due to provision of electronic payment options
Conservation Awareness	Limited understanding of protected area conservation efforts and uniqueness.	Design and build VIC at Mtemere, Matambwe and Ikoga	Increased conservation awareness of Priority PAs
Conservation Management	SOP, knowledge and skill capacity for most road improvement activities is sufficient, however there is lack of functioning equipment	Procurement of road improvement equipment and machinery	Stimulating increased ability to manage natural resources and maintain infrastructure (i.e. roads) in Priority PAs

EXISTING ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS		EXPECTED REGROW MITIGATION AFFECT OF EXISTING ENVIRONMENTAL AND SOCIAL IMPACTS	
Impact Topic	Existing Impacts "No Project" Option	Specific Implementation Activities	REGROW expected positive impacts
	Road alignment near ESA: Proximity of game viewing tracks to unstable river embankments creating collapse hazards and premature erosion	Recognition of WBZ and River Embankment Buffer Zone	Improved road conditions (All weather) resulting in increased tourism and patrols.
	No Primate Tourism Protocol at UMNP: Risk for zoonotic disease transfer to primates due to tourism activities along nature trails	Needs further studies resulting in Primate Tourism Protocol procedures	Reduction in risk of zoonotic disease transfer due to human activities
Degradation of Natural Environments	Localized contamination of soil at workshop from mishandling of fuels/used oils and haphazard disposal of spare parts	Rehabilitate workshop including pollution clean up	Improved workshop capacity including remediation of workshop pollution.
	Lack of full understanding of conditions and sensitivities of relevant biodiverse hot spots and ESA possibly affected by REGROW implementation activities	Long term ecological studies and monitoring to inform conservation management plans	Potential degradation of biodiversity hot spots or ESA due to REGROW activities
	Invasive alien species exist in PAs: UMNP has infestation of lantana and teak that is creating habitat degradation	Develop Nature Trail Maintenance Procedural Manual and training	Eradication of noxious weeds such as lantana and Teak removed along trails
	Lack of knowledge of groundwater resource conditions (aquifer locations, water quality and quantity)	Detailed geotechnical studies to inform on groundwater potential	Depletion of groundwater recharge affect with unknown but certain negative impacts due to boreholes used for river augmentation interventions
Human Wildlife Conflict	Wildlife crop raiding and general disturbance in villages resulting in loss of income (crop destruction) and degradation of livelihoods for local farmers and/or death of wildlife.	Review PAC procedures with aim to enhance	Reduction in HWC due to introduced/improvement deterrence techniques and alternative livelihood opportunities for farmers
	Injury to or from problem animal resulting in loss of life or injury; both to humans and animal especially with civil works inside Priority PAs	Develop ESMP AWARE	Emergency Response Capacity to Wildlife Dangers: Predators like Lion, Leopard, Hyena and other animals like elephants can cause injury, property damage and or death.
Benefit Sharing	Benefits sharing limited by single entry policy, especially for WMA: Local communities and WMA suffer from this policy as it makes it expensive for tourist to go outside of the PA for the day to explore cultural tourism activities.	TANAPA Policy to address inclusive access to PAs	Improve livelihoods through revision of single entry policy that facilitates increases visits to cultural tourism destinations outside Priority PAs
	Poor quality or lack of tourism products (crafts, campsites, accommodations) in local communities resulting in private sector is often hesitating doing business with local craft makers.		Improved quality and market access of local crafts

EXISTING ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS		EXPECTED REGROW MITIGATION AFFECT OF EXISTING ENVIRONMENTAL AND SOCIAL IMPACTS	
Impact Topic	Existing Impacts "No Project" Option	Specific Implementation Activities	REGROW expected positive impacts
	Limited availability of services and/or goods in local villages. Private sector relies on town centres to get supplies requiring long distances and extra logistics.		Stimulation of local markets with increased availability of services and goods at local level
Livelihood challenges	Disconnect between Priority PA tourism and facilities benefit to local communities. Actual and perceived lack of benefiting sharing from tourism sector to local communities: Negative perceptions and/or experiences associated with tourism.	Improved benefit sharing	Improved benefit sharing models that result in improving livelihoods conditions in local communities
	Lack of cultural tourism destination at local community level	Livelihood improvements	Opportunities for local communities
	Lack of understanding/tapping into the potential in human and natural resources to improve livelihood	Benefit sharing	Opportunities for local communities to improve or pursue alternative livelihoods
	Employment: Unknown numbers of those employed in the Priority PA by tourist facilities or PA themselves: Limited understanding of direct benefits from employment.	TBD by other consultancies	Increased direct and indirect employment and business opportunities associated with tourism sector
	Substandard livelihood benefits especially for women and youth		Increased access to opportunities for youth and women
	Lack of understanding/tapping into the potential in human and natural resources to improve livelihood		Stimulation of alternatives income generating livelihoods
Key forest habitats unprotected	Degradation of habitat especially for catchment forests and forests that host various endemic species of plant and animals along Udzungwa ecosystem.	Needs further studies	Protection and Conservation Efforts: Protection of forest habitats know to currently being under threat
Tourism promotion	Long process times or complicated payment procedures to enter Priority PA. For SGR, loss of income as last minute bookings are not possible.	Build Entry Gates	Improved customer satisfaction among tour operators and park visitors
	Lack of conservation and tourism hospitality based training. Untapped employment opportunities for local individuals in the tourism sector.	Conduct training for skill development	Increased skill levels at local community level
	Difficult for tour operators to market southern circuit tourisms.		Additional southern circuit tourism marketing resulting in increased visitorship in PAs
Unnatural seasonality of Great Ruaha River	Stress and death of fauna restricted to or depending on aquatic environments.	Possible weirs	Water augmentation resulting in ponding water bodies in stressed Ruaha Riverine habitat
	Low tourism experience and attraction due to obvious river habitat distress (algal blooms, dead carcasses, viewshed degradation).		Increased flow duration (days) of Ruaha River

EXISTING ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS		EXPECTED REGROW MITIGATION AFFECT OF EXISTING ENVIRONMENTAL AND SOCIAL IMPACTS	
Impact Topic	Existing Impacts "No Project" Option	Specific Implementation Activities	REGROW expected positive impacts
	Conflict among water users, especially irrigation schemes.	Information gathering: social and physical surveillance studies - including data collection, analysis, monitoring, evaluation to cover at least population of 100.000	Reduction in conflict among water users
		revisit water permits and integrated water and land use planning activities and awareness campaigns	Increased water balance efficiency between inflow and outflow of irrigation blocks in selected irrigation canals upstream of Usangu wetlands
	Inefficiency in water management of irrigation schemes.	Conduct studies to inform on best practice technologies for water resource management	Improve water use efficiency through awareness and capacity building for farmers via training through Farm Field Schools (FFS)
			Improved irrigation infrastructure for selected smallholder schemes (drainage canals, control gates) Strengthen capacity building for operational WUA and/or IO & irrigation cooperatives strengthened (O&M in place, training)

4 POTENTIAL POSITIVE AND ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS OF REGROW INTERVENTIONS AND MITIGATION MEASURES

258. REGROW interventions are intrinsically and intentionally aimed to mitigate existing adverse and detrimental impacts affecting Southern Circuit tourism and the natural resources contained within the landscape (see section 3.4). However, implementation of the PDO may result in potential adverse impacts. To ensure compliance with best environmental and social practices MNRT subscribes to the WB operational policies aimed to ensure that the proposed REGROW project is

- i. Environmentally and socially responsible in minimizing potential adverse impacts while;
- ii. Promoting inclusive approaches such that effectively informing and involving stakeholders as well as project affected parties and actively facilitating that the project benefits not just the GoT but the surrounding communities as well.

The former aim is addressed in this section while the latter is addressed in a stand alone Process Framework for the project.

4.1 Positive impacts of REGROW interventions

- i. Improved connectivity and decreased travel time: The road improvement interventions within the PAs are not expected to connect to or traverse any surrounding community, however their improvements will connect entry gate to existing ranger posts at the park's boundaries. For MINAPA two of these gates are along the TANZAM highway at Doma and Kikwaraza and two are on the southern border with Selous GR at Mahondo and Lumanga. The proposed road in component 1 from Matambwe to Mahondo via Lumanga and Pwaga traverses south to connect to Kilombero valley. For SGR road development will improve access to supply villages such as Kisaki from Matambwe. The proposed REGROW interventions will therefore improve road conditions resulting in decreased travel time between selected tourism attractions and improve accessibility to underutilized areas of Priority PAs resulting in increased tourism diversity/destinations.
- ii. Protection and conservation enhancement: Increasing ranger posts and gate control points will increase patrol success to deter illegal activities including grazing, poaching and logging as a result of increased number of access gates, ranger posts; new and rehabilitated airstrips; and rehabilitated road and river crossings.
- iii. Increased direct and indirect employment and business opportunities for surrounding communities associated with tourism sector: There are small scale handcrafts, woven household products and agricultural produce are presently sold along the road in Mikumi town (near Kikwaraza) and in Doma village which can be targeted for component 2 that will benefit indirectly from the infrastructure intervention. At SGR this too has a potential spill off effect for communities neighbouring the Mahondo and Lumanga entry gates. The proposed mini gate at Sanje in UMNP, the improvement of the Lumemo trail and the development of the canopy walkway will continue to promote these tourism activities and in particular Sanje village which should be targeted for component 2 interventions. Private sector tour companies and the local hotels are actively engaging in social and cultural tourism activities in the villages in Kilombero District.
- iv. Community education and awareness reducing human wildlife conflict: The reports of elephants and buffalo entering village farms and destroy crops within wildlife migration corridors/routes to rivers particularly in the dry season that coincides with the harvest season.

REGROW community interventions will be used to both educate and demonstrate causes, impacts and how this is managed sustainably.

- v. Fishing: At present none of the REGROW directly target fishing however REGROW component 2 could avail the fishing communities in the Kisarawe District with some benefits for example with Mloka village near Mtemere gate and Kisasi village near Matambwe that have a potential to grow as supply towns for the tourism facilities in Selous GR.
- vi. Improved living conditions and welfare for rangers from improved/increased number of ranger posts and connectivity.
- vii. Improved tourism experience: Improved access gates, visitor facilities, payment modalities ad transport connectivity will result in increased customer satisfaction with tour operators and park visitors.
- viii. Promotion of local tourism activities to increase conservation awareness: activities such as VICs and study tour groups (Local schools, village leaders, etc.) especially among i) school age youth, ii) village leaders bordering PAs, iii) communities impacted by HWC iv) irrigation farmers upstream of Usangu.
- ix. Increased water use efficiency by better regulation of water permits and integrated water and land use planning activities, improved irrigation infrastructure for selected smallholder schemes (drainage canals, control gates) and awareness and capacity building for farmers via training through Farm Field Schools (FFS).

4.2 Negative environmental impacts of REGROW interventions

- i. Noise pollution from operation of construction machinery, generators and increased road and air traffic will impact avifauna and fauna in the vicinity by either scaring them away or attracting them to the noise increasing risk of encounters with worker/operators.
- ii. Impact on natural habitats from increased investment in business or livelihood development interventions: interventions promoting development (even those characterized as sustainable development, green economies, low-carbon development, and/or climate change adaptation projects) may have adverse impacts on species, ecosystems if not planned/designed to suit the habitat.
- iii. Viewshed marring from non-natural landscape developments e.g. accommodation facilities, workshops.
- iv. Sewage waste leaks or malfunctioning sanitation systems leading to pollution of land or water resources, creating unhygienic conditions or spread of disease to humans and/or wildlife.
- v. Pollution of land and water sources from mismanagement of solid waste resulting in an increase of rodents, flies, scavengers (animal and humans), foul smells and contaminated soil/water from leachate.
- vi. Soil contamination from mishandling of fuels at workshops.
- vii. Increased pressure on groundwater sources from overexploitation of local aquifers for water supply at new facilities such as accommodation facilities, park administrative facilities and ranger posts.

- viii. Land destabilization and soil degradation (in form of erosion, compaction, sealing and/or waterlogging) from construction works (road grading, vegetation clearance and cut-and-fill), especially with slopes > 7% gradient.
- ix. Increased timber harvesting and deforestation in response to demand from PA construction works
- x. Increased sediments generated from construction of bridges and road crossings at rivers will affect benthic communities and fish.
- xi. Destruction of benthic communities during construction of bridges and culverts due to dredging or filling activities. Creation of new microhabitats from construction of additional water storage areas such as ponds or enlarging river pools.
- xii. Inadequate disposal of waste generated during construction, leading to habitat damage, land and water pollution, and visual impacts
- xiii. Ambient air pollution from operation of construction machinery. The operation of machinery releases greenhouse gases (such as CO_x and NO_x) and dust which will primarily affect personnel operating them. Earthworks will also temporarily raise dust in larger amounts than the surrounding environment which will affect visibility
- xiv. Occupational health, security and safety hazards to public and construction workers
- xv. Fires leading to damaged property or injury (natural and manmade bush fires are a common occurrence, especially along park borders. Also, recreational campfires, the incinerator, kitchen and fuel storage present fire risks)
- xvi. Introduction of invasive species from the use of materials sourced from different districts.

4.2.1 Negative social impacts of REGROW interventions

- i. Temporary disruption and/or permanent closure of transport infrastructure (roads and airstrips) limiting connectivity or causing delays impacting tourism operators and communities.
- ii. Marginalization of local content in construction and operational procurement and labour
- iii. Disturbance of/ loss of value of historical or heritage sites and/or resources.
- iv. Disturbance of local community's social dynamics due to migrant work force e.g. unplanned pregnancies.
- v. Land use conflicts during the establishment of new and/or enforcement of existing land use plans between TANAPA/TAWA and district authorities/communities.

4.3 Mitigating measures for potential negative impacts

The proposed general mitigation measures below are to be reviewed and defined to the specific intervention prior to approval for implementation. It is expected that each Construction Contractor engaged by REGROW will need to implement the mitigation measures outlined below in order to minimize their negative impact on the area of influence of their activities. As specified elsewhere, Construction Contractors will be required to prepare construction-specific Environmental and Social Management Plans (ESMP), describing the specific mitigation measures, providing details about specific responsibilities, and monitoring and follow-up.

In addition to the general mitigation measures reflected in the Table below, and for all types of construction works, the World Bank's Environmental, Health and Safety (EHS) Guidelines 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 the construction-specific ESMP referenced in above.

All REGROW infrastructure interventions follow the recommendations of the General Management Plans of each Protected Area. These GMPs were prepared including careful considerations of environmental impacts, ensuring that the PAs can absorb the overall amount of activities included in the GMPs. When preparing specific ESIA for REGROW's infrastructure, provisions will need to be included to ensure that overall impacts of all infrastructure promoted in every PA are taken into account.

Table 4-1 Environmental and Social Management Plan for REGROW interventions

Potential Negative Environmental Impacts	Mitigation measures	Implementation	
		Responsible Institution	Time frame (Phase)
Noise pollution from operation of construction machinery, increased road and air traffic and increase use of generators	<ul style="list-style-type: none"> i. Ensure regular servicing for machinery and generators ii. Employ muffler systems for noisy machinery and provide soundproofing measures in affected visitor centers where necessary iii. Provide notices and soundproofing measures for affected visitor centers, and restrict noisy operations during public rest hours (<10 hours max. daily operation time) iv. Generators can be replaced with solar power where feasible v. Generator noise to meet Tanzanian noise limits indicated in the regulations vi. Consult Tanzania Civil Aviation Authority (TCAA) on flight routes to ensure that they don't traverse Important Bird Areas (IBAs) 	TANAPA, TAWA, construction contractor(s)	Construction & operation
Ecological disturbance to terrestrial and aquatic habitats from civil/earthworks	<ul style="list-style-type: none"> i. Install adequate road lighting and speed limits signage to minimize roadkill ii. Roadside vegetation screens to reduce illumination of adjacent habitats iii. Construct animal crossings where a critical barrier effect on a migration route is likely iv. Monitor and implement control measures for any threatening alien species v. Noise and vibration abatement in proximity to key avifauna habitats and other sensitive faunal communities vi. Erosion control measures to minimize in-stream turbidity and deleterious siltation upon the construction of bridges (e.g. retaining barriers, grassing and consolidation with rock fill) vii. Design road crossings to streams to divert road surface runoff and ditch flow before the road reaches the stream so that the road does not become a point source for sediment influx viii. Recognize the Waterbody Buffer Zone (WPZ) and commit not to place buildings within 60 meters from rivers and lakes. 	TANAPA, TAWA, construction contractor(s)	Construction
Ecological disturbance to terrestrial and aquatic habitats from increased investment/business	<ul style="list-style-type: none"> i. Design with minimum ecological footprint by integrating recycling and renewable energy technologies ii. Restrict human traffic numbers in particular sensitive areas iii. Restrict activities and development in no-go areas identified in the priority PA GMP and in the ESMF 	TANAPA, TAWA	Design Operation

Potential Negative Environmental Impacts	Mitigation measures	Implementation	
		Responsible Institution	Time frame (Phase)
Viewshed marring from earthworks and civil works and non-natural landscape developments	<ul style="list-style-type: none"> i. Landscape any salient construction mars and make rehabilitation efforts where possible ii. Utilize camouflage techniques, coloring, and cut and fill scar remediation where possible 	TANAPA, TAWA, construction contractor(s)	Construction
Pollution of land or water resources due to discharge of sewage from malfunctioning or lacking sanitation and waste-water treatment systems and contaminated surface run-off	<ul style="list-style-type: none"> i. Install standard approved septic tanks with appropriate infiltration systems to treat black and grey water ii. Keep the nearest receiving water body protected from any point source and diffuse pollution (e.g. by intercepting ponds and/or vegetation buffer strips) and periodically monitor the water quality of any such aquatic systems iii. Ensure that effluent from fish farming ponds is not channeled into natural bodies which are subject to eutrophication iv. Construct proper temporary latrine facilities in all construction camps (at least 60 m from water sources) v. Oversee equipment management and material handling to avoid leakage/wet-spray and spillage of contaminants into water courses 	TANAPA, TAWA, construction contractor(s), developers/operating agencies	Construction & operation
Pollution of land or water resources due to mismanagement of solid waste generated from construction and operational activities	<ul style="list-style-type: none"> i. Ensure that a well-isolated waste storage point is put in place in every construction site and that the refuse is managed accordingly prior to transfer to the designated disposal facility (e.g. approved landfill etc.) ii. Contractually bind the contractor to dispose the removal of all waste upon construction completion iii. Manage waste streams to isolate recyclable debris and any hazardous waste and compost organic waste iv. Place litter restriction signage where appropriate v. Ensure waste storage receptacles are resistant as possible to storm water runoff and scavenger animals vi. Introduce biogas harvesting facilities for establishments with substantial organic waste outputs 	TANAPA, TAWA, construction contractor(s)	Construction & operation
Pollution of land or water resources due to mismanagement of oils from construction and operational activities	<ul style="list-style-type: none"> i. Workshops to have a non-permeable floor surface constructed linked with drainage that collects wastewater to designated treatment tank. ii. Storage of oil containers/drums to be located in an enclosed area with a non-permeable floor iii. Disposal of used oil containers to be done at nearest smelter 	TANAPA, TAWA,	Operation

Potential Negative Environmental Impacts	Mitigation measures	Implementation	
		Responsible Institution	Time frame (Phase)
Pressure on existing groundwater sources and groundwater shortages from overexploitation of local aquifers	<ul style="list-style-type: none"> i. Develop boreholes according to recommendations from Hydrogeological report and RWBO prescriptions to ensure sustainable yield ii. Installed pump capacity not to exceed 75% of confirmed yield iii. Introduce water conservation initiatives (e.g. rainwater harvesting) and water-efficient sanitary equipment 	TANAPA, TAWA, RWBO & LGAs	Operation
Land destabilization and soil degradation (in form of erosion, compaction, sealing and/or waterlogging) from construction works (road grading, vegetation clearance and cut-and-fill), especially with slopes > 7% gradient	<ul style="list-style-type: none"> i. Establish a zone of acceptable development (ZAD), not to exceed more than 12 hectare of the 27 hectare hillside area ii. Minimize need for cut and fill through building placement on slopes no greater than 7% iii. Backfill borrow pits where appropriate overburden aggregate is available and landscape construction scars; locate new pits far from lodging facilities iv. Incorporate in culvert design an entrance pool and discharge exit that eliminates bank erosion v. All revegetation is with indigenous plant species from park under supervision of the relevant PA Ecology Department. vi. Leave all trees and shrubs of > 20 dbh undisturbed 	TANAPA, TAWA, construction contractor(s)	Construction
Increased timber harvesting and deforestation in response to demand from PA construction works	<ul style="list-style-type: none"> i. Source construction timber inputs from licensed dealers ii. Discourage illegal timber harvesting in forest-reliant communities near the PAs and aid alternative livelihoods development 	TANAPA, TAWA, LGAs, conservation CSOs	Construction
Increased sedimentation patterns from construction of bridges and road crossings at rivers	<ul style="list-style-type: none"> i. Limit heavy earthworks in fast flowing areas and in rain iii. Site planning to ensure that the maximum amount of existing vegetation is left in place during the excavation iv. Cover all exposed soil as soon as soils are exposed v. Leave a continuous buffer of vegetation around the site perimeter to intercept any sediment that might be transferred off site via surface water flow vi. Install and maintain a catch basin protection as a barrier to limit large volume of sediment transfer 	construction contractor(s)	Construction
Destruction of benthic communities and habitat during construction of bridges and culverts	<ul style="list-style-type: none"> i. Plan restoration of benthic habitat based on area and composition determined during the detailed environmental assessment 	TANAPA, TAWA	Construction

Potential Negative Environmental Impacts	Mitigation measures	Implementation	
		Responsible Institution	Time frame (Phase)
Creation of new microhabitats from construction of additional water storage areas	<ul style="list-style-type: none"> i. Release compensation flow downstream for the conservation of microflora, aquatic insects and fish in the dewatering zone should be within 10-20% of the regular flow ii. Additional storage area to be designed to resemble the existing riparian and river floor characteristics iii. Fish passes to assist fish migration adapted to the fish species of concern, maintains the natural flow iv. Restricts fishing activities 	construction contractor(s)	Construction
Ambient air pollution from operation of construction machinery and generators	<ul style="list-style-type: none"> i. Ensure thorough and routine operation and maintenance of motorized construction machinery ii. Ensure that idle machinery is not powered iii. Dust abatement through ground wetting and coverage of aggregate trucks iv. Generator exhausts to be fitted with filters to reduce particulates emitted 	TANAPA, TAWA, construction contractor(s)	Construction
Occupational health, security and safety hazards to public and construction workers	<ul style="list-style-type: none"> i. Ensure workers and visitors are escorted by guards during transits in the nighttime and provide reliable security systems ii. Station PA rangers to safeguard construction workers and visitors from wildlife attacks and provide due instruction in wildlife hazards iii. Train staff in occupational health and safety risk management and emergency response, administer all requisite PPE and post safety signage iv. Provide health insurance for workers and basic first aid amenities v. Sensitize workforce to HIV/AIDS prevention and treatment vi. Ensure hygienic and safe environments for guests and staff, and adequate sanitation facilities vii. Ensure food suppliers and processing facilities meet minimum requirements prescribed by the Tanzania Food and Drug Authority 	TANAPA, TAWA, construction contractor(s), other implementing agencies (LGAs, PPP developers and CSOs)	Construction & operation
Fires leading to damaged property or injury	<ul style="list-style-type: none"> i. Install and ensure ready-access fire-control equipment, orient staff and visitors with emergency assembly points and exits and conduct mock fire drills 	<p>construction contractor(s)</p> <p>TANAPA, TAWA</p>	<p>Construction</p> <p>Operation</p>

Potential Negative Environmental Impacts	Mitigation measures	Implementation	
		Responsible Institution	Time frame (Phase)
Temporary disruption and/or permanent closure of roads and airstrips limiting connectivity or causing delays impacting tourism operators and communities.	<ul style="list-style-type: none"> i. Construction of a convenient bypass for traffic diversion on rehabilitated roads ii. Erection of warning signage ahead of construction sites and stationing of construction/traffic control personnel where necessary iii. Early notification of road and airstrip works and closures with alternatives provided 	TANAPA, TAWA, construction contractor(s)	Construction
Marginalization of local content in construction and operational procurement and labour	<ul style="list-style-type: none"> i. Prioritize capable locals in recruitment of construction and operational labor ii. Source products and ancillary services from local providers iii. Promote equal and non-discriminatory opportunities in local employment iv. Enhance capacity-building and micro-enterprise development programs to equip local communities for sustainable access to production resources and emerging markets within the tourism and agricultural sectors 	TANAPA, TAWA, construction contractor(s), CSOs	Construction & operation
Disturbance of historically or culturally valuable sites and/or resources	<ul style="list-style-type: none"> i. Alternative alignment or special measures to preserve cultural sites of importance to attached persons/communities; ii. Special measures such as relocating cultural sites in consultation with community 	TANAPA, TAWA, relevant LGAs	Pre-Construction/Planning
Disturbance of local community's social dynamics	<ul style="list-style-type: none"> i. Prohibit child labor in touristic and non-touristic value chains ii. Sensitize communities to Sexually Transmitted Diseases prevention and treatment iii. Sensitize communities on social impacts of excessive drinking and unprotected sexual relationships, prevention and treatment 	LGA	Construction
Land use conflicts during the establishment of new and/or enforcement of existing land use plans	<ul style="list-style-type: none"> i. Pro-active stakeholder engagement prior to the activity ii. Participatory planning with communities iii. Integrated land use plans reviewed and ground truthed with respective LGAs and Ministry before approval and implementation 	MNRT	Planning

4.4 Environmental and social risks to the project

4.4.1 No Primate Tourism Protocol at UMNP

259. A Primate Tourism Protocol needs to be developed and effectively implemented to prevent disease transfer between humans and primates; especially the endemic species of the Sanje Mangabey, Iringa Red Colobus, and Kipunji (which is recorded in other forest not UMNP). A habituation program is currently running to habituate one group of Mangabey (about 30 individuals) for tourism viewing purposes but with challenges and varying success. The most likely viewing of the Sanje Mangabey is along the Njokamoni Trail.
260. Need for Risk Assessment: There is an unknown risk to these primates as research has focused on distribution of groups rather than the health and poaching risk that may be present. Initial mitigation attempts should be to continue to investigate habituation techniques while instituting protocol to safeguard the primate populations. In regards to primate tourism, there are two potentially adverse impacts: i) potential of zoonotic disease transfer and ii) primate habitat conservation.
261. Adverse Impact Health and Safety: Although little is known about small primate zoonotic disease transfer, much is known about zoonotic disease transfer between humans and chimpanzee/gorilla; largely due to the tourism attraction of these flagship species. Potential of disease transfer is a real threat as zoonotic and anthrozoönotic disease transfer (animal to human and human to animal) especially primates can prove fatal. Infectious diseases that threaten chimpanzee (primates) include the common cold, pneumonia, paralytic poliomyelitis, tuberculosis, chicken pox and influenza (among others) (Butynski 2001). Frequent close contact due to increasing human populations or even tourists, guides and park personnel may increase the risk of transmitting these diseases to chimpanzees and the problem could worsen (Lasch et al 2011).
262. Initial mitigation would be to ensure strict protocol is followed in regards to disease transfers. Currently, there is a lack of stringent protocol on Primate tourism in UMNP. UMNP must commit to develop and enforce appropriate Primate Tourism protocol to prevent disease transfer as well as to conserve important primate habitat (critical access to fruiting food). Until further research is done on this subject, UMNP Primate tourism should consider following Chimpanzee Tourism Protocol used for Mahale and Gombe Stream NP.
263. Impact Mitigation of potential disease transfer¹⁸ from future Chimp Tourism: Like what is being done on Rubondo Island and Mahale National park, before visiting or looking for a primate group, clear and enforceable Limits of Acceptable Use need to be developed in order to establish limits on visitor group size and an acceptable level of visitation. And more specifically, in order to reduce the risk of disease transmission and human disturbance likely to disrupt the primates' ecology. Certain regulations should be implemented and adhered to including regular screening (applicable to TANAPA trial guides) for and vaccination against diseases such as tuberculosis and proper sanitation including hand-washing, disinfectant footbaths, or surgical masks within a certain distance of the apes (Larsch et al 2011).
264. **Additional recommendations for UMNP Commitment to safe Primate Tourism:** The Primate viewing code of conduct, taken from Mahale Mountain National Park, (outlined in Box 4-1) Box 4-1 Suggested Primate Viewing Code of Conduct: should be developed from viewing guidelines produced by TANAPA, the Mahale Conservation Society and recommendations given in the Mahale Tourism Report (Walpole, 2004). The Code of Conduct

¹⁸ The following two paragraphs are excerpts from UMNP GMP 2003

must be disseminated to all tourists, tourist operators, guides, TANAPA staff and researchers at UMNP.

Box 4-1 Suggested Primate Viewing Code of Conduct¹⁹:

Welcome to Udzungwa Mountain National Park, one of the world's most important biodiversity Hot Spots due to it being a high source of endemism in the Eastern Arc Mountains. The support that you are giving through your primate tracking and park entrance fees provides the Park with the means to safeguard and protect this unique population of all endemic species in this wild and pristine environment. However, we need your further help to ensure the health and wellbeing of the wildlife in this park, as well as your personal safety. Please help us by observing the Code of Conduct and viewing regulations set out below.

General Conduct when undertaking Primate Tourism

It is important not to do anything that may antagonize the primates or any other animal. When in the presence of primates, don't talk unless absolutely necessary, avoid direct eye contact and don't use perfume, spit, or smoke. Sudden movements should also be avoided.

To minimize disturbance to the animals, viewing groups should be sure that they do not completely surround the animals. If the animals move closer than the minimum distance allowed (10 meters), don't make any sudden movements to increase the distance between you and them, but slowly back away. Never attempt to touch an animal.

Finally, the opportunity for you to view these rare endemic animals is a result of painstaking efforts by researchers over many years to habituate the primates to human presence.

Rules for viewing the primates

- ❖ Viewers must remain with and obey the TANAPA guide at all times whilst in the forest.
- ❖ Viewers should maintain a distance of at least 10 meters from the animals at all times.
- ❖ Do not use a camera flash when taking pictures of the animals. Visitors must switch these off before commencing to track the animals.
- ❖ Viewers must walk approximately 250 meters away from the animals before eating.
- ❖ Never leave personal belongings on the ground or where they may be accessible to primates. They can transmit disease.
- ❖ It is not permitted to track the primates if you are sick or have an infectious disease. This places the animals at major risk from disease transmission.
- ❖ Do not defecate in the forest. If it is unavoidable, move 250 meters away from the animals and completely bury all faeces and toilet paper in a deep hole.

Additional rules for filmmakers, photographer's researchers and guides

- ❖ The forest environment is fragile and vulnerable to disturbance, consequently there should be no cutting of vegetation off the trails; trail width is limited to 1 meter.
- ❖ A trowel must be carried at all times by TANAPA guides for use in the event of emergency defecation.

4.4.2 Cumulative impact of multiple water users of the Great Ruaha River

265. Water resources in the REGROW area depicts twofold trends: increased number dry days flow along Great Ruaha River and increased tension/conflicts related to water resources utilization amongst various users.

266. **Increasing number of dry day flows:** according to consultations with various stakeholders, the increasing dry flow days along Great Ruaha River (GRR) is a combination of

- i. Expanding upstream anthropogenic activities and unplanned agriculture (paddy farming in particular) in the headwaters leading to high levels of sedimentation and subsequently low flow volumes;
- ii. Fluctuating/unreliable precipitation in the catchment and associated climate change impacts on the river.

¹⁹ Source Mahale Mountain National Park GMP

267. Consequently, the river the drying up hence affecting majority of water users who depend on the river for proper functioning including wildlife survival, HEP generation and agricultural production. Inadequate water in the GRR forces wildlife animals to migrate outside RUNAPA in search of water and food. This situation in turn has increased poaching incidences since wild animals tend to come closer to the surrounding villages in search for water and pasture.
268. Based on Machibya and Mdemu (2005) the following aspects exacerbate the impact with river drying up:
- iii. NO sense of ownership: Operation and maintenance of ‘improved’ schemes is left to those that ‘came to improve it’ not us (local farmers)
 - iv. Replacing routine with neglect: Improved intakes made it ‘easier and less laborious’ for farmers which destroyed the traditional of ‘communal responsibility to maintain schemes’ and reduced cooperation between farmers to ensure the long term sustainable of the system
 - v. New financial burden: Improved schemes cost more to maintain and farmers are reluctant to contribute. Fixing permanent structures takes more than a hand tool (like in the past when earth channels collapsed), it needs purchase of materials.
 - vi. Centralized management creates more ‘leaks’ to the system: Central management means erratic water dispersal, difficult in collecting fees and no ownership in cleaning channel
269. **Increasing tension/conflicts related to water utilization** between conservation needs, irrigated rice farms farmers and pastoralists. Most of the irrigation schemes gearing paddy production in the targeted project area are undeveloped in terms of infrastructure hence contributing to poor water use efficiency and on-farm management. REGROW is to ensure coordinated efforts in the implementation of the Rufiji Basin Integrated Water Resource Management Plan, adhere to it's restrictions and complement the approved activities in the basin that have an impact on the water resource.

4.4.3 Community engagement

270. **Community engagement** is critical for effective delivery of REGROW. Perceptions of unfair/unrealistic ratios on benefit sharing with communities mainly income generated from tourism activities, even in WMAs which are managed by local communities can derail the project intentions.
271. The current mechanisms of WMAs and SCIP face some challenges including governance challenges in particular related to security and boundary management and the means these are managed in the existing programmes; apparent lack of equitable benefit sharing particularly for non-consumptive tourism products, lack of flexibility of the systems; inadequate participation by the beneficiaries in making decisions for revenue collection and determining the different proportions and the WMA benefit-sharing arrangement does not reflect the costs incurred by the communities.
272. Boundary tensions between RUNAPA and communities in Mbarali DC, the government and other key stakeholders are detrimental for **tourism development** in the area and need to be addressed to avoid a further/future conflicts and in favour of conservation. Likewise boundary conflicts between villages bordering MINAPA specifically the villages of Luhembe, Kitete-Msindasi, Kielezo, Kifinga, Mikumi, Mbamba, and Kidui may need some consideration.
273. Training of local communities on best ways they can promote/market the existing local/natural tourism attractions located outside the PAs is part of the REGROW strategy to promote tourism. The government can complement these efforts in boosting tourism along the southern circuit.

274. As part of the REGROW design, a Process Framework and a Public Participation and Disclosure Plan has been prepared to guide the implementing institutions during project implementation.

4.4.4 Natural disasters

275. Natural disasters, such as floods and droughts, can have a negative impact on the REGROW PDO and the desired outcomes of many interventions. For example it was reported that floods in 2016 in Nyaluu zone, MBOMIPA's encroached zone left residents stranded that had to be rescued by helicopter. Such an incidence can be detrimental to efforts being made to improve livelihoods under REGROW.

276. Another extreme weather event in the form of drought (2016/2017) in Morogoro Rural (Kisaki and Duthumi villages), Kilosa, Mvomero and Iringa Rural. Livestock were largely affected leading to encroachment in the adjacent PAs for grazing pasture and some pastoralists even felling trees (reported in Kisaki) so that their cattle can feed on the leaves. According to the district officials, the difficulty of accessing adequate pastures due to drought was also instrumental in changing the livelihood activities of some pastoralist households; supplementing alternative income generating activities such as establishing food vending areas, guest houses and lodges.

277. Furthermore, frequent flooding occurs in the lower part of Kilombero valley rendering some areas inaccessible causing some pastoralists and some farmers to vacate the area. Address of negative impacts from natural disasters are part of the rationale for REGROW. These disasters may influence:

- Water flows and management of volumes to support resource demands.
- Flooding in PAs e.g. in SGR some areas are prone to flooding hence disturbance on ecological and nutrients flow and hence need for a coping mechanism
- Wildfire control and establishment of ecological centres with focus on ecological monitoring e.g. invasive species management.
- Water catchments conservation is a critical concern in REGROW areas that are highly reflected with significant levels of degradation and encroachment activities.

4.4.5 Cummulative impact of increased tourism

278. Increased number of visitors in the targeted priority PAs can potentially lead to an influx of residents supplying goods and services to the tourism sector. This increase in population will increase the pressure to establish additional social services in the surrounding communities (markets, schools, water supply, energy, etc). This is a long term impact with a risk of increased land degradation surrounding the priority PAs, illegal exploitation of resources and land use conflicts. An effort is required to secure land use plans for all villages surrounding the priority PAs with required buffer zones to the PAs to prevent such risks and enable the village councils to plan required services as the population increases.

4.4.6 Involuntary resettlement

279. REGROW is not by design intending to cause or influence the need for resettlement. However to the extent REGROW may involve involuntary resettlement during the project lifetime, such

impacts related to involuntary resettlement and its management will be guided by a separate stand-alone Resettlement Policy Framework (RPF).

4.5 Project Alternatives

280. The alternatives for the REGROW project are considered either as no-project, component alternative and technical alternatives within components. The alternatives provide MNRT and the WB with information to guide decision-making in the implementation and setting of thresholds for potential impacts of REGROW.
281. **No Project Alternative:** The REGROW project is designed to mitigate environmental and socio-economic challenges in the PAs and rejuvenate the tourism industry in the Southern Circuit. Thus, should the project not go ahead then the status quo would remain in the absence of any other MNRT and or LGA efforts to alleviate the challenges.
282. If the No Project alternative is considered for each and any of the specific components, this will compromise the overall outcome of REGROW and may result in aggravation of some socio-economic impacts. For example if component one is not implemented, the attraction for tourists to the Southern Circuit will be limited and the improved areas from components 2 and 3 may not register significant positive impact. Likewise if the component 3 is not implemented, the wildlife numbers will be challenged in accessing water and be limited to viewing by tourists thus dissuading tourist numbers despite excellent infrastructure and facilities.
283. **Component implementation:** In the absence of having a defined implementation plan (confirmed schedule of activities) it is suggested that to minimise potential impacts from implementation of REGROW the components can be further designed and staggered in implementation. A case in point would be for example that the component two initiates prior to component one whereby competence for contract support for minor works is being built in communities surrounding the PAs to benefit from the works to be done under component one. Likewise improvement of the water resources under component three would best be implemented prior to component one to have enticed ecological restoration in the PAs that would benefit tourist attraction.
284. If the No-Project alternative is considered for any or all of the components, re-design of the components and engagement of partners may be necessary. Components two and three influence the PA and will benefit the PAs but in the absence of tourist traffic, the interventions will attract populations to the area that can influence encroachment of the PAs. Thus the implementation of these components will require consideration of scale to ensure that conservation of the PAs is sustained, whilst availing improved socio-economic services for the communities.
285. **Technical Alternatives:** REGROW interventions will consider use of the most appropriate green technologies and approaches in the implementation of the components. In approval of activities the appropriateness of the technology and description of the pros and cons of the same. The role of NEMC and the VPO-DoE is critical in ensuring that the most appropriate green technologies are implemented under REGROW.

5 PRINCIPLES GUIDING ACTION: SAFEGUARDS AND LEGISLATION

286. This ESMF provides guidelines for the implementation of REGROW in compliance with the WB Environmental and Social Safeguard Policies, National Legislation and complement international obligations of Tanzania.

5.1 World Bank Safeguard Policy Exclusions and Requirements for REGROW

287. In preparing this ESMF, a consideration of the type of interventions planned vis-à-vis the baseline conditions at potential target areas against the requirements of the Bank Safeguard policies, has led to REGROW being assigned Environmental Risk Assessment Category B and thus triggers the following World Bank Safeguard Policies. Subsequently, the same policies will apply to the sub-project activities funded under REGROW:

- a) Environmental Assessment (OP/BP 4.01);
- b) Natural Habitats (OP/BP 4.04);
- c) Pest Management (OP 4.09);
- d) Physical and Cultural Resources (OP.4.11)
- e) Involuntary Resettlement (OP/BP 4.12);
- f) Forests (OP/BP 4.36).

288. Notwithstanding, since the technical information and specific details of the interventions was not known at the time of preparation of REGROW, and since the geographic coverage is expected to be in the southern highlands at up-scaling stage, not all policies selected above may apply simultaneously.

289. Therefore, a complete description of the bank safeguards and their triggers for applicability can be found on the World Bank's official web site www.worldbank.org and are to be used as part of the Environmental and Social Management process if deemed necessary by the World Bank and MNRT in the implementation of REGROW.

5.1.1 Environmental Assessment Policy (OP 4.01)

290. The World Bank's safeguard policy OP 4.01 Environmental Assessment requires that all Bank-financed operations are screened for potential environmental and social impacts (a view shared by the Tanzania National EIA procedures and processes) to determine the extent and type of the EA process and thus help ensure that they are environmentally sound and sustainable and thus improve decision making. Thus OP 4.01 safeguard policy is triggered if REGROW project as whole or an intervention to be subsequently financed by the project is screened and found likely to have potential (adverse) social and environmental risks and impacts. The Environmental Assessment (EA) process covers impacts on the natural environment (air, water and land); human health and safety; physical cultural resources; and trans-boundary and global environmental aspects.

291. OP 4.01 emphasizes that the required environmental and social assessment be carried out on the basis of the screening results. In case the policy is triggered by a particular proposed intervention, OP 4.01 requires that prior to project approval, GOT must prepare environmental safeguard instruments whose breadth, depth and type of analysis is befitting to the type of subproject and the nature and scale of potential impacts it causes. The EA process can include an Environmental and Social Management Framework (ESMF), Environmental and Social Impact Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs).

292. Policy Exclusions for REGROW: REGROW will not finance interventions that propose to create significant destruction or degradation of critical natural habitats of any type (forests, wetlands, grasslands, aquatic ecosystems, etc.) or have significant negative socioeconomic and cultural impacts that cannot be cost-effectively avoided, minimized, mitigated and/or offset. In addition, REGROW will not finance any intervention or sub-project categorized as “A” following the World Bank safeguard policy OP4.01: “*A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.*”
293. Policy Requirements for REGROW: REGROW will implement a Safeguard Screening process for all proposed interventions. The purpose of this screening is to categorize interventions according to their potential environmental and social impacts. The Safeguard Screening will utilise a Project Screening Form (See Annex 9.3) to cover all safeguard policies and national requirements for environmental and social screening. If the results from the Screening finds that an ESIA is necessary for a REGROW intervention, MNRT will carry out an ESIA to ensure that activities related to the direct and indirect areas of influence of the intervention are clearly identified and all direct and indirect, as well as cumulative and potential residual impacts addressed.
294. All sub-components and/or sub-intervention activities under the main REGROW components must also meet the minimum requirements of this policy.

5.1.2 Natural Habitats Policy (OP 4.04)

295. This policy recognizes that the conservation of natural habitats is essential for long-term sustainable development. The WB, therefore, supports the protection, maintenance, and rehabilitation of natural habitats in its project financing, as well as policy dialogue and analytical work. The WB supports, and expects the Borrowers to apply a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development.
296. This policy is triggered by any project (including any infrastructure project under a sector investment or financial intermediary loan) with the potential to cause significant conversion (loss) or degradation of natural habitats whether directly (through construction) or indirectly (through human activities induced by the project).
297. Interventions requiring new / additional land are likely to encroach on neighbouring natural habitats including indigenous vegetation, land and water areas causing loss, partial replacement of sensitive habitats). Irrigation infrastructures and aquaculture infrastructure for instance invariably are established close to natural water sources especially lakes, rivers, wetlands /swamps. Local concerns with aquaculture in inland waters may include wastes handling, side effects of antibiotics, competition between farmed and wild-animals and the potential introduction of invasive plants and animal species or foreign pathogens.
298. The REGROW landscape area covers a UNESCO world heritage sites, important ecosystems and natural habitats with endemic species and interventions are intended to occur inside protected areas such as national parks and Game Reserves. The ESMF provides guidance on hoe environmental status of the affected habitats and the significance of the impacts should be addressed in the ESIA studies that need to be conducted.

299. **Policy Exclusions for REGROW**: REGROW will not finance or support:

- Interventions that propose to create or facilitate significant degradation and/or conversion of natural habitats of any type (forests, wetlands, grasslands, aquatic ecosystems, etc.) including those that are legally protected, officially proposed for protection, identified by authoritative sources for their high conservation value, or recognized as protected by traditional local communities;
- Interventions that support the introduction of species that can potentially become invasive and harmful to the environment, unless there is a mitigation plan to avoid this from happening; and
- Contravene major international and regional conventions on environmental issues.

300. **Policy Requirements for REGROW**: To protect natural habitats and in accordance with international agreements, MNRT endorses and applies the precautionary approach²⁰ for the interventions under REGROW. Thus, where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

301. All REGROW activities will be consistent with existing Priority PA management plans or other resource management strategies that are applicable at both national and local level.

302. In the development of an intervention and during the Safeguard Screening process, the MNRT is required to consider direct and indirect project-related impacts on biodiversity and ecosystem services, and identify any significant cumulative and/or residual impacts. This process will consider relevant threats to biodiversity and ecosystem services, especially focusing on habitat loss, degradation and fragmentation, alien invasive species, overexploitation, hydrological changes, nutrient loading, and pollution. It will also take into account the differing values attached to biodiversity and ecosystem services by affected communities and, where appropriate, other stakeholders across the potentially affected landscape. Table 5-1 indicates exclusion zones for development in the REGROW footprint.

Table 5-1 No Go Zones in the REGROW Area

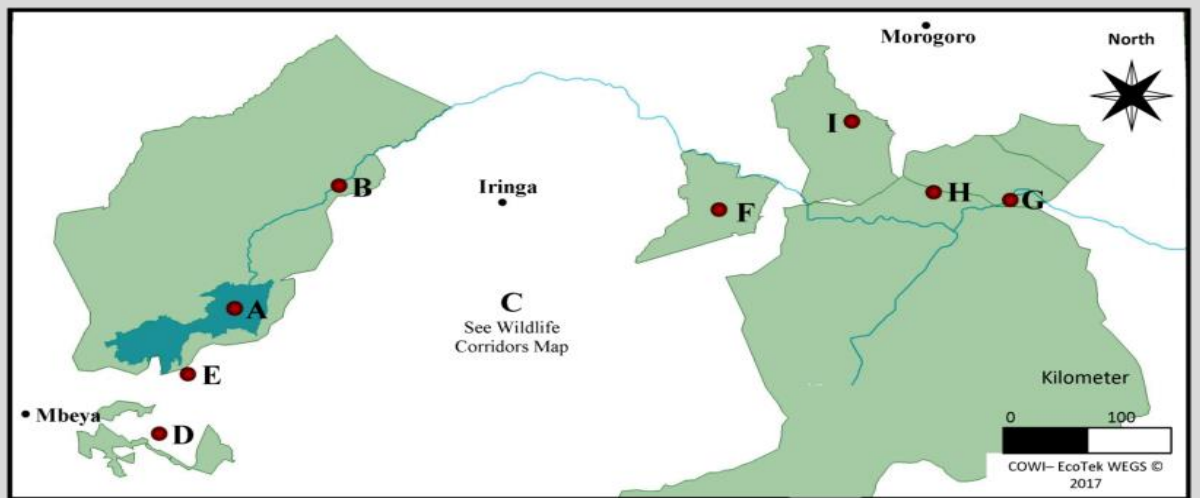
Protecting Biodiversity and ESA in the REGROW Landscape: No Go Zones	
Water body Protection Zones	Water bodies of Importance in REGROW Landscape related to interventions: Ruaha River and Husman Bridge Usangu Wetlands and proposed weir at N’Giriama or other sites Selous Oxbow Lakes Rufiji River
	River Protection Buffer Zone No permanent buildings within 60 meter from high water level of any river or lake (Ranger post, youth hostel, entry gates and VIC). Of particular note is the Mtemere VIC which all permanent buildings including parking areas to be more than 60 meters from "NO GO ZONE".
	River/Lake Embankment Protection Zone No roads within > 8 meter of unstable river embankment Viewing platforms and road alignments possible if prior investigation as to embankment stability is undertaken Avoid non catchment road alignments

²⁰Principle 15 of the 1992 Rio Declaration on Environment and Development (Rio Declaration)

	<p>Game viewing tracks to be no closer than 8 meter from any unstable river embankment</p> <p>Viewpoint platforms (walk walk out access) allowed in River embankment protection zone but PROHIBITED in "NO GO ZONES" of designated unstable river embankments.</p> <p>Any existing game viewing tracks within a river embankment protection zone should be realigned to safer stable ground; > 8 meter from any NO GO ZONE.</p>
General Road Intervention Guideline	Catchment road alignments favoured over lowland transects
	Slopes > 7%
Habitats of importance for endemic species	Doma North Road Extension: Avoid areas of dense abundance or catena of Mpingo <i>Dalbergia melanoxylon</i> in MINAPA
	Mwanihana Forest. It should be noted that other important forest that host endemic species outside the TPAs of REGROW are in need of better protection as indicated in the Map.
	Endemism: Avoid interventions of altitudes of above 600 m for Mwanihana and 1400 for Luhembo Forest.
	Draft and institute Primate Tourism Protocol (PTP) in UMNP

303. In areas of natural habitat, mitigation measures will be designed to achieve no net loss of biodiversity and/or ecosystem services where feasible, following the mitigation hierarchy described in OP 4.01. REGROW is in essence a mitigation project that aims to ensure sustainable conservation and thus interventions for the biodiversity hotspots (See Map 5-1) in all four PAs have been designed (See Map 5-2).

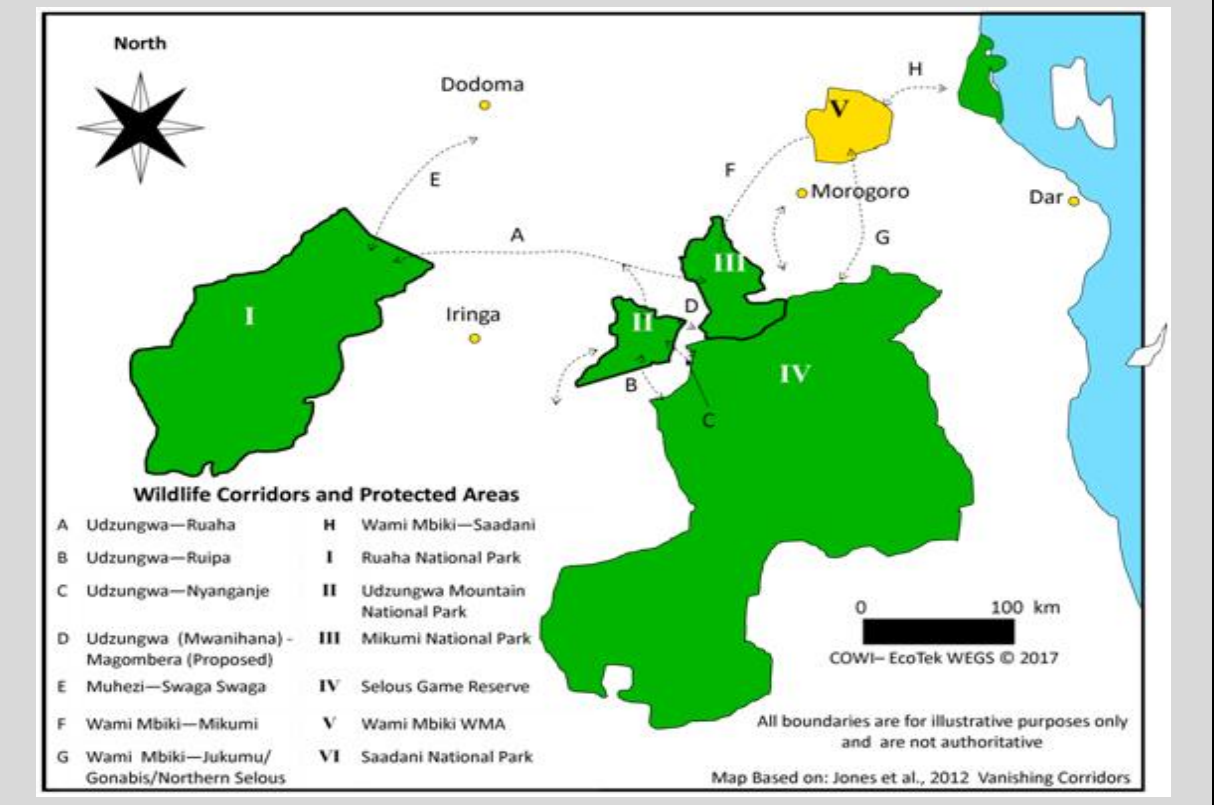
Map 5-1 Hotspots in the REGROW footprint.



A- Usangu wetlands; B- Ruaha River; C-Wildlife Corridors; D-Catchment forest and Nature Reserves outside PA; E-RUNAPA boundary villages; F-EAM-Endemism; G-Rufiji River Basin and Oxbow lakes; H-Rhino and wild dog area; I-Mpingo

To gauge information on the biodiversity hotspots and inform the GMPs, more researches and studies on ecological systems, landscape and water resources would benefit natural resources management. Furthermore, adaptation and implementation of World heritage guidelines such as natural/world heritage impact assessment for PAs like the Selous Game Reserve are recommended.

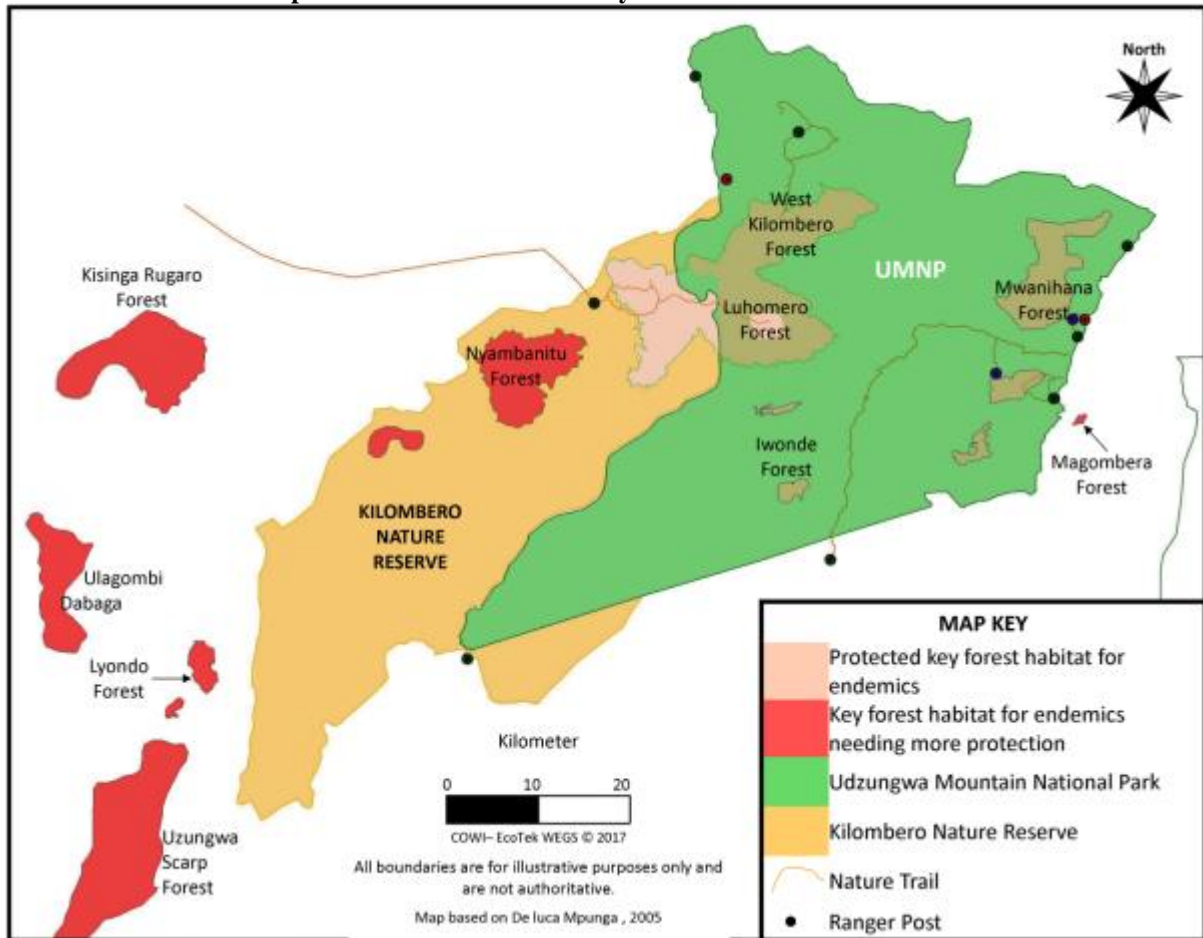
Map 5-2 Wildlife Corridors in and Around the REGROW Landscape area



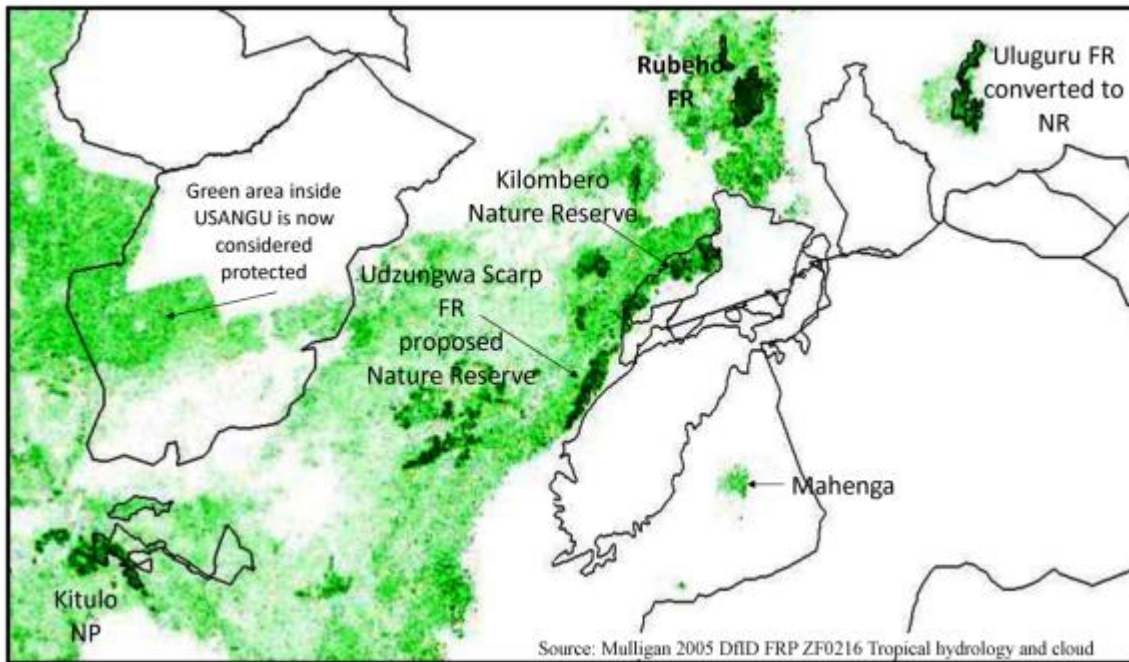
304. ESMPs that identify a set of mitigation, management, monitoring and institutional actions to be implemented including safeguard standards related to the Protection of Natural Habitats and Physical Cultural Resources will be developed prior to approval for interventions that trigger this policy.

305. To reduce forest degradation and provide incentives for local communities to change their habits that REGROW Component 2 is developing interventions. Forests that are considered to be vulnerable and require various interventions to protect them further are presented in Map 5-3.

Map 5-3 Protection Status of Key forest habitats for Endemics



Map 5-4 Cloud Forest in REGROW Landscape



5.1.3 Physical Cultural Resources Policy OP 4.11)

306. The WB assists in the protection and enhancement of cultural properties encountered in Bank-financed projects, rather than leaving that protection to chance. In some cases, the project is best relocated in order that sites and structures can be preserved, studied, and restored intact in situ. Often, scientific study, selective salvage, and museum preservation before destruction is all that is necessary. Most such projects should include the training and strengthening of institutions entrusted with safeguarding a nation's cultural patrimony.

307. REGROW future expansion may influence the Kalenga area which has cultural resources and could be subject to chance findings. Selous is a UNESCO heritage site and the unique characteristics of designated sites are pertinent.

308. **Policy Exclusions for REGROW:** REGROW will not support any activity that involves the removal, alteration or disturbance of any physical cultural resources.

309. **Policy Requirements for REGROW:** REGROW will analyse feasible alternatives including site selection and project design in order to prevent, minimize or compensate for adverse impacts and enhance positive impacts on physical cultural resources. If cultural resources are encountered in the REGROW areas, measures should be put in place to ensure that they are identified and that adverse effects on them are avoided. Qualified specialists may be required to conduct field-based surveys, if necessary.

310. If during implementation of any REGROW intervention a chance finding (could be a physical and or cultural artefact) is encountered the policy is triggered and the Chance find procedures in Appendix 4 is to be followed. In addition the Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (2011) will be used to ensure that the intervention is acceptable within the framework of UNESCO World Heritage. Any intervention within the SGR will be registered with the Division of Antiquities to ensure compliance to these guidelines in addition to the National EIA and EA regulations (20015) detailing an EMP that

identifies a set of mitigation, management, monitoring and institutional actions to be implemented to preserve the chance finding.

311. Within RUNAPA there are several cultural/archaeological resources but their status as well as the extent of use is not well known and documented. The indigenous people especially the Sangu and Hehe are known for their historical and traditional beliefs and customs. There are some cultural sites in the Usangu wetland (N’Giriama ritual site) that are still used by the local people living adjacent the park. (RUNAPA GMP, 2009).
312. Other cultural, ritual and historical sites inside the park include Mapenza graveyards, Telekimboga, Kimilamatonge, Ganga la Mafunyo, Hussman’s Bridge, Mkwawa spring, Ikili paintings and Nyanywa ritual site. The documentation and dissemination of information about the sites would promote cultural tourism. Cultural and historical sites inside the park include Idinda, Mkwawa springs, Nyanywa, Mapenza (grave/ritual site), Hussman’s Bridge, Ganga la Mafunyo and N’Giriama(Usangu). Cultural and historical sites outside the park include Kalenga, Lugalo, Isimila, Mkwawa (Nyamahana) and Daraja la Mungu (Kikongoma) and Gangilonga. However, more sites will be identified after thorough studies in the newly added Usangu area. (RUNAPA GMP, 2009).

5.1.4 Pest Management Policy (OP 4.09)

313. The WB supports integrated pest management (IPM) and the safe use of agricultural pesticides and ensures that health and environmental hazards associated with pesticides are minimized. The procurement of pesticides in a WB-financed project is contingent on an assessment of the nature and degree of associated risk, taking into account the proposed use and the intended user.
314. The policy on Pest Management OP 4.09 is triggered if procurement of pesticides is envisaged (either directly through the project or indirectly through on-lending); if the project may affect pest management in a way that harm could be done, even though the project is not envisaged to procure pesticides. This includes projects that may lead to substantially increased pesticide use and subsequent increase in health and environmental risks; and projects that may maintain or expand present pest management practices that are unsustainable.
315. The policy on Pest Management OP 4.09 requires the use of various means to assess pest management in the country including: economic and sector work, sectoral or project -specific environmental assessments, participatory IPM assessments, and adjustment or investment projects and components aimed specifically at supporting the adoption and use of IPM. The objective of OP 4.09 policy on Pest Management is to promote the use of biological or environmental control methods and to reduce reliance on synthetic chemical pesticides.
316. In WB-financed agriculture operations, pest populations are normally controlled through IPM approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. Pest Management Policy (OP 4.09) requires that all projects involving use of pesticides be supported/guided by an Integrated Pest Management Plan (IPMP).
317. MNRT intends to build capacity for the communities through Farmer Field Schools (FFS) by bringing together a group of farmers to engage in a process of hands-on, field-based learning over a season/production cycle. The crop-based FFS, activities will cover ‘seed to seed.’ The emphasis of the basic learning cycle is to strengthen farmers’ skills and knowledge for critical analysis and to test and validate new practices to make informed decisions on field management including IPM.

318. **Policy Exclusion for REGROW**: MNRT will not, under any foreseeable circumstances, finance the purchase of any agricultural inputs. However, as the targeted/significant stakeholders in this program are farmers, who during the implementation cycle of the agricultural production subprojects financed under REGROW, will, independently continue to require the use of inputs, the provisions of OP4.09 are triggered to ensure that best practice methodologies are included as part of the farmer empowerment activities of REGROW.
319. Component 3 includes activities to improve the efficiency of agricultural practices and water conservation in the Great Ruaha catchment, and will include support through farmer's field schools. In this regard, the project might involve or inadvertently promote the use of pesticides during the implementation of those activities. Therefore, the policy is being triggered as a precaution, and specific instructions will be included as part of the ESMF to promote best practices in case of pesticide use or handling in the project area.
320. MNRT does not allow the use of pesticides that are unlawful under national or international laws. MNRT does not allow the procurement and/or use of pesticides and other chemicals specified as persistent organic pollutants under the Stockholm Convention²¹ nor the procurement or use of products in World Health Organization (WHO) Classes IA and IB or Class II5, if:
- a) Tanzania lacks restrictions on their distribution and use; or
 - b) They are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.
321. MNRT will follow the recommendations and minimum standards as described in the United Nations Food and Agriculture Organization (FAO) International Code of Conduct on the Distribution and Use of Pesticides 6 (Rome 2010) and its associated technical guidelines. The Tanzania Tropical Pesticides Research Institute and the Tanzania Food and Drug Authority are national bodies that regulate pesticide use in the country and together with the Government Chemist serve to provide the public with information on safe use of pesticides whilst controlling prohibited pesticides.
322. **Policy Requirement for REGROW**: REGROW may support investments related to agricultural extension services or alien invasive species management.
323. For interventions (particularly under components 2&3) that trigger this policy, MNRT will develop a Pest Management Plan (PMP) that describes measures to be implemented to avoid or minimize the negative impacts that the control and removal of alien invasive species and the use of pesticides, insecticides, and herbicides may have on the environment and the people to be affected by these activities.
324. To ensure that REGROW, is properly managed the existing Integrated Pest Management Plan (IPMP) prepared for ASDP²²-1 will be used concurrently with this ESMF to address the needs of OP4.09. It will be the duty of the project implementers to identify all pesticides used in the schemes that may cause harmful effect to the environment and human health (See Annex 9). Inclusion has to be made of mitigation measures where there are adverse impacts.

²¹<http://chm.pops.int>

²² In 2006, the GoT through the Ministry of Agriculture, Food Security and Cooperatives (MAFC), established a 15-years program known as the Agriculture Sector Development Program (ASDP) to serve as an overall framework and operational process for implementing the Agricultural Sector Development Strategy (ASDS)

5.1.5 Involuntary Resettlement Policy (OP 4.12)

325. This policy would be triggered when MNRT carries out interventions in REGROW areas that cause the involuntary taking of land and other assets resulting in: (a) relocation or loss of shelter, (b) loss of assets or access to assets (c) loss of income sources or means of livelihood, whether or not the affected persons must move to another location.
326. REGROW interventions related to construction are expected to occur mainly within park boundaries, and therefore is unlikely to trigger the Involuntary Resettlement Policy. If, however, land acquisition is needed outside of park boundaries, the project will have to follow the provisions set out in the Resettlement Policy Framework (RPF) in the preparation of a Resettlement Action Plan which will be implemented prior to project activities impacting the identified assets.
327. **Policy Requirements for REGROW:** MNRT will support voluntary resettlement as an exceptional measure where consent of affected communities has been obtained and documented.
328. Should REGROW particularly components 2 and 3 involve involuntary displacement of households and businesses, a Resettlement (Action) Framework (RPF) and Process Framework (PF) developed under REGROW will be used by MNRT to effect resettlement voluntary and or involuntary.
329. MNRT will design, document and disclose a participatory process for preparing a Resettlement Action Plan (RAP) before implementation of Resettlement begins.
330. Any RAP developed will use WB best practise approaches and describe the project activities, establish eligibility criteria for eligible persons/communities, and disclose efforts made to minimize displacement, as well as describe results from census and socioeconomic surveys, all relevant local laws and customary rights that apply, resettlement sites, income/livelihood restoration, institutional arrangements, implementation schedule, stakeholders participation and consultation, accountability and grievance mechanisms, monitoring and evaluation plans, along with costs, budgets and sources of funding.

5.1.6 Forests Policy (OP 4.36)

331. The WB assists borrowers with forest restoration activities that maintain or enhance biodiversity and ecosystem functionality. The WB also assists borrowers with the establishment and sustainable management of environmentally appropriate, socially beneficial, and economically viable forest plantations to help meet growing demands for forest goods and services.
332. REGROW is likely to have direct and or indirect beneficial impacts on Forest Reserves within and surrounding UMNP.
333. **Policy Exclusions for REGROW:** REGROW will not support any activity that involves the deforestation or degradation of any forest resources.
334. Implementation of selected watershed management activities may happen in forested areas, or may promote the reforestation of some areas or planting of woodlots as catchment protection measures for erosion control. The ESIA and ESMP will provide the analysis of potential impacts and define mitigation measures to address any such adverse impacts.

335. **Policy Requirements for REGROW:** REGROW will analyse feasible alternatives including site selection and project design in order to prevent, minimize or compensate for adverse impacts and enhance positive impacts on forest resources.

336. The forest resources in the REGROW areas (particularly in UMNP), direct measures should be put in place to ensure that adverse effects on them are avoided. Qualified specialists may be required to conduct field-based surveys, if necessary.

337. The policy is triggered so that ESMPs that identify a set of mitigation, management, monitoring and institutional actions to be implemented are developed for interventions that are considered to impact the forests. Such forests in the REGROW footprint include Magombera and the Udzungwa scarp which have management plans that engage communities who benefit livelihood activities from them and thus the ESMPs will serve to guide on how a beneficial balance is ensured between sustainable use and conservation.

5.2 Relevant International and National policies and Regulatory Framework

338. The REGROW interventions will be implemented within the context of national and international legal and regulatory frameworks including development strategies. The Table 5-2 presents the existing national and internal frameworks and instruments that MNRT will adhere to in the implementation of REGROW. Appendix 5 provides details of how each policy, legislation, regulation and agreements relate to the project.

Table 5-2 National Policies and Legislation applicable to REGROW PDO

Name of policy/legislation	Applicable sections of Policy/ Legislation	Applicable REGROW component
Policies		
National Environmental Policy, 1997	Article 57 and 58	Component 1, 2, 3
National Tourism Policy, 1999	Article 5.2	Component 1
	Article 5.9	Component 2
Tanzania Wildlife Policy, 1998	Articles 2.1, 2.7 and 3.3.1	Component 1
	Article 3.3.15	Component 2
Forest Policy, 1998	Articles 4.3.4	Component 1
National Land Policy, 1997	Article 6.10.1	Component 1, 2, 3
	Article 7.1.1	Component 1, 2
	Article 7.6.1	Component 3
The National Irrigation Policy 2009	Article 2.4.8.1	Component 3
National Transport Policy, 2003	Article 3.8.1, 6.2 – 6.4	Component 1
National Agriculture Policy, 2003	Article 3.14	Component 2
	Article 3.25.3	Component 3
National Water Policy, 2002	Article 3.3	Component 1, 2, 3
	Article 4.1	Component 2
	Articles 2.8 and 2.9	Component 3
Construction Industry Policy, 2003	Article 8.2.2	Component 1
National Investment Policy, 1996	Article 5(d)	Component 1, 3
Acts		
The Environmental Management Act No 20 of 2004	Sections 49, 50 – 58	Component 1 and 2
The National Parks Act No 11 of 2003	Section 25	Component 1
The Hotels Act No. 105 of 2006	Section 10 and 11	Component 1 and 2
Wildlife Conservation Act 2013	Section 22(7)	Component 1
	Section. 22 (8) and Section 37	Component 2
The Forest Act No 10 of 2002	Section 18	Component 1 and 3
The Employment and Labour Relations Act, GN No. 6 of 2004	Part II and Part III of the Act	Component 1, 2, 3

Name of policy/legislation	Applicable sections of Policy/ Legislation	Applicable REGROW component
The Occupational Health and Safety Act No 5 of 2003	Part IV, V and VI	Component 1, 2, 3
National Land Use Planning Commission Act No 3 of 1984	Section 4(d)	Component 2 and 3
The National Land Act No 4 of 1999	Section 6	Component 1, 2, 3
The Village Land Act No 5 of 1999	Section 7 and 8	Component 2 and 3
The Water Resources Management Act No. 11 of 2009	Section 23	Component 3
The National Irrigation Act No. 4 of 2013	Section 44, 45 and 50	Component 3
Energy and Water Utilities Regulatory Authority Act No 11 of 2002	Section 17	Component 3
Water Supply and Sanitation Act No 12 of 2009	Section 20 and 29	Component 3
Tourism Act No. 11 of 2008	Section 4 and 21	Component 1 and 3
HIV and AIDS (Prevention and Control) Act No 28 of 2008	Section 9 and 33	Component 1, 2 and 3
Public Health Act No 1 of 2009	Section 168 and 169	Component 1, 2 and 3
Occupational Health and Safety Act No. 5 of 2003	Sections 60, 61 and 63	Component 1 and 2
The Roads Act No 13 of 2007	Sections 15 and 16	Component 1

339. In addition to the National regulatory framework, Tanzania implements the The National Biodiversity Strategy and Action Plan (NBSAP) 2015 – 2020 to ensure sustainable use of its natural resources. The NBSAP envisions by 2020, biodiversity and ecosystems in Tanzania are well protected, restored and used sustainably, with functional ecosystems to deliver sustainable intrinsic benefits for socio-economic development.

340. Monitoring and evaluation of REGROW impact will serve to inform on the status of Tanzania's achievement of the NBSAP strategic goals which emanate from the Aichi 2020 Biodiversity Targets and the Global Biodiversity Strategy (Table 5-3).

Table 5-3 Tanzania Biodiversity Targets for 2020 of relevance to REGROW

Ref.	Targets for Tanzania	REGROW
Target 1	By 2020, at least 60% of the population is aware of the importance of biodiversity and its impact on human wellbeing and socioeconomic development of the country.	Component 2
Target 3	By 2020, incentives harmful to biodiversity are eliminated, phased out or reformed and positive incentives conservation and sustainable use of biodiversity are developed and applied.	Component 3
Target 4	By 2020 investments in systems of production and consumption based on sustainable eco-friendly practices increased.	Component 2
Target 5	By 2020, the rate of degradation and fragmentation of ecosystems and the loss of habitats is significantly reduced.	Component 1
Target 8	By 2020, all forms of pollution from water and land-based activities are brought to levels that are non-detrimental to biodiversity ecosystem functions.	Component 3
Target 9	By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to prevent their introduction and establishment.	Component 1
Target 10	By 2020, the multiple anthropogenic pressure on coral reef, and vulnerable ecosystems impacted by climatic change are minimized.	Component 1 and 3
Target 12	By 2020, species that require special attention are identified and managed for long-term sustainability in a nationwide biodiversity assessment.	UMNP PTP
Target 14	By 2020, ecosystems that provide essential services, related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, local and vulnerable communities.	Component 3

Ref.	Targets for Tanzania	REGROW
Target 15	By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, thereby contributing to climate change mitigation and adaptation and to combating desertification.	Component 3
Target 16	By 2020, Fair and Equitable Sharing of Benefits from utilization of biodiversity resource is in force and operational, consistent with national and international legislation.	Component 2

5.3 International Agreements

5.3.1 Convention concerning the Protection of the World Cultural and Natural Heritage Treaty 1972

341. The World Heritage Convention aims to promote cooperation among nations to protect heritage around the world that is of such outstanding universal value that its conservation is important for current and future generations.

342. States that are parties to the Convention agree to identify, protect, conserve, and present World Heritage properties. States recognize that the identification and safeguarding of heritage located in their territory is primarily their responsibility. They agree to do all they can with their own resources to protect their World Heritage properties.

343. In 1982 the Selous Game Reserve was accorded a 'World Heritage Site' under the provisions of the Convention. Three other sites in Tanzania have been inscribed as World Heritage Sites, namely the Ngorongoro Conservation Area, and Serengeti and Kilimanjaro National Parks. Selous was nominated as World Heritage Site. The Selous Game Reserve (Selous GR) has been inscribed on the World Heritage List because it fulfils the required criteria and conditions given above. With an area of 50,000 km² the Selous GR is the largest uninhabited protected area in Africa, and it provides protection to an immense assemblage of plant and animal species. (SGR GMP 2005-2015)

344. Unfortunately, on 8 June 2014, the World Heritage Committee meeting in Doha (Qatar) inscribed the Selous Game Reserve (United Republic of Tanzania) on the List of World Heritage in Danger (Decision 38 COM 7B.95, adopted at its 38th session (Doha, 2014) because widespread poaching is decimating wildlife populations on the property. The Committee called on the international community, including ivory transit and destination countries, to support Tanzania in the fight against this criminal activity. (World Heritage Site UNESCO website.)

345. In response to this change in status, and GoT commitment to the convention, REGROW will be one of the actions to prove that they are making efforts to control poaching, and thus attempt to convince the UNESCO authorities to take Selous off the 'threatened status. AS per multiple communication with Aenea Saanya the Selous rep within REGROW MNRT team.

346. REGROW will play a role in fulfilling the country's obligation to protecting and conserving this natural heritage and have a cumulative affect, among other initiatives, to remove the "Danger" status of the game reserve, by undertaking appropriate legal, scientific, technical, administrative and financial measures necessary for this purpose.

5.3.2 Ramsar Convention 1971

347. The Convention's Mission: "Conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world" is adopted by Tanzania. The country has designated five Ramsar sites but uses the principle of the convention for all its wetlands.

348. The Convention uses a broad definition of the types of wetlands covered in its mission, including swamps and marshes, lakes and rivers, wet grasslands and peatlands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans.

349. REGROW will take part in fulfilling the mission of the convention by supporting investments and technical assistance to promote the integrated management of landscapes within the Great Ruaha River basin, including the Ihefu/Usangu wetlands and drainage area. The expected outcome include preparation of watershed management plans as well as improved soil and watershed management measures.

5.3.3 The Convention on the Conservation of Migratory Species of Wild Animals (CMS), 1979

350. The Convention on the Conservation of Migratory Species of Wild Animals (CMS also known as the Bonn Convention) aims to conserve terrestrial, marine and avian migratory species throughout their range. It is one of a small number of intergovernmental treaties concerned with the conservation of wildlife and wildlife habitats on a global scale.

351. Parties to CMS work together to conserve migratory species and their habitats by providing strict protection for the endangered migratory species listed in Appendix I of the Convention. CMS has a unique role to play in focusing attention on and addressing the conservation needs of the 76 endangered species presently listed in Appendix I of the Convention.

352. The implementation of REGROW project objectives abides with the condition of the convention on protection and restoration of habitats (sites) for migratory species, which are targeted National Parks, Game Reserves as well as Wildlife Management areas.

6 IMPLEMENTATION AND MONITORING

6.1 Institutional Arrangements for Safeguards Management under the Project

353. MNRT will make use of the government structure specifically the Local Government Authority (LGA) set up as it provides administrative links to communities through Central Government for implementation of REGROW. The Tanzanian Local Government system is based on political devolution and decentralization of functional responsibilities, powers and resources from central government to local government and from higher levels (Region and District) of local government to lower levels (Ward and Village) of local government and overall empower the people to have ultimate control over their welfare as is founded in the Constitution of the United Republic of Tanzania (URT).

354. The Constitution of Tanzania stipulates that LGAs shall be established in each region, district, urban area and village of the United Republic, which shall be of the type and designation, prescribed by a series of laws enacted by Parliament (See Chapter 5). For administrative and electoral purposes, all urban authorities are divided into wards, and neighbourhoods (mitaa), while all district (rural) authorities are also divided into wards, villages and hamlets (sub villages) (See Table 6-1). The enactment of a set of local government Acts in 1982 and some revisions introduced in 1984 and 1991 result in the current system of local government. The elected and political appointments are accountable to the people and the administrative appointees and administrative staff support the political appointees. In addition at each LGA level, REGROW will use the various standing committees that serve in an advisory role support the LGA system (See committee roles and responsibilities in Appendix 6).

Table 6-1 Elected and Administrative Set up of the Government of Tanzania

		Level	Elected	Political Appointees	Administrative Appointees	Administrative Staff
Central Government		National	President Members of parliament	Prime Minister Ministers Special seats	Permanent Secretaries	Technical and supporting staff
		Regional		Regional Commissioner	Regional Administrative Secretary	Technical and supporting staff
	Local Government Authority (LGA)	District/council	Councillors Council Chairs or Mayors	District Commissioner 3 councillors (appointed by LGA Minister)	District Administrative Secretary	Sectoral staff under – District Council headed by District Executive Director
		Division	NONE	Division Secretary appointed by Regional Commissioner	NONE	Supporting staff
		Ward	Ward Councillor	Some Ward Development Council Some special seat – (gender, disability) councillors	Ward Executive Officer	Sectoral staff
		Village/Neighbourhood 'Mtaa'	Village Chair Village council	NONE	Village Executive Officer	Facility/extension staff

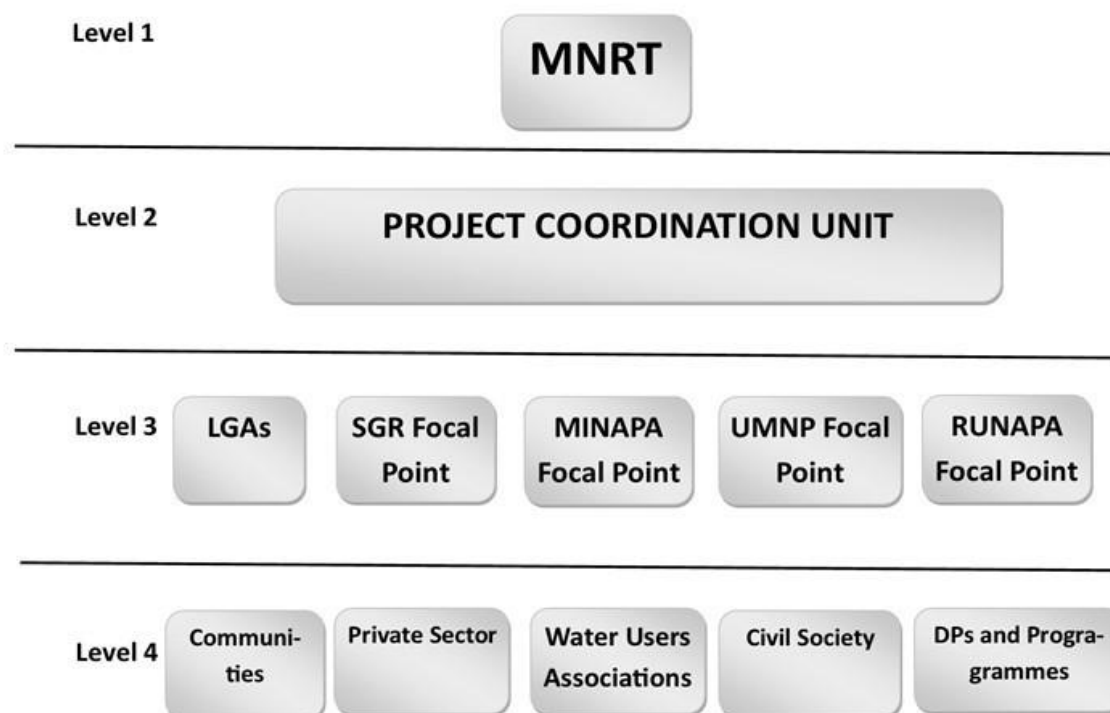
Source REPOA 2008

355. Four levels of actors are envisioned for REGROW (See Figure 6-1 below). At **level one** MNRT has the primary responsibility for REGROW, accounting for and disbursing the finances and collating efforts of ministerial departments and agencies, regulatory authorities, regional

secretariats, LGAs, private sector, research institutes, civil society and communities through a Monitoring and Evaluation (M&E) process detailed in section 6.3. The coordination role of MNRT (implemented at the level of Ministry management – under the Permanent Secretary) is supported by policy and compliance guidance and approval for Environmental Assessments from the Ministry of Environment, Division of Environment in the Vice President’s office through the National Environmental Management Council (NEMC). MNRT’s role is to ensure national conservation policy and strategy and contractual agreements between the government of Tanzania and the WB. MNRT will report on total project outcomes and impact. The World Bank (WB) as the lender will provide oversight for implementation of REGROW throughout the lifespan of the project.

356. **Level two** of the project is more technical, responsible for detailed design (drawing up terms of reference and commissioning works) of the different interventions and oversight of implementation. MNRT will establish a Project Coordination Unit (PCU). NEMC will support the PCU to ensure that the scope of environmental and social assessment for each intervention is in accordance with the National regulations. NEMC will also conduct the necessary review and recommend approval of the environmental impact assessments submitted by MNRT under REGROW. Accountability and reporting at level two is to MNRT.
357. **Level three** are the main facilitators of the REGROW interventions. Each PA will have a focal point responsible for REGROW as part of their regular responsibilities. The focal points will be a part of the PA management and or have a direct reporting line to management and the PA M&E unit (See section 6.3). The PA focal points will ensure links to the communities through Local Government Authority (LGA) sittings from Regional to Village level (See Table 6-1). Dependent on the intervention the appropriate technical/ administrative staff (ecology, community development, infrastructure etc.) from the PA will represent REGROW at a particular sitting. Level three of the implementation scheme is also responsible for the grievance redress mechanism (See section 6.2.7). Reporting at this level is channelled through the PA management to the PCU at level two and finally to MNRT. The Focal Points of the four PAs will link to the respective administrative appointees of the LGAs from village to district level and conduct consultation with the communities and report the same to PA management.
358. **Level four** is a diverse and overlapping group that includes communities adjacent to the PAs (including the WMAs), private sector (investors, contractors and WMAs), civil society (local, national and international Non-governmental organisations) and other actors (development partners and programmes) in the REGROW area. This level will have different reporting points as contractors will report to the PCU and or respective PA management dependent on the intervention. The communities will report through the respective LGA structure, civil society and Development partners will report to their governing structures and inform GoT. For specific construction work for which Construction Contractors are engaged, these Contractors will be required to prepare a construction-specific ESMP, which will be reviewed, approved and included as part of their contract obligations.
359. Notably for effectiveness, the designs and strategies set up at level one and two will influence the delivery by level three that affect outcomes at level four and this is to be captured by the M&E described in Section 6.3.

Figure 6-1 Levels of Involvement in the REGROW project



6.2 Environmental and Social Management tools and procedures

360. To compliment the Preoject Implementation plan and ensure that REGROW interventions have a mitigation affect on both existing impacts and those impacts that may be caused due to implementation activities, the following sections outlines the step to be taken, namely:

- a. **Environmental and Social Screening**
- b. **Environmental and Social Management Plans**
- c. **Environmental and Social Impact Assessment**

361. These will be tools for the REGROW management team and implementation partners (TANAPA, TAWA, MoWI/NIC and LGA) to ensure and environmentally sound and sociably responsible project outcomes.

6.2.1 Step 1 Environmental and Social Screening

362. The REGROW PCU will undertake initial screening to determine if environmental and social safeguards might be triggered by taking the following steps:

- i. Identify the intervention from REGROW Implementation Plan and compile its conceptual/preliminary design documents. Apply the ESMF screening procedure by using the screening checklist presented below. The screening tool will inform if the intervention is triggers any of the WB safeguards. If it is eligibile and does not trigger any of the safeguards then the project is a green flag to proceed. It triggers any of the safeguards by answering 'yes' to any of the questions then refer to the national legislative and WB policy requiremets indicated in chapter 5, apply in the design and proceed to step 2.

Box 6-1 Safeguard Questions

	Yes	No
Answer the following questions, will the project:		
1. Will the project cause or facilitate any significant loss or degradation to natural habitats, and their associated biodiversity and ecosystem functions/services (temporary or permanently) that require additional management measures to be in place to avoid, minimize, mitigate and/or offset??		
2. Will the project have negative socioeconomic and cultural impacts (temporary or permanently) that require additional management measures to be in place to avoid, minimize, mitigate and/or offset?		
3. Propose to create or facilitate significant degradation and/or conversion of natural habitats of any type including those that are legally protected, officially proposed for protection, identified by authoritative sources for their high conservation value, or recognized as protected by traditional local communities?		
4. Propose to carry out unsustainable harvesting of natural resources -animals, plants, timber and/or non-timber forest products (NTFPs)- or the establishment of forest plantations in critical natural habitats?		
5. Propose the introduction of exotic species that can certainly become invasive and harmful to the environment, for which is not possible to implement a mitigation plan?		
6. Contravene major international and regional conventions on environmental issues?		
7. Involve involuntary resettlement, land acquisition, and/or the taking of shelter and other assets belonging to local communities or individuals?		
8. Does the project plan to implement activities related to agricultural extension services including the use of approved pesticides (including insecticides and herbicides) whether lawful or unlawful under national or international laws?		
9. Involve the removal, alteration or disturbance of any physical cultural resources?		
If YES is the answer to any of the questions above, the project requires additional environmental and social management actions – proceed to step 2		
If NO is the answer to all of the questions above, please proceed with approval of the intervention with MNRT		

6.2.2 Step 2 Preliminary assessment to categorise the intervention

- ii. Table 6-2 The PCU is to use the rating categories listed in Table 6-2 as a preliminary assessment of the impacts of the individual interventions. The result of the preliminary assessment of the individual interventions will indicate if:
- a) Impacts are addressed in existing Standard Operating Procedures (SOPs) that are part of TANAPA's/TAWA's Management plans for the specific PA (green flag);
 - b) Impacts can be encompassed by means of an Environmental and Social Management Plan (ESMP) (indicated in Section 6.2.2 and detailed in Appendix 8) (Yellow flag);
 - c) There is insufficient information to make an assessment of either a or b above and further studies or surveys are necessary (red flag); or
 - d) A full Environmental and Social Impact Assessment (ESIA) may be needed.

Table 6-2 Rating Categories for Preliminary Screening Environmental and Social Assessment of REGROW Interventions

Environmental and Social Assessment Rating-Red-Amber-Green Flag	
Green Flag	Intervention is part of Standard Operating Procedures with known impacts and good application of mitigate measures (Best Management Practices)
	Intervention mitigates an existing negative impact and will provide sufficient mitigation if applied.
	Intervention impact is of low significance and there is existing capacity to managed mitigation
Yellow Flag	Intervention mitigates existing negative impact and will provide sufficient mitigation if applied but further investigation, surveys or designs are required prior to its implementation
	Intervention mitigates existing negative impact and will provide sufficient mitigation however ESMP should be applied to ensure compliance with National and International laws and regulations
	Intervention is part of Standard Operating Procedures with known impacts and good application of mitigate measures (Best management Practices) but is proposed to be located in a Environmentally Sensitive Area (ESA) or has potential to impact a sensitive group, species, habitat or Key Ecological Attribute (KEA), further investigation as to relocation or mitigation would be required.
Red Flag	Intervention requires further investigation, surveys or designed in order to determine its impact effects. A full EIA may be required.
Black Flag	WB safeguard triggers that cannot be mitigated.

363. The flowchart in Figure 6-2 illustrates the general approach taken for this screening exercise and Table 6-3 shows the preliminary environmental and social screening of component 1 interventions.

Figure 6-2 Flowchart of preliminary assesment

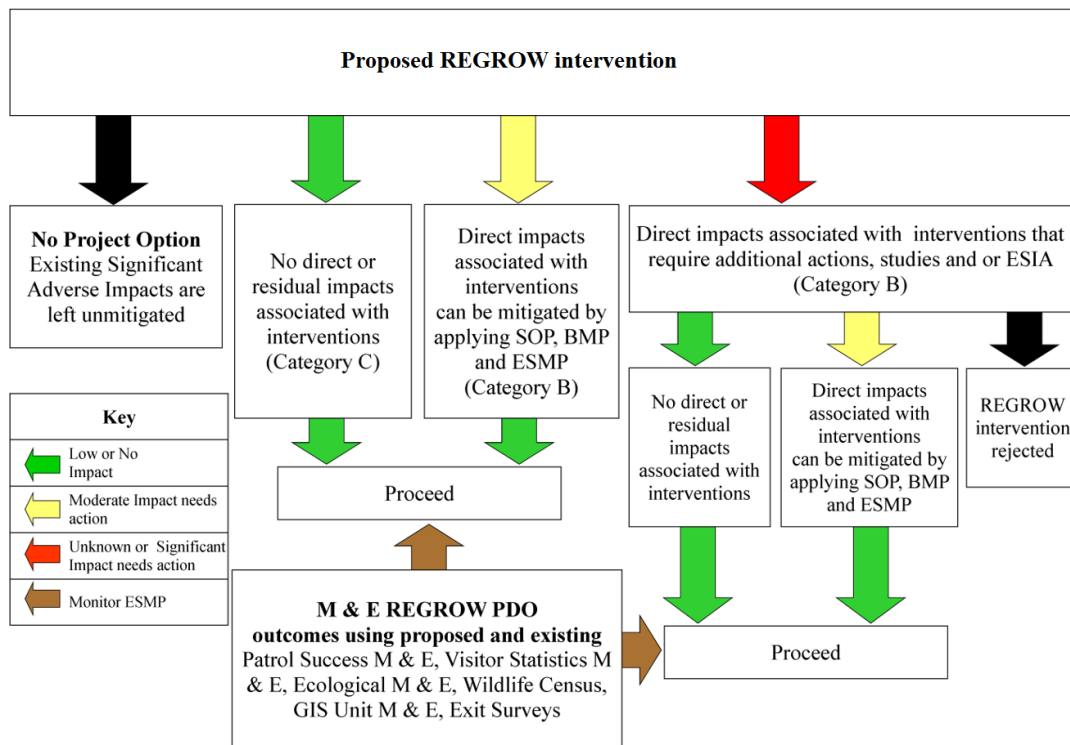


Table 6-3 Preliminary Environmental and Social Screening of Component 1 Interventions

REGROW Potential Component 1 Intervention Activities		Screening Category of Impact Significance
Administrative	Rehab Workshop	Kikoboga workshop existing pollution
	Build New Offices	
Monitoring	New Viewpoints Points	
	New Ecological Monitoring Center	Location
Staff Housing	Renovate house	
	Build Kitchen Dining	Location
	Build Toilet	waste management
	Staff Housing	Location
	Borehole Development	resource utilization
Protection	New Ranger Post	Location
	Improve Ranger Post	
Tourist Accommodation	New Rest House or Cottages	
	New or rehabilitated bandas	
	Youth Hostel	Mtemere youth hostel
	New or improved camp sites	Location
	Camp Kitchen Dining Banda	
Tourist Experience	New or Relocation of Entry Gate	Sanje Mini Gate
	Upgrade Entry Gate	
	Shaded Sitting Area	
	New Visitor Information Center	Location
	Conference Hall	
	Nature Trails	Lumemo Trial
	Canopy Walkways	Location
	Improve Picnic Viewpoint	
Transport Infrastructure	Rehab Main Roads	
	Rehab Game Circuit	
	New Roads	
	Rehab Boundary track	
	Bridges: Hussmann and Mgeta	Husman Bridge
	Drainage Control (culverts, drifts, small bridges)	
	Close Roads	
	Close Airstrip	
	New Airstrip	at Msembe
	Upgrade Airstrip	
	Rehab Airstrip	

6.2.3 Step 3 Application of Standard Operating Procedures

364. TANAPA have guidelines or Standard Operating Procedures (SOPs) for activities within their protected areas that the PCU can apply for interventions categorised as yellow. These include:

- i. Development Lease Action Plans (DALP) that regulate tourist facilities developments and includes Site section Criteria as well as Environmental Impact Consideration Checklist (EICC)²³;
- ii. General Management Plans (GMP) for each national park that is updated every 10 years that indentify threats to Key Ecological Attributes (KEA) and means to protect them, as well as Limits of Acceptable Use (LAU) for any development in the park;
- iii. A Programmatic Environmental Assessment for Road Improvements and environmental guidelines to consult when implemented road maintenance and rehabilitation;
- iv. Guiding Principles for Environmental Monitoring of Tourism Facilities and Activities in National Parks (prepared by NEMC and TANAPA in September 2016);
- v. Fire Management Plans;
- vi. Guidelines for Invasive Alien Species Management, 2015;
- vii. Draft Guidelines for Waste Management, 2015;
- viii. Rules and Regulations for each park including Primate Viewing Code of Conduct (Mahale Mountain and Gombe NP); and
- ix. The Mountains National Parks Regulations, 2003

365. If the impacts are all mitigated using the above SOPs, then the interventions scores a green flag to proceed. The result of applying the SOPs is to be compiled into a report and shared with NEMC and the WB through the PCU prior to implementation for a no objection.

6.2.4 Step 4 Application of developed ESMPs

366. If the intervention impacts cannot be mitigated by existing SOP or are located outside of the priority PAs where the SOPs are not applied, the PCU can apply the various custom made ESMP plans (detailed in Appendix 7). The ESMPs include:

- 3Cs ESMP: Hazardous Substance Control and Management Plan
- AWARE ESMP: Avoiding Wildlife Related Accidents and Responding to Emergencies
- E-ACT ESMP: Environmental Awareness and Competence Training
- MUDD ESMP: Managing Undesirable Discharge and Debris Plan that incorporates
 - Solid Waste Management, Treatment and Disposal (SWMTD)
 - Liquid (Sewage) Waste Treatment and Disposal (LWTD)
 - Stormwater Management and Control (SMC)

²³Following closely the VPO EICC

- PRUNE ESMP: Permitted Resource Utilization in Natural Environments
- Viewshed design criteria (VDC-k)
- STCIM ESMP: Short Term Construction Impact Mitigation

367. The types of impacts and description of each ESMP above is presented in Table 6-4 below,

Table 6-4 ESMP descriptions

ESMP	Impact Description	Ease of Mitigation	Description of ESMP
3Cs	Soil contamination from mishandling of fuels.	Constant Threat	Cover, Contain and Control all substances that have the potential to create hazardous situation or pollution. Ensure that all vehicles and equipment are in good working condition. Inspect and service regularly - vehicle, electric pump and generators. All used oil, grease and other hydrocarbon waste must be removed from the park, and documentation of volume, type and final disposal (reuse included) location should be provided.
	Generator emissions leading to significant air or noise pollution.	Easy	Limit generator operation to < 10 hours per day, and during hours that guests are on game drives.
AWARE	Emergency Response Capacity to Wildlife Dangers: Predators like Lion, Leopard, Hyena and other animals like elephants can cause injury, property damage and or death.	Challenging	Wildlife Danger Mitigation: Conduct awareness raising to all workers on the dangers and precautions to use when encountering wild animals. Patrol site on a routine basis. PA rangers to be posted at the construction 24/7.
	Emergency Response Capacity to Medical Emergencies	Constant Threat	OHS: Comply with relevant OHS guidelines and/or regulations. Provide appropriate PPE and train staff on their use. Each task that requires any PPE must follow OSH regulations or manufacturer's instructions. Maintain a first aid kit and have trained personnel on site. Report all accidents or incidents that result in illness or injury.
	Fires: Natural and manmade bush fires are a common occurrence, especially along park borders. Also, recreational campfires, the incinerator, kitchen and fuel storage present fire risks.	Constant Threat	FPPR: Display of fire extinguisher schedule and location plan. Refill fire extinguish containers in a timely manner. Clearly display hazard signs at fuel storage following MSDS guidelines and warning categories. Have No smoking signs placed in strategic areas. Clearly display emergency evacuation map in all guest rooms and back of house. Mark Evacuation Meeting Points with visible signs. Firebreak routinely slashed to maintain at least a 3 meter wide barrier. Clearly displayed hazard signs at generator following MSDS guidelines and warning categories for electrical equipment. All electrical main control panels with labels indicating hazard of electrocution.
MUDD	Pollution of land or water resources due to sewage waste leaks or malfunctioning sanitation systems. Sewage waste creating unhygienic conditions or spread of disease to humans and/or wildlife.	easily mitigated	Sewage Waste Treatment and Disposal: Proper design capacity, installation and regular inspections of system. Prevent items from being flushed in the toilet. Protect River from being polluted with unnatural or polluted runoff by placing sewage infrastructure outside the WPZ.
	Pollution of land or water resources. Solid waste creating	Constant Threat	Solid Waste Treatment and Disposal: Separate waste at source with different kinds of dustbins

ESMP	Impact Description	Ease of Mitigation	Description of ESMP
	hazardous or unhygienic situations.		(plastic, food waste, paper, mixed). Put the waste bins in strategic positions. Limit the volume of solid waste to be discarded. Wildlife proof waste pit. Limited duration of waste storage on site that is to be removed from park. Wildlife proof stores. Stringent cleaning regime at kitchen and food stores.
	Ecological impacts to receiving terrestrial and aquatic environs	0	Stormwater Management and Control: Inspect drainage during each rain event that creates flow from site.
E-ACT	Substandard conditions at ranger post	easy	PA to liaison with organization and authorities that focus on health issues pertinent to the local community
	Living and working conditions. Staff need to be provided a safe work environment as well as clean and healthy living situation (accommodations and meals).	easily avoided	Provide shelter, food water, lighting, power, and medical help that is of sufficient quality and quantity. Maintain staff compound and provide nutritious meals with variety as well as water and lighting.
	Opportunities for local communities	easy	Recruitment policy to include engaging local labour, especially marginalized groups such as youth or females, particularly when semi-skilled or unskilled labour is required.
PDCF	business opportunities for local communities	easily mitigated	Liaison with PA Community Outreach for collaboration and insight to goods available at local level.
PRUNE	Overexploitation of groundwater sources leading to depletion	easily mitigated	NO shallow water abstraction, borehole casings to be sealed the first 30 mbgl. 24 hour pump test required to confirm yield. Installed pump capacity not to exceed 75% of confirmed yield. Water demand to be regulated.
	Surface disturbance from road grading, site clearance and cut-and-fill during construction causing erosion or siltation especially with slopes > 7% gradient.	0	Establish a ZAD, not to exceed more than 12 hectare of the 27 hectare hillside area. Minimize need for cut and fill through building placement on slope no greater than 7%. Backfill holes properly and restore site to as natural contour as possible. Overburden disposed properly or used for backfill and compacted. Construction scar to be landscaped. All revegetation is with indigenous vegetation species from park under supervision of PA Ecology Department.
STCIM	Nuisances and disturbances due to noise, dust and/or heavy equipment movements	easy	Keeping workplace cleared of waste or hazardous situations. Provide temporary pit latrine, showers and tents for workers sleeping on site.
	Construction hazards and public safety (traffic, work injuries etc.)	easily avoided	Control speed and movement of project vehicles. Workers provided with PPE. Train workers in construction safety measures. Safety signs in hazardous places. Institute a "Driver's Code of Conduct". Management of skilled workers. Insurance of workers and public liability.
	Accumulation of construction waste in uncontrolled manners.	challenging	Institute the Solid Waste Treatment and Disposal plan at construction phase. Dedicate a staging area where construction waste can be consolidate and temporary stored until final disposal outside the park at approved landfill.

ESMP	Impact Description	Ease of Mitigation	Description of ESMP
	Black cotton soils in the lower lying (mbuga) are prone to water logging and subsequently make road impassable during rainy season or storm events.	challenging	Follow PA Engineers directives for establishing road access to site; most likely from an eastern or western (Hembe) approach.
VDC-k	Viewshed impact from unsightly project activities	Close supervision required	PA and TANAPA to confirm and approve all design plans. Constant supervision of construction progress to ensure that buildings blend harmonizing in with the surroundings. Use of camouflage techniques, colouring, and cut and fill where remediation is paramount for impact mitigation.
WPZ	Potential impact on ESA (hot spots) conservation efforts for riverine systems in PA.	easy	Recognize the River Conservation zone which is the area within 60 meters from the River embankments.

368. The REGROW PCU will initiate the national process through the National Environmental Management Council (NEMC) to determine if the applied ESMP is sufficient for approval to proceed²⁴. The PCU is to fill the Project Registration Form No1 and prepare a Project Brief prescribed under the EIA and EA Regulations (2005). This is to be accompanied by a letter requesting approval of the intervention on the basis of the ESMPs to be included in the Project Brief.

Box 6-2: Content of Project Brief for application of EIA Certificate

<p><i>Project Description:</i> scope of the CFAST subproject activities.</p> <p><i>Baseline Condition:</i> the status of the project's operating conditions that will be affected by the proposed sub-projects / activities (including a synopsis of prevailing environmental, social and compliance issues).</p> <p><i>Environmental and Social Impacts and concerns:</i> identification of sources, nature and extent of key impacts, compliance and issues of concern covering but not limited to: pollution (changes to air quality, water and soil quality including accidental spills and disturbances); effects to local biodiversity and natural habitats; land use changes; use of resources and management of wastes (energy and material efficiency); Occupation Health and Safety; and community wellbeing, health, safety, and security.</p> <p><i>Mitigation Measures:</i> Recommendations to avoid, reduce, mitigate or compensate the impacts including estimates of costs and responsibility for implementation of the mitigation measures. Show commitment of funds to implement the proposed mitigation measures.</p> <p><i>ESMaP and ESMoP:</i> Environmental and Social Management Plan (ESMaP) and Environmental and Social Monitoring Plan (ESMoP)</p> <p><i>Project's total investment cost.</i></p>
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369. NEMC will conduct their own screening for approval and evaluate if all significant adverse impacts have been mitigated and provide recommendations to the Minister responsible for

²⁴ MNRT can explore with NEMC on a modality for REGROW such that similar interventions in the same district are registered as one package to reduce the number of registrations and reports to be prepared for approval. These packages of interventions need to be identified and agreed upon by NEMC prior to initiating any formal registration process.

Environment for an EIA certificate to be issued. After receipt of the certificate the PCU can proceed²⁵. If NEMC's decision is that further assessment work is required, proceed to step 5.

370. NEMC has a turnaround time of up to 45 days to register the project and provide the proponent with an identification number, the level of environmental assessment required.

6.2.5 Step 5 Environmental Assessment of the intervention

371. Based on the screening result from NEMC, the PCU will either be required to conduct a Preliminary Environmental Assessment (EA) or a full Environmental and Social Impact Assessment (ESIA).

372. For the Preliminary EA the intervention will need to be reassessed to determine:

- i. Additional designs that need to be prepared to get a full description of the project characteristics
- ii. What additional surveys and/or studies are required. Examples include baseline socio-economic studies, hydrogeological survey, water sampling, review of aviation safety requirements, etc,
- iii. The impacts of the proposed project and identify additional mitigation measures to be applied;
- iv. additional public consultation is required;

373. If intervention impacts still have potential significant effects, NEMC will require the PCU to undertake a full ESIA as per the EIA and EA Regulations (2005). This will include:

Scoping – The project brief is circulated to stakeholders and issues and opinions are gathered to develop specific ToR for the EIA. Evidence of consultations and further elaboration of the project, presentation and address of issues raised and project alternatives are required for NEMC to make a decision on the scope of review for the EIA. NEMC has a turnaround time of 14 days for feedback on the adequacy of the ToR to deliver an acceptable EIA. Appendix 8 has an annotated Table of Content for the scoping report.

EIA – The EIA is to present certificates of approval for use of the area e.g. letters of offer from the authority, building permits, water use/ extraction permits; show technical specifications of the development including designs, costs and resource requirements; conducted detailed biophysical and socio-economic descriptions; conduct a detailed impact assessment; present the cost benefit analysis; and present management, monitoring and decommissioning plans for the project. The Environmental Impact Statement (EIS) is presented to NEMC should follow regulation 18 which indicates a 12-chapter format and is submitted with the prescribed fee for review and approval. The EIS is subjected to a validation site visit by NEMC staff and selected stakeholders and the proponent prior to a Technical Advisory Review meeting that provides feedback on the EIS that is then re-submitted for recommendation to the minister responsible for environment for certification. Approved EIS certificates are valid for 24 months following which if a development is not implemented the regulations require one to register the project for screening and either update

²⁵ Currently, under Tanzania laws, specifically EIA and Audit Regulations, 2005, NEMC is the only authority empowered to undertake screening to define the subproject activities where environmental assessment work needs to be done and to assign an Environmental Category for the sub project type, in accordance with First Schedule of the Regulations

of the EIA or extension of the approval dependent on changes in the environmental and socio-economic conditions at the time. Appendix 8 has a Table of Content for the EIS report.

The PCU is to prepare a ToR and is required to procure a registered Consultant under NEMC to prepare the Preliminary EA or ESIA report as required (see Appendix 9 for an example of a template). ESIA's are prepared by registered environmental experts NEMC and the range of expertise required for the development is indicated in the Terms of Reference prepared by the REGROW PCU. This is then submitted to NEMC and reviewed by a technical advisory committee under NEMC prior to the recommendation for approval of the report by the Minister responsible for environment. After receipt of the EIA certificate the PCU can proceed.

Table 6-5 Illustration of environmental and social management procedures on Component 1 interventions

Step 1 screening of intervention		Step 2 Preliminary Assessment	Step 3 apply SOP	Step 4 Apply ESMP						Step 5 Environmental Assessment			
REGROW Potential Component 1 Interventions		Category of Impact Significance	SOP / KIS/ PEA roads	Tentative ESMP applicable for identified Component 1 interventions						Anticipated Post ESMP Impact significance	Additional design/ studies potentially required	Possibility that full ESIA is required	
				STCIM	VDC	SWMTD	SWCM	LWTD	3Cs				
Administrative	Rehab Workshop	Red		<input type="checkbox"/>		<input type="checkbox"/>				<input type="checkbox"/>	Green	<input type="checkbox"/>	
	Build New Offices	Red		<input type="checkbox"/>							Green	<input type="checkbox"/>	<input type="checkbox"/>
	New or Relocation of Entry Gate	Red		<input type="checkbox"/>	<input type="checkbox"/>						Green		
	Upgrade Entry Gate	Yellow		<input type="checkbox"/>							Green		
Monitoring	New Observation Points	Yellow		<input type="checkbox"/>							Green	<input type="checkbox"/>	
	New Ecological Monitoring Center	Red		<input type="checkbox"/>				<input type="checkbox"/>			Green	<input type="checkbox"/>	
Staff Housing	Renovate house	Yellow		<input type="checkbox"/>							Green		
	Build Kitchen Dining	Red		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			CT		
	Build Toilet	Red		<input type="checkbox"/>				<input type="checkbox"/>			CT		
	Staff Housing	Red		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			Green		<input type="checkbox"/>
	Borehole Development	Red									Yellow	<input type="checkbox"/>	<input type="checkbox"/>
Protection	New Ranger Post	Red	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			Green		
	Improve Ranger Post	Yellow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						Green		
Tourist Accommodation	New Rest House or Cottages	Yellow		<input type="checkbox"/>							Green	<input type="checkbox"/>	<input type="checkbox"/>
	New or rehabilitated bandas	Yellow		<input type="checkbox"/>							Green		
	Youth Hostel	Yellow		<input type="checkbox"/>							Green	<input type="checkbox"/>	<input type="checkbox"/>
	New or improved camp sites	Red		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			Yellow	<input type="checkbox"/>	<input type="checkbox"/>
	Camp Kitchen Dining Banda	Yellow		<input type="checkbox"/>	<input type="checkbox"/>						CT		
Tourist Experience	Shaded Sitting Area	Yellow			<input type="checkbox"/>						Yellow		
	New Visitor Information Center	Red		<input type="checkbox"/>	<input type="checkbox"/>						Yellow	<input type="checkbox"/>	
	Conference Hall	Yellow		<input type="checkbox"/>							Yellow	<input type="checkbox"/>	<input type="checkbox"/>
	Nature Trails (Lumemo)	Red	<input type="checkbox"/>		<input type="checkbox"/>						CT	<input type="checkbox"/>	
	Canopy Walkways	Red									CT		

Step 1 screening of intervention		Step 2 Preliminary Assessment	Step 3 apply SOP	Step 4 Apply ESMP						Step 5 Environmental Assessment		
REGROW Potential Component 1 Interventions		Category of Impact Significance	SOP / KIS/ PEA roads	Tentative ESMP applicable for identified Component 1 interventions						Anticipated Post ESMP Impact significance	Additional design/ studies potentially required	Possibility that full ESIA is required
				STCIM	VDC	SWMTD	SWCM	LWTD	3Cs			
	Improve Picnic Viewpoint			<input type="checkbox"/>		<input type="checkbox"/>						
Transport Infrastructure	Rehab Main Roads		<input type="checkbox"/>				<input type="checkbox"/>					
	Rehab Game Circuit		<input type="checkbox"/>				<input type="checkbox"/>					
	New Roads		<input type="checkbox"/>				<input type="checkbox"/>					
	Rehab Boundary track		<input type="checkbox"/>				<input type="checkbox"/>					
	Bridges: Hussmann and Mgeta											
	Drainage Control (culverts, drifts, small bridges)		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						
	Close Roads						<input type="checkbox"/>					
	Close Airstrip						<input type="checkbox"/>					
	New Airstrip						<input type="checkbox"/>					
	Upgrade Airstrip						<input type="checkbox"/>					
	Rehab Airstrip						<input type="checkbox"/>					

SOP / KIS	Standard Operating Procedures / Known Impact Significance
CT	Constant threat
PCD	Public Consultation and Disclosure will be an important aspect for this intervention.
PEA Roads	Revise the TANAPA PEA for road works undertaking national parks to be applied to relevant road works for REGROW
STCIM	Short Term Construction Impact Mitigation
VDC	Viewshed Design Criteria
SWMTD	Solid Waste Management, Treatment and Disposal
SWCM	Storm Water Control and Management (Erosion Prevention) specific to road works, drifts and culverts but includes roof run off as well
LWTD	Liquid Waste (Sewage) Treatment and Disposal, applicable to all toilets and kitchens being built
3Cs	Cover Contain and Control of Hazardous substances (pollution prevention), such as used oil, fuel spills associated with maintenance yards, workshops and garages.

6.2.6 Stakeholder Engagement

374. The process of stakeholder engagement is based on the following key principles:

- To provide information to all stakeholders over different media platforms, including interviews, seminars, print and digital media;
- promoting dialogue between all stakeholders by use of the CDOs and civil society players if needed;
- promoting access to project information by availing it to all levels of the LGAs.

375. During the development of the ESMF (see section 1.3.4), consultations with the different stakeholders brought up several issues and concerns some of which would and or may be addressed by REGROW as indicated in Appendix 1.

376. In addition to the previous stakeholder consultations that has been carried out, REGROW will be launched by a well-publicized multi-stakeholder inception workshop attended by representatives of the broad stakeholder base. The workshop presents updated information on the project, serves as a basis for further consultation during the project's implementation, and refines and confirms the implementation of the project with stakeholders.

377. *Planning and design of interventions:* during the preparation of the preliminary/detailed designs of an intervention the PCU is to engage the respective LGA through the PA focal person to get feedback on particular restrictions and requirements that need to be incorporated into the design. The PA focal point in collaboration with the LGA technical staff is to share the information on the proposed intervention to the respective ward level to also here the opinions/concerns of the surrounding communities. PCU is to use this forum to identify all relevant stakeholders to be engaged for the particular intervention to ensure that any ToR developed for subsequent assessments includes requirements for stakeholder engagement.

378. *Decision-making* –The existing LGA council meetings will be used by REGROW to ensure a participatory and transparent process representative of all stakeholders to effect decision making prior to the intervention being implemented. The PA focal person and/or a representative of the PCU are to attend the council meeting when REGROW is put as an agenda item by the District Executive Director (DED).

379. *ESIA process-* Public consultations are a requirement in the national EIA regulations during the scoping and review stages. At the scoping stage, the procured consultant is to share the project brief with stakeholders identified in the ToR and others identified during the scoping exercise. At the review stages, the Non-Technical Executive Summary that is part of the EIS prepared is to be shared and feedback incorporated into the final EIS submitted for approval.

Box 6-1: EIA Regulation requirements on public disclosure

The proponent is required to publicize the proposed project and its anticipated effects and benefits by-

- a) Posting posters in strategic public places in the vicinity of the project site;
- b) Publishing a notice on the project in mass media newspaper, radio
- c) Making an announcement of the notice in both Kiswahili and English languages
- d) Hold (where appropriate), public meetings with affected parties and communities to explain the project and its effects, and to receive their oral or written comments. In the case of public meetings the proponent is to ensure appropriate notices are sent out at least one week prior to the meetings and that venue and times of the meetings are convenient for the affected communities and the other concerned parties.

380. MNRT will implement a stakeholder consultation and disclosure plan (SCDP) during the delivery of REGROW (which has been prepared as an independent plan). The plan provides 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 REGROW project and 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 priority PAs. This is guided by the Process Framework.

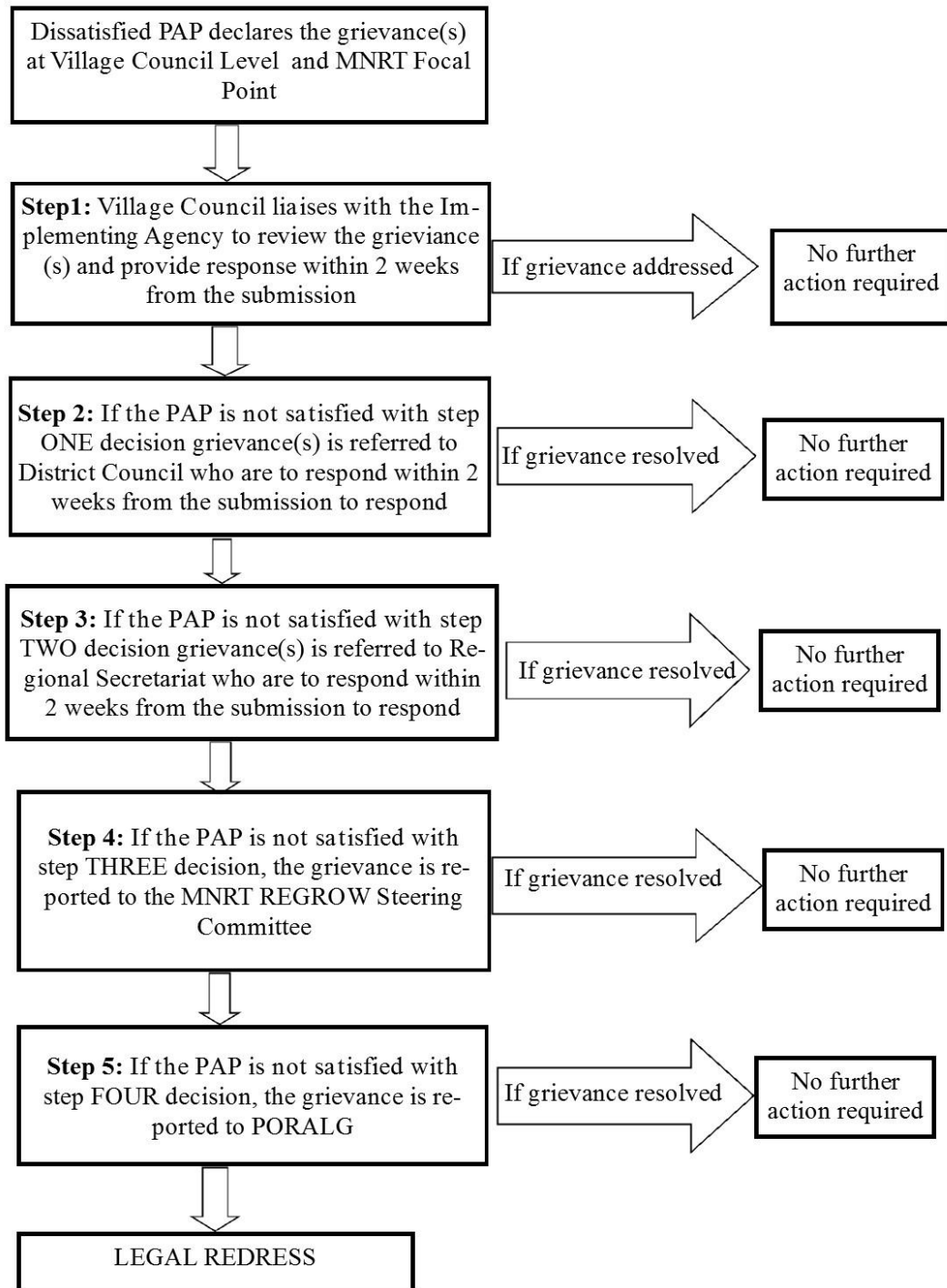
6.2.7 Grievance Mechanism

381. MNRT will engage with the communities and provide relevant information and provide a mechanism in which dissatisfied/ aggrieved persons can bring up their claims and concerns related REGROW. The government of Tanzania has enacted mechanisms in its legislations to deal with grievances of any kind that will be used to guide the process of addressing notices in the case of REGROW. The procedures generally follow the local government authority sittings from Village to Regional Council before reverting to the judiciary over four steps as illustrated in (Figure 6-3).

382. Briefly, notices from the aggrieved are reported to the Village Councils and if related to a REGROW intervention reported to the MNRT focal point of contact (TAWA and or TANAPA staff for the respective PA) most likely to be the Community development/ relationship officer. If the matter is not resolved, the first step is to register the grievance with respective Implementing Agency to be addressed. If not resolved, the grievance is reported to the District Council where additional consultation with MNRT focal points and relevant technical advisers, such as a District Land Officer, District Community Development Officer, District natural resources officers (Forestry, Fisheries, Wildlife) can be solicited as will be deemed pertinent. If the aggrieved is not satisfied with the decisions and recommendations at District level, the matter can be elevated to the Regional Council and the REGROW PCU. If the grievance is not resolved, the PCU will report the grievance to MNRT REGROW Steering Committee who will work with President's Office Regional Administration and Local Government (PO-RALG) to resolve the matter before resorting to the court of law. The Grievance mechanism uses the existing government system and jurisdictions, therefore the grievance is reported to the respective institution at the respective levels with jurisdiction to address the complaint's reported.

383. At all steps involvement of the MNRT focal point is needed and documentation of the proceedings taken to ensure fairness, objectivity, transparency and institutional memory of the matter.

Figure 6-3 Grievance and Redress Flow Chart



6.3 Monitoring and Evaluation

384. M&E of the ESMF is part of the overall M&E program for REGROW. M&E of subprojects will be carried out by PCU staff or consultants.
385. The implementing institutions i.e. MNRT, TANAPA, TAWA, LGAs, NIRC, TTB, MAFL and RWBO all have a responsibility mandated to monitor and evaluate their operations as set out in the GMPs, Policy documents and Corporate Strategic Plans.
386. The overall monitoring and evaluation program (M&E) developed for REGROW will include indicators for monitoring impacts and evaluating outcomes against the PDO.
387. TANAPA has overall outcomes and indicators that can be used to develop indicators for REGROW interventions in the Priority PAs. For the other implementing partners, MNRT will in the project implementation plan include outcome indicators for their contributions to the PDOs.
388. Each Priority PA will monitor and evaluate the REGROW interventions as well as ensure that impact monitoring and management, set out in the any ESMP and ESIA developed in their area are complied with.
389. M&E of the interventions will be done on a regular basis, at least twice a year, with an annual report submitted to the PCU. Depending on the nature of the intervention 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 impacts.
390. The ESMF M&E outcome indicators should contribute to ensuring that:
- Safeguard issues identified in the screening are 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 intervention implementation and operations are addressed and documented.
 - 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.
391. The PCU will develop terms of reference and cost and include M&E for any additional surveys or assessments proposed prior to conduct of an ESIA and or ESMP.

6.4 Capacity to Implement the environmental and social safeguards

392. MNRT and the implementing partners will benefit capacity building to facilitate effective implementation of the ESMF. The capacity building will enable improve the understanding and capacity for monitoring and evaluation reporting expected for REGROW, keeping in compliance with World Bank standards and procedures.

393. This ESMF provides guidelines on how MNRT project will identify training needs and develop a training plan for the various stakeholders involved in implementing the ESMF, ESIA and or ESMPs based, in part, on an institutional assessment conducted by MNRT.

394. Under the ESMF the capacity building objectives are intended to achieve the following:

- Develop and impart skills to the MNRT and PCU for screening and monitoring REGROW 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 safeguards and national Legislation; and
- Facilitate Professional Service Providers to provide technical support (including environmental and social impacts awareness) to Irrigators Organization and local management teams in preparing their subprojects.

6.4.1 Training Needs Assessment (TNA)

395. MNRT will conduct a training needs assessment and develop a training plan to ensure the effectiveness of REGROW implementation in the Priority PAs, the implementing partner institutions and the LGAs. The TNA will cover all those involved in and or have responsibilities in the implementation of REGROW particularly for ESIA and or ESMPs.

396. The TNA will distinguish the different skills development / 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; and
- Detailed technical training for subproject planning and implementation teams at Regional, LGA and local levels who will need to analyse potentially adverse environmental and social impacts, to prescribe mitigation approaches and measures, and to prepare and supervise the implementation of management plans.

397. It is proposed that NEMC or experienced national private or public environmental and social practitioners carry out the environmental management/EIA needs assessments.

398. Cost estimates are for payment in the form of consultancy services to private or public environmental and social practitioners. The estimated costs for these needs assessments are to cover all Priority PAs and the adjacent communities.

6.4.2 Training Plan

399. The Training Plan costed and based on the Training Needs Assessment (TNA) described above should be integrated into REGROW institutional capacity building components. The Training Plan development approach will:

400. Distinguish among the various stakeholders and their needs for general awareness building and more specific training.

401. Address initial training needs, follow-on analyses of training effectiveness and further or “refresher” training. Include mechanisms for periodically bringing trainees together to examine the need for and design of additional training.

402. Contents and timing of training can be structured as indicated in Table 6-6.

Table 6-6 Sample topics and duration to be delivered to build capacity for REGROW stakeholders

Topic/Subject	Duration
Introductory brief	(Opening session)
<ul style="list-style-type: none"> - 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
<ul style="list-style-type: none"> - 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 REGROW subproject activities). - Preparation of scope (terms of reference) for carrying out ESIA - 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 - Case studies 	
Environmental and social requirements (policies, legislation, procedures and sectoral guidelines) & institutional frameworks	1 days
<ul style="list-style-type: none"> - Review and discussion of Tanzania’s environmental and social requirements (policies, procedures, and legislation). - Review and discussion of the World Bank safeguards policies 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 agriculture development	2 days

- | |
|---|
| <ul style="list-style-type: none"> - 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: drought and flood protection/control - Land and property valuation and compensation - Irrigation operations: on-farm water management: irrigation & allocation of irrigation water, techniques for reduction of water losses at scheme level; water saving technologies - Production operations: land preparation mechanization, safe use of improved seeds cropping practices; integrated soil fertility (safe use of fertilizers), and safe pest management (use of Integrated Pest Management Plan) |
|---|

403. Training/awareness creation workshops for participants vested with the responsibility of endorsing/approving interventions under the REGROW. The workshops can be disaggregated for:

- a) The Project Coordination Unit and PA focal points.
- b) Level three implementation partners at the LGA level including: Zonal / Regional Coordinators / Influentials (RC/RAS/MPs), Council Executive Directors, Council Coordinators / Influentials (DC / Councillors of respective wards), Council Committees (on environment, health, resettlement) and other interested stakeholders
- c) Level four participants (Village, Ward and Executive Officers, WDC, and Local Management Committees. Objective is participants appreciate significance or relevance of environmental and social issues.

404. Subjects covered could include but not limited to the following:

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

6.4.3 Capacity Building and knowledge transfer activities

405. MNRT and the implementing partners will benefit capacity building to facilitate effective implementation of the ESMF. This can include:

- i. Missions to other African PAs that have success with local community benefit sharing models like Caprivi Namibia for representatives of MNRT and the PCU.
- ii. Collaborative exchanges and transfer of skills and knowledge between TANAPA and TAWA on
 - the existing SOPs, implementation of the PEA for TANAPA roads
 - in launching similar programs like TANAPA SCIP to suit TAWA initiatives aimed at village benefits sharing

6.4.4 Budget for the Implementation of Safeguards

406. Preliminary budget estimates are presented for the ESMF of the proposed REGROW interventions as drawn from the REGROW project budget totals as no budget has been allocated specifically for the ESMF. The budget allocation that was used to guide the ESMF is the summary Environmental and Social Management Plan (ESMP) for REGROW and associated activities (training and review). The estimates are provided for the total REGROW implementation period.

407. Sources of the budget will need to be defined in the project implementation plan but broadly the costs for construction related activities i.e. the ESIA's and ESMPs for construction should be included in the specific intervention budgets and likewise for environmental and social studies for the component 2 and 3 interventions. Key items in the ESMP and costs related to ESMF implementation summarized in Table 6-7 include:

- a. Capacity building activities including institutional development activities, training program, technical assistance, allowances for the review and approval of subproject management plans and annual reviews.
- b. Preparation of ESIA's / ESMPs / RAP: environmental assessment work to prepare EIS or update ESMPs will be carried out. However, the exact locations and number of interventions will be screened by NEMC and determined to require specific Preliminary Environmental Assessment or a more detailed full-scale ESIA. The assessment work and/or update of ESMP will be undertaken by private certified environmental and social practitioners (individuals or firms).
- c. Preliminary budget estimates are presented for the ESMF of the proposed REGROW interventions as drawn from the REGROW project budget totals as no budget has been allocated specifically for the ESMF. The budget allocation that was used to guide the ESMF is the summary Environmental and Social Management Plan (ESMP) for REGROW and associated activities (training and review). The estimates are provided for the total REGROW implementation period.
- d. Sources of the budget will need to be defined in the project implementation plan but broadly the costs for construction related activities i.e. the ESIA's and ESMPs for construction should be included in the specific intervention budgets and likewise for environmental and social studies for the component 2 and 3 interventions.

Table 6-7: Summary of Budget Estimates for ESMF Implementation

ACTIVITY	PARTICULARS	USD ('000)
TRAINING	Training Needs Assessment	150
	Project Coordination Unit	200
	Level three and four implementation partners	320
TECHNICAL ASSISTANCE	General TA	170
	Specific TA	150
ENVIRONMENTAL AND SOCIAL MANAGEMENT	ESIA	120
	ESMPs	300
	Community Engagement	100
COLLABORATIVE EXCHANGES AND KNOWLEDGE TRANSFER	To other African PAs	100
	Between TANAPA and TAWA	100
ANNUAL MONITORING AND AUDITS		65
TOTAL		1,770

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APPENDICES

APPENDIX 1 CONSULTED STAKEHOLDERS AND CONCERNS

The summary table presented below outlines the range of issues and concerns raised by consulted stakeholders in conjunction with the REGROW interventions intended to address these and the corresponding environmental and social performance frameworks. This is with the aim of overviewing the responsiveness of REGROW to existing, stakeholder-reported challenges within the project area, and identifying the frameworks set to provide for sound environmental and socioeconomic management of the various project interventions. Whereas most of the issues noted by engaged institutions, LGAs and communities are directly covered by the three project components, a few of the cited concerns – specifically those over unassociated land acquisition – are beyond the scope of REGROW. The ESMF, RPF and PF serve to guide subsequent, intervention-specific assessment and planning to ensure the project is implemented in due conformance with national and international legal requirements, and with pertinent WB safeguard policies.

Topics	Issues/Concerns	Stakeholder who raised concern	REGROW Mitigating Measures	Relevant Framework
Land use conflicts	Lack of political will in addressing issues raised/concerns by stakeholders (ie communities and Institutions)	Kilombero-Dc;	<p>1) Capacity-building to enable environmentally sustainable livelihoods amongst natural resource reliant “hotspot” communities around the PAs.</p> <p>2) More broadly, and not constituting part of REGROW, there should be an enforcement of Village Land-Use Plans (VLUP) and relevant permitting; broader stakeholder dialogue for participatory and well-informed decision-making in local land-use planning.</p>	ESMF, PF
	Impacts of climate change ie Long droughts causes pastoralists to move in search for water and grazing land resulting in land conflicts	Mbarali DC-AIO; Iringa Regional-NRO;		
	Rapid population increase (people and livestock)	Morogoro Regional-RAS-ERM;		
	Unsustainable pastoralism. Pastoralism is practiced for cultural prestige of having large herds of cattle and not for economic gains.	Kilombero-Dc; Morogoro-Rural DC-DEMO; Kilosa DC-NR Officer		
	Illegal immigration of pastoral communities in villages (some enter with their cattle at night). Pastoralist are required to report to village leadership /VEO to get permission to stay and use land for grazing.	Kilosa DC-DCDO; Morogoro Regional-RAS-PI;		
	Conflicts between pastoralists and agriculturalists are over exaggerated. Some of the conflicts are personal but they are reported as pastoralist versus farmers.	Morogoro Regional-RAS-PI;		
	Transition of land from village land governed by Village Land Act No. 5 to Township governed under Land Act No. 4 is not trickled down to local level authorities. Villages are still governed by village council and their land use plans limiting the Township's ability to plan.	Ifakara TC-Town Director;		
	The district does not conduct M&E of resettlement impact. The DC cannot conduct M&E due to budget constraints.	Iringa Rural DC-District Valuer;		

	Once a village is registered, they prepare a village land use plan that is approved via the district council and the Land Use Planning Commission, then mapped by the mapping division.	MLHSD Officer (Mapping Division)		
	National Land Use Plans in place are; The Land Use Framework; Land Tenure Support Program; Uhuru Corridor; Eastern Selous Project;	National Land Use Plan Commission (NLUPC) Officer;		
	Land speculators holding large plots of land. Some plots are left unattended.	NLUPC Officer;		
Encroachment on PAs	Increased drought that draws pastoralists in catchment and PAs	Barabeig Elders; Morogoro-Rural DC; Kilosa DC-NR Officer; Mbarali DC-Livest' Officer	Delivery of capacity-building initiatives intended to sensitize and educate PA-encroaching communities on sustainable livelihoods and to aid their entry into legitimate tourism/wildlife economies.	ESMF, PF
	People don't act according to the law and resort to informal and illegitimate access to PA territory resources	Morogoro Regional- a RAS-Infrastructure; MBOMIPA Chairman; Iringa Regional-NRO; Mbeya Regional Secretariat	Alternative livelihoods for communities classified as High Potential for being "hotspots"	
	Village leaders have allowed pastoral communities to settle near the Pas and hence increases poaching.	Kilombero DC;	Investments on increased efficiency in irrigation, in areas upstream of the Ruaha National Park, targeted towards water savings and also increased productivity	
	Illegal fishing along Usangu/Ihefu plain, which is under RUNAPA	Mbeya Region-Fisheries Officer;	Farmer Field Schools upstream of the Ruaha National Park to facilitate agricultural production and reduce water usage	
	Socio-economic conditions of people around protected areas needs to be carefully considered	NLUPC Officer;		

Environmental degradation of catchment	Deforestation and destruction of water catchment areas mainly by pastoralist and farmers. They go upstream for seeking pasture and irrigation activities. Bush fires for local beliefs and it is mostly seasonal at around August each year mainly driven by local beliefs (i.e. if you burn a bush, the extent at which this fire spreads will reflect the lifespan of an individual) and farm clearance for cultivation.	Morogoro Rural DC	1) Broad-based surveys to assess hydrological and ecological statuses of protected catchments; subsequent monitoring and demarcation of water sources, and watershed management practices. 2) Promotion of community-based conservation, particularly in WMAs, with awareness creation initiatives and incentives for co-management of natural resource bases.	ESMF, PF
	Water catchment degradation triggered by unregulated agricultural expansion activities (paddy-fields) and pastoralism	RBWO-Water Officer; Kilombero DC-DGO	3) Delivery of capacity-building initiatives intended to sensitize and educate PA-encroaching communities on sustainable livelihoods and to aid their entry into legitimate tourism/wildlife economies. 4) Investments on increased efficiency in irrigation, in areas upstream of the Ruaha National Park, targeted towards water savings and also increased productivity	
Water resources in Great Ruaha River	More/Updated information on; ecological flow, biodiversity/endemic-species, water uses and needs	Kilombero DC-Agr Officer	1) Infrastructural developments to augment dry-season flows in River Ruaha and raise irrigational efficiency in associated agricultural establishments. 2) Biophysical surveys of catchment hot-spots, monitoring of watershed management and the implementation integrated water and land-use planning interventions. 3) Institutional strengthening and coordination of implementing agencies. 4) Support programs for user-communities to allow for the establishment and/or	ESMF
	Water use conflicts and increasing demands/users; competing water uses along the Great Ruaha River eg Irrigation activities, livestock, wildlife, HEP, industrial and domestic uses	RBWO-Water Officer;		
	Poor infrastructure in irrigation schemes. Majority adapts traditional systems, some of which lack proper outlets for returns flows. Livestock also destruct irrigation schemes during dry season by destroying some of infrastructure.	Iringa-Rural DC- AIO; RBWO-Water Officer; Mbeya zonal irrigation Officer;		
	Uncontrolled irrigation activities along the river banks	Mbarali DC-Livest' Officer;		

			intensification of alternative livelihoods and reduced consumption of strained flows.	
	There must be creative programs that ensure protection of water sources for river Ruaha ie diversification of economic activities including bee-keeping	Mbeya Region-FO;	5) Farmer Field Schools to provide extension services to farmers, facilitate agricultural productivity, increase efficiency in the use of resources and minimize conflicts for water usage	
	TANESCO has a representative in water basin boards and assist in their budgets and provide their views on sustainable water use and management.	MEM Officer		
	Management and protection of water resources are divided according to 9 river basins. Rufiji Basin (Mikumi, Udzungwa and Ruaha NPs) and Ruvuma and Southern Coast Basin (Selous GR)	MoWI Officer		
	MoWI representatives will engage on component 3 (planning and supervising implementation)			
	Construction of 'Lugoda Multipurpose-Dam' that will mediate river flows during dry season			
	There are power generation projects that are privately owned/operated. Hence selling the product to TANESCO.	TANESCO Officer;		
	Establish sustainable water use management plan for all users/actors during dry season.	NIRC		
	Monitor and control water use. Budget support to RUBADA in combating illegal water use (basket funding).			
	Funding is a major issue for the National Irrigation Commission (NIRC) – it affects improvements of irrigation schemes (e.g. linings), provision of education, and capacity building and awareness creation among farmers on sustainable water management and modern farming methods that ensures sustainable water use such as System of Rice Intensification (SIRI).			
Illegal mining activities	Illegal gold-mining near Mbarali catchments and between WAGA and MBOMIPA; an open-cast mining which highly compromise the environment i.e. noxious mining-chemicals drains in catchments.	WCS-Director;	1) Pollution control, water quality monitoring and enforcement of legal water-resource management requirements, as part of the integrated watershed management program.	ESMF
	Geological Society of Tanzania (GST) does geological surveys countrywide to indicate the potential of minerals in different areas including, if possible, in protected areas.	MEM Officer;		

Tourism development in WMAs/National Parks	Capacity building needed (increase technical personnel)	WCS-Director;	1) Capacity building for MNRT, TANAPA, TAWA and TTB staff with training and equipment components to provide for the employment of high-tech conservation tools (e.g. GIS instruments and aerial surveillance drones) within the priority PAs. Added facilities for PA management, targeted towards wildlife poaching, include office equipment, visual aids, communication devices, pick-up vehicles, automobile garages, ranger posts and research centers. 2) Construction and upgrading of new and existing roads, trails, solid drifts and box culverts to connect entry/exit gates with airstrips, park headquarters, viewing towers, lodges/camps and other touristic utilities. 3) Upgrading of priority airstrips in the PAs. 4) Construction of entry/exit gates, visitor information centers, youth hostels, board walks and walking trails. 5) Environmental assessment for construction projects to ensure due environmental performance of the investments.	ESMF, PF
	Strengthening patrol activities (equipment; vehicles, communication devices are needed)			
	Only WAGA has developed investment/business plans (unique characteristics/investment attractions)	MLHHS (Mapping Division);		
	Potential to link tourism activities with adjacent community outreach/ entrepreneurship programs to allow for voluntary aid from tourists visiting the PAs i.e., donations to orphanage centres, provision of humanitarian services or purchase of local products and handicrafts.			
	No reliable communication networks especially for Morogoractivities; this renders it difficult to protect all corners of the Park, as rangers do not have sufficient and reliable communication to exchange emergency and other poaching /encroachment issues. This highly cripples protection and conservation of natural resources in the Park.	UMNP		
	Poor and unsupportive transport infrastructure mainly access roads, focus should be on the western road which needs urgent rehabilitation to allow smooth movement of game-patrols on respective areas. Hence many patrolling cars have broken down trying to access this road.			
Lack of sufficient funds to cover its operation costs including; clearance of Park boundaries which is done annually; patrolling the Park; servicing and repairing of patrolling vehicles. Hence if patrol as weaken then it leaves a chance for poaching to escalate.				
Poaching	Technical capacity of those involved in investigation and prosecution on poaching is weak	WCS-Director; MBOMIPA, WAGA, and UMEMARUA leaders; Kilosa DC-NR Officer;	1) Safeguarding key wildlife zones in the PAs through the upscaling of infrastructure (i.e. ranger posts) and technical support with key equipment and communications. 2) Promotion of community-based conservation, particularly in WMAs, with awareness creation	ESMF, PF
	Penalties for poaching do not reflect the value of the wildlife			

	Absence/weak protection activities, insufficient funds to support patrol activities by VGSS	MBOMIPA, WAGA, and UMEMARUA leaders;	initiatives and incentives for co-management of natural resource bases.	
	Source of income generation for local communities. Community members engage in poaching, particularly the youth of Duthuni village	UMEMARUA and JUKUMU Morogoro Rural DC	3) Delivery of capacity-building initiatives intended to sensitize and educate PA-encroaching communities on sustainable livelihoods and to aid their entry into legitimate tourism/wildlife economies.	
Wildlife-Human Conflicts	Elephants invading paddy and sugarcane fields destroying crops and properties. Lions and Buffalos also have attacked people leading to wounded victims and death. The issue between Udzungwa National park and adjacent communities is animals destroying farm lands in villages of Msosa predominantly which is part of the active Mtandika Wildlife Corridor. The animals move in search of pastures and water, especially during dry season. There are also animals from Mikumi NP who enter the 6 villages of Mtandika Corridor.	UMEMARUA; WAGA; Kilosa DC-NR Officer; Kilolo DC	Implementation of alternative livelihoods that depend less on crops that attract elephants Implementation of human-wildlife conflict mitigation measures (chilli fences and other techniques)	ESMF, PF
Monitoring and Reviewing land leases especially to large farms (Estates)	Most of large farms/Estates possess outdated land leases that used village Act of 1923 in which villages had no limitations/regulation on land size to be allocated to investors, hence investors ended up acquiring very large areas even without having capabilities to develop these areas.	Mbarali DC-Land Valuer;	Not addressed under REGROW	N/A
Conflicts between investors/PAs/communities.	Kidunda Dam project and JUKUMU-WMA. The project wants to acquire part of Ukutu-valley for dam construction.	JUKUMU; Morogoro-Rural DC-DEMO	Not addressed under REGROW	N/A
	Selous GR reserve and ILOVO sugar company over Magombera area. Selous wishes to annex that ecological hotspot for conservation and development of tourism activities.	Kilombero DC-DGO		
	Kapunga Estate and Kapunga village, about 1870 acres that were illegally acquired by the Estate have recently been	Mbarali DC-Land Valuer;		

	returned to the village from the investor by the order of Prime Minister.			
Livestock census and branding	During official census, pastoralist do not give exact number of their cattle rendering the situation difficult to manage and monitor their cattle population against current carrying capacities of land.	Kilombero DC; DLO; Kilosa DC-NR Officer; Mbarali DC-Livestock Officer;	Not addressed under REGROW	N/A
Conflicting interests between Conservation and income generation	There is a conflict between natural resources use and fiscal generation. i.e. TFS is split between issuing more licences for charcoal generation (which affects environment) and generating more income from issuing more permits.	MEM Officer	Fostering more sustainable natural resource harvesting amongst communities surrounding PAs and upstream catchments, with the rollout of catchment management interventions, diversification of alternative livelihoods and value-chains, as well as the buy-in of conservation-based benefit models by WMA residents. Review of existing benefit-sharing mechanisms	ESMF, PF
Community awareness on the project	Provide more community sensitisation and ensure people are more involved during project implementation. Project flexibility on technology/approach in accomodation of unforeseen changes such as differences in community members' perceptions and reception of the project will change operating procedures.	MALF Officer	Well-rounded stakeholder consultation and stakeholder engagement strategies in subsequent environmental and social analyses. REGROW communications strategy	ESMF, PF
Agricultural Development and Natural Resources Conservation	Promote small scale farmers through outgrower schemes. Currently, the focus is on sugarcane and paddy. Improvement of irrigation infrastructure in Usangu under the ASDP. Gender issues are neglected in the projects. Most subsistence farmers are women	MoWI Officer	1) Infrastructural measures to increase irrigational efficiency in adjacent agricultural establishments (i.e. flow and drainage management in selected areas) and provision of extension services to educate local farmers on water conservation in traditional farming systems. 2) Gender mainstreaming in stakeholder engagement and communal decision-making.	ESMF, PF

	<p>Poor Markets for agricultural products. Hence discouraging farmers production efforts</p>	<p>NLUPC Officer;</p>	<p>3) Development of alternative livelihoods and non-natural resource based value chains to halt overreliance on protected natural resource bases.</p>	
	<p>SAGCOT has six (6) clusters in Rufiji. Ihemi cluster has been selected as current piloting/farmer field school for local producers and they produce tea, Irish-potatoes, maize, tomatoes, soya-beans, and dairy cattle</p>	<p>SAGCOT Officer</p>		
	<p>Consulted residents of Iwalanji Village indicated that RUNAPA is encroaching their land since they moved from Tindigani, which is about 30 kms away from village headquarters, to make way for Usangu Game Reserve. Currently, there are people living and engaging in own activities (pastoralism and agriculture) within the PA. They indicated that this has created uncertainties – community members complain of periodic raids by park rangers who seize cattle within the area. The village government indicated that community members’ complaints are never considered or taken into account.</p> <p>The indicated that, on occasion, park rangers fired shots into the air during confrontation with pastoralists in order to spread fear.</p>	<p>Iwalanji Village Community, Mbarali DC</p>	<p>For RUNAPA, REGROW will work with farmers, in inefficient irrigation schemes upstream the PA, implementing efficiency measures so that more produce can be obtained in less area, and less water is consumed in the process. Iwalanji village has not been selected as a village for engagement under REGROW.</p> <p>However, it has been proven that the Farmer Field Schools that REGROW will implement have a number of spillover effects and peer-to-peer learning. In addition, other REGROW activities in the upper catchment of the Great Ruaha River related to watershed management, will allow for better use of resources downstream and alleviation of pressures over resources.</p> <p>Independently from REGROW, TANAPA will continue their mandate to proactively engage with villages, improve dialogue and relationships, and contribute through community development projects.</p>	






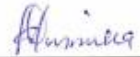

7.1.1 Minutes And Participant List Of Validation Meetings For ESMF Consultations

Attendance Log for Stakeholder Consultations in Dar es Salaam

Date of Consultation	Participant name	Designation	Institution
8/12/16	Juma Mkobya	Assistant Commissioner for Energy & Petroleum Affairs	Ministry of Energy and Minerals (MEM)
	Samwel Mgweno	Energy Engineer	
29/11/16	Mrs Mrema	Assistant Director – Mapping	Ministry of Lands – Mapping Division
29/11/16	Mr Lugomela	Asst. Director Research & development	Ministry of Water and Irrigation – Research and Policy Development
28/11/16	Rose George Mbezi	Sociologist	Ministry of Agriculture & Food & Cooperatives
28/11/16	Ronald R. Komanga	Sociologist	National Irrigation Commission (NIRC)
	Eng. P.H. Assenga	Researcher	
	L.A. Simkanga	Principal Engineer	
	Ester Kapakala	Agriculture Officer	
	Dr Joachim Makoi	Acting Asst. Director – Irrigation Operation Services	
8/12/16	Modest Kachubo	Director of Physical Infrastructure	National Land Use Planning Commission (NLUPC)
	Experansia Tibasana	Principal Town Planner	






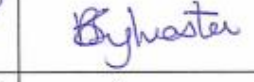
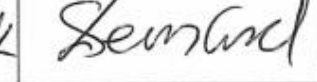

19/1/17	Mr Banga	Environmental and Social Specialist	Southern Agricultural Growth Corridor of Tanzania (SAGCOT)
29/11/16	Eng. Toto Zedekia Kisinza	Manager – Power Development	Tanzania National Electric Supply Company (TANESCO)
	Eng. James Kirahuka	Assistant Commissioner for Energy & Petroleum Affairs	
10/1/17	Dr Huruma Sigalla	Energy Engineer	University of Dar es Salaam (UDSM)

Signature Sheets for Stakeholder Consultations in the Field

PREPARATION OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) AND ASSOCIATED FRAMEWORKS FOR RESILIENT NATURAL RESOURCES MANAGEMENT FOR TOURISM AND GROWTH PROJECT					
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**PREPARATION OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) AND ASSOCIATED
FRAMEWORKS FOR RESILIENT NATURAL RESOURCES MANAGEMENT FOR TOURISM AND GROWTH PROJECT**

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PREPARATION OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) AND ASSOCIATED FRAMEWORKS FOR RESILIENT NATURAL RESOURCES MANAGEMENT FOR TOURISM AND GROWTH PROJECT

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**PREPARATION OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) AND ASSOCIATED
FRAMEWORKS FOR RESILIENT NATURAL RESOURCES MANAGEMENT FOR TOURISM AND GROWTH PROJECT**

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Preparation of the Environmental and Social Impact Assessment (ESIA) and Associated Framework for the Resilient Natural Resources Management for Growth (REGROW) Project

ESMF Consultation Sheet

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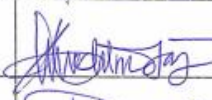
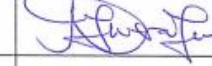
Preparation of the Environmental and Social Impact Assessment (ESIA) and Associated Framework for the Resilient Natural Resources Management for Growth (REGROW) Project

ESMF Consultation Sheet

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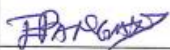
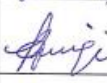
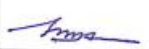


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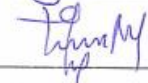





**Preparation of the Environmental and Social Impact Assessment (ESIA) and Associated Framework for the Resilient
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

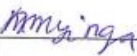

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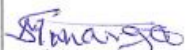



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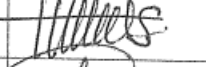

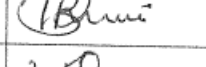
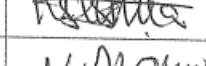
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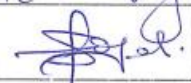
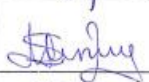
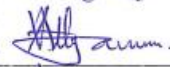




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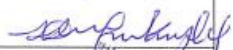


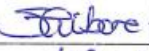

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APPENDIX 2 PRIORITY VILLAGES UNDER REGROW

REGROW benefits several groups of beneficiaries including (i) communities living near the priority PAs; (ii) farmers' households within the Great Ruaha River sub basin, upstream RUNAPA, through more efficient irrigation and production methods; (iii) government agencies and officials working on water, agriculture and land management, wildlife, tourism, and PA management in Southern Tanzania through capacity building; and (iv) tourism operators and related businesses within and adjacent to the priority PAs through increased tourism revenue. Within the framework of the project, emphasis will be placed on providing opportunities for women.

The REGROW project, as stated elsewhere, is focusing on four priority Protected Areas – MINAPA, RUNAPA, UMNP and photographic zone of SGR. These four PAs were selected for a first phase of investments, with the possibility to scale the support to other PAs in future phases. Most of the project activities, in number and in funding, will be implemented inside the four PAs (Component 1), and will be targeted towards improving infrastructure for PA management (such as improved roads, ranger posts, airstrips for accessibility) and for tourism promotion (entry gates, visitors' centres, trails and others).

In addition, a number of activities will be implemented in areas adjacent to the four priority PAs, in order to promote alternative and resilient livelihoods, strengthen linkages between communities in the vicinity of the PAs and the tourism value chain, and to improve the relation between communities and PAs. The priority PAs cover a vast extension of land (RUNAPA encompasses 13,000 km², SGR extends over 44,000 km², MINAPA covers 3,230 km² and UMNP covers 1,990 km²; combined, they cover over 62,000 km² - for reference, Switzerland covers 41,285 km²). For this reason, REGROW will not be able to tackle all communities surrounding the PAs, and will need to prioritize in order to be effective (the total population living in the 99 villages located around the boundaries of the priority PAs is estimated to be 405,000 inhabitants - based on the 2012 National Census), with the possibility of widening the scope in future operations. To do this prioritization, the Government of Tanzania carried out an assessment of the communities around the PAs, and established core selection criteria by which communities were prioritized for project engagement. The core selection criteria included:

- i. Villages whose inclusion in REGROW would help enhance landscape-scale biodiversity conservation (ensure habitat/PAs connectivity and protection of buffer zones/dispersal areas and wildlife migratory corridors). These are villages that have engaged and/or contributed land in the management of Wildlife Management Areas, Village Land Forest Reserves, bee reserves, situated along the wildlife migratory corridors and/or wildlife dispersal areas.;
- ii. Villages known as hotspots for illegal activities. The inclusion of these villages in the REGROW project would reduce encroachment in protected areas for farming, settlement, poaching, illegal lumbering, illegal fishing, livestock grazing, etc;
- iii. High potential for engaging in conservation-friendly livelihood activities: All villages surrounding the PAs have the potential for implementing conservation-friendly livelihood activities. The inclusion/exclusion criterion for engagement in conservation-friendly activities was guided by the word '*high potential*'. The inclusion of these villages in the REGROW project would contribute to increased production, value addition, market linkages,

diversification of livelihood activities (e.g. beekeeping due to availability of forested lands, fish farming, poultry, horticultural activities, organic farming);

iv. Existence of tourist attractions and facilities: Existence of tourist local products (handicraft products, traditional dances and tourist facilities such as campsites, lodges, etc.).

Additional Criteria (added advantages)

- i. Existence of village land use plans;
- ii. Presence of financial institutions (Banks, Village Community Banks/ Conservation Community Banks (VICOBA)/COCOBA);
- iii. Presence of the private sector in supporting tourism and non-tourism activities;
- iv. Presence of infrastructure (railway, roads, etc.) to facilitate access
- v. Knowledge and skills in implementing tourism and non-tourism activities;
- vi. Ongoing projects by other international and national organizations/donors (including TANAPA/ TAWA);
- vii. Number of beneficiaries: how many people are likely to benefit from the projects
- viii. Potential to participate in block interventions.

Using the above combination, the villages surrounding the REGROW priority PAs were classified into three groups:

A: High Potential Villages: at least two core selection criteria and at least five other additional criteria (combined);

B: Potential Villages: at least one core selection criteria and at least three other selection criteria (combined), plus the potential of a village to engage in implementation of medium to large scale projects that targets a block and not individual villages (e.g. engagement in semi-improved irrigation schemes);

C: Less Potential Villages: a village with no core selection criteria, and less than three additional selection criteria (combined).

REGROW Component 2 activities will first focus on communities that are screened as High Potential, together with all villages defined as hotspots for illegal activities (which is one of the key issues that REGROW is trying to mitigate). If REGROW has resources to reach all High Potential Villages, the project will then expand its interventions to additional potential villages.

REGROW Component 3 activities will engage farmers around the Usangu flats (South and South West of Ruaha), through the implementation of farmer field schools and key infrastructure for water management. The scope of the component is to demonstrate water-efficient techniques, and rice paddy cultivation methods that use less water and produce higher yields. Similarly to Component 2, the area under irrigation schemes in the Usangu flats is large (current estimates place the area under irrigation at around 150,000 hectares), and the project will have to select a small area, for demonstration purposes, where benefits as a result of the project can be showcased. A different consultancy, commissioned by GoT, is currently selecting the existing irrigation schemes on which the project will focus.

The project area encompasses vulnerable groups. Determination of which groups in Tanzania are recognized as vulnerable is being done on a project by project basis, and is done according to the following criteria: those that may be below the food poverty line and lack access to basic social services (including those that are geographically isolated), and are not integrated with society at large and its institutions due to physical or social factors.

A rapid social assessment of vulnerable groups was conducted. It confirmed that there are some vulnerable groups in the project area, including women-headed households, the elderly, disabled, youth, children, and persons with HIV/AIDs. The social assessment has also determined that there are no disadvantaged communities in the project area. The specific needs of vulnerable groups in the project will be addressed through some of the project activities and mitigation measures in the Environmental and Social Management Plans and, where applicable, the Resettlement Action Plans.

APPENDIX 3 KEY INSTITUTIONS AND THEIR RESPONSIBILITIES RELEVANT TO REGROW

Level	Institution/stakeholder	Roles and Responsibilities
National	Ministry of Energy and Minerals (MEM) Ministry of Water and Irrigation Ministry of Lands, Housing and Human Settlements Development Ministry of Agriculture, Livestock and Fisheries Vice President's Office-Division of Environment (VPO-DoE)	Issuing legislations, regulations and direct preparations of guidelines, programs and action plans Formulation of policies and standards in their respective sectors Oversees overall implementation and coordination of the sectoral development issues
Regulatory Authorities and Agencies	TANAPA (Tanzania National Parks Authority)	Management and development of all 16 national parks in Tanzania
	Udzungwa Mountains National Park (UMNP), Mikumi National Park (MINAPA), Ruaha National Park (RUNAPA) Selous Game Reserve (SGR)	Park management, ecological monitoring, community outreach programmes, maintaining borders and resources protection/conservation within the park
	Rufiji Basin Water Office (RBWO)	Water resources monitoring, issuing and regulating water use permits, community outreach programmes
	TAWA (Tanzania Wildlife Authority)	Responsible for protection, management and sustainable utilisation of wildlife resources outside the jurisdiction of TANAPA and NCA
	ZIO (Zonal Irrigation Office) – Southern Highlands	Promotion and regulation of irrigation activities and irrigation development in the zone (Mbeya, Iringa, Njombe, Rukwa and Katavi) in four water basins which are Rufiji, Lake Rukwa, Lake Nyasa and Lake Tanganyika
	Southern Agricultural Growth Corridor of Tanzania (SAGCOT)	Provides platform for coordination of different partners and actors in agricultural sector, innovators and agribusiness as whole in six major clusters: Rufiji, Kilombero, Ihemi, Mbarali, Ludewa and Sumbawanga
	Mapping Division – Ministry of Lands	Actual mapping of the land use plans, preparation of the land use classifications

Level	Institution/stakeholder	Roles and Responsibilities
	National Irrigation Commission (NIRC)	Regulates all matters related to irrigating development and oversee collaboration among different players in development of irrigation and drainage; promotes efficient water use in irrigation systems and ensure compliance with the Integrated Water Resources Management approach in Irrigation development.
	National Land Use Planning Commission (NLUPC)	Principal advisory organ of the government on all matters related to land use. The Commission prepares regional physical land use plans, land use policies, standards, norms and criteria for protection and beneficial uses of land
	Tanzania Electric Supply Company Limited (TANESCO) Headquarter	Electricity generation by using different sources including water, transmission distribution and supply
	TANROADS (Morogoro Region)	Issuing road works guidelines, standards and other specifications; and maintenance and development of the trunk and regional road network
	National Environment Management Council (NEMC)	Promotes environmental management in Tanzania through coordination, facilitation, awareness raising, enforcement, assessment, monitoring, auditing and research
	Tanzania Tourist Board (TTB)	Advertisement and publicity of Tanzania as a popular tourist destination, improvement and development of tourism activities in the country
	Tanzania Civil Aviation Authority (TCAA)	Management, regulation and monitoring of civil aviation system and activities in the country
Regional	Morogoro, Iringa and Mbeya Regional Offices	The respective regional secretariats coordinates and oversee all developmental projects and programmes in the region
	Lindi, Njombe, Coast, Ruvuma and Singida Regional Offices	
	Dodoma Regional Office	

Level	Institution/stakeholder	Roles and Responsibilities
District	Morogoro Rural, Kilosa, Mvomero, Kilombero, Iringa Rural, Kilolo and Mbarali District Councils	Responsible for land use planning, environmental management, tourism promotion and management of various water uses and irrigation schemes within their boundaries
	Chunya, Mpwapwa, Dodoma Rural, Manyoni, Wanging'ombe, Mufindi, Ulanga, Rufiji, Kisarawe, Liwale, Kilwa, Namtumbo and Tunduru District Councils	
Town Authority	Ifakara Town Council	
WMAs	UKUTU/JUKUMU, MBOMIPA, WAGA, UMEMARUWA	Protection and conservation of the cultural and natural resources of the in the WMA area, promote development and investment of tourism within WMA and benefit sharing amongst member villages
Ward/Village/Local (villages represented in the WMA consultations)	Bwakila Chini (Morogoro Rural), Kiduhi (Kilosa), Iwalanje, Mabadaga, Matebete, Nyakadete, Igomaa, Nyamakuyu, Ihazuntwa, Ihanga, Igando, Igomelo, Nayi, Iyayi, Uhamila (Mbarali) and Ziginali (Kilombero – due to irrigation scheme, not WMA)	Natural resources conservation and utilization especially adjacent to the protected areas
Research Institutes	University of Dar es Salaam (UDSM), Sokoine University of Agriculture (SUA)	Research in areas like natural resources management, integrated water resources management, agriculture and irrigation and livelihood
Civil Society	WCS, CARE, WWF, Tanzania Private Sector Foundation (TPSF), TATO	Involved in the management of natural resources, conservation activities, support to WMAs, community livelihoods around the protected areas, tourism development and promotion and provision of technical support including capacity building
Donor & development partners	USAID, GIZ	
Private Sector/Tour Operators	Hondohondo Camp, Udzungwa Falls Lodge, Siwandu Camp, Coastal Air,	

APPENDIX 4 PHYSICAL AND CULTURAL RESOURCES CHANCE FIND PROCEDURES

Contracts for civil works involving excavations should normally incorporate procedures for dealing with situations in which buried Physical and Cultural Resources (PCR) are found unexpectedly. The final form of these procedures will depend upon the local regulatory environment, including any chance find procedures already incorporated in legislation dealing with antiquities or archaeology.

Note: The general guidance provided applies when there will be an archaeologist on call. In exceptional situations in which excavations are being carried out in PCR-rich areas such as a United Nations Educational, Scientific, and Cultural Organization World Heritage site, there will normally be an archaeologist on site to monitor the excavations and make decisions.

Such cases will require a modified version of these procedures, to be agreed upon with the cultural authorities.

Chance find procedures commonly contain the following elements.

1. PCR Definition

This section should define the types of PCR covered by the procedures. In some cases, the chance find procedure is confined to archaeological finds; more commonly it covers all types of PCR. In the absence of any other definition from the local cultural authorities, the following definition could be used: “movable or immovable objects, sites, structures or groups of structures having archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance.”

2. Ownership

This paragraph should state the identity of the owner of the artifacts found. Depending on the circumstances, the owner could typically be the state, the government, a religious institution, the landowner, or it could be left for later determination by the concerned authorities.

3. Recognition

This is the most difficult aspect to cover. As noted above, in PCR-sensitive areas, the procedure may require the contractor to be accompanied by a specialist. In other cases, the procedures may not specify how the contractor will recognize a PCR, and a clause may be requested by the contractor disclaiming liability.

4. Procedure upon Discovery

Suspension of Work

This paragraph may state that if a PCR is found during execution of the works, the contractor shall cease activity. However, it should specify whether *all works* should cease, or only the works immediately involved in the discovery, or, in some cases where large buried structures may be expected, all works may be stopped within a specified distance (for example, 50 meters) of the discovery. This issue should be informed by a qualified archaeologist.

After stopping work, the contractor must immediately report the discovery to the resident engineer. The contractor may not be entitled to claim compensation for work suspension during this period. The resident engineer may be entitled to suspend work and request that the contractor provide excavations at the contractor’s expense if the engineer thinks that a discovery was made and not reported.

Demarcation of the Discovery Site

With the approval of the resident engineer, the contractor is then required to temporarily demarcate and limit access to the site.

Non-suspension of Work

The procedure upon discovery may help the resident engineer decide whether the PCR can be removed and work can continue, for example, in cases where the find is one coin.

Chance Find Report

The contractor should then, at the request of the resident engineer, and within a specified time period, complete a Chance Find Report, recording:

1. Date and time of discovery;
2. Location of the discovery;
3. Description of the PCR;
4. Estimated weight and dimensions of the PCR; and
5. Temporary protection implemented.

The Chance Find Report should be submitted to the resident engineer and other concerned parties as agreed upon with the cultural authority and in accordance with national legislation. The resident engineer, or other party as agreed, is required to inform the cultural authority accordingly.

Arrival and Actions of Cultural Authority

The cultural authority ensures that a representative will arrive at the discovery site within an agreed upon time, such as 24 hours, and determines the action to be taken. Such actions may include, but are not limited to:

1. Removal of PCR deemed to be significant;
2. Execution of further excavation within a specified distance of the discovery point; or
3. Extension or reduction of the area demarcated by the contractor.

These actions should be taken within a specified period, for example, seven days.

If the cultural authority fails to arrive within the stipulated period (for example, 24 hours), the resident engineer may have the authority to extend the period by a further stipulated time.

If the cultural authority fails to arrive after the extension period, the resident engineer may have the authority to instruct the contractor to remove the PCR or undertake other mitigating measures and resume work. Such additional works can be charged to the contract. However, the contractor may not be entitled to claim compensation for work suspension during this period.

Further Suspension of Work

During this seven-day period, the cultural authority may be entitled to request the temporary suspension of the work at or in the vicinity of the discovery site for an additional period of up to, for example, 30 days.

The contractor may or may not be entitled to claim compensation for work suspension during this period. However, the contractor will be entitled to establish an agreement with the cultural authority for additional services or resources during this further period under a separate contract with the cultural authority.

APPENDIX 5 LEGISLATIVE REVIEW

POLICIES

National Environmental Policy, 1997

The National Environmental Policy of 1997 is currently under revision. The outgoing policy provides a framework for making fundamental changes that are needed to bring environmental considerations into the mainstream of decision making in the country. It aimed at ensuring sustainability, security and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment. It further aimed at conserving and enhancing our natural and man-made heritage, including biological diversity of the unique ecosystem of Tanzania. The draft Policy leverages the objectives of the previous policy but places emphasis on additional challenges of climate change, invasive alien species, biofuels, electrical and electronic equipment wastes (or e-wastes), genetically modified organisms (GMOs); oil and gas and chemical management.

The current policy advocates for:

- *Component 1* – Article 57 requires promotion of tourism to be environmentally friendly and of conservation in nature. REGROW interventions should take in to consideration that the envisaged developments such as roads, ranger posts comply with the requirements of Articles 57 and 58 of the policy.
- *Component 2* – Community development is one of the necessary components under Article 57 and REGROW addresses how best communities surrounding the areas will be sensitized and facilitated in order to reduce pressure on the areas in protected natural resources for promotion and conservation of tourism resources in the relevant areas.
- *Component 3* –In providing support to integrated management of landscape Articles 57 and 58 of the policy require promotion of conservation and environmental friendly development. Thus the boreholes to be drilled should follow the necessary procedures to ensure compliance.

National Tourism Policy, 1999

The overall objective of the current policy is to promote tourism as a tool to improve the national economy and livelihoods of the communities. It advocates for sustainable and quality tourism that is culturally and socially acceptable, ecologically friendly and economically viable including that of the Southern corridor. The policy is currently under revision.

Current policy articles that support REGROW interventions include:

- *Component 1* – Article 5.2 advocates for compliance to both the Environmental and Wildlife policies for institution of infrastructure developments such as roads and bridges to make tourism areas easily accessible with consideration of conservation value.
- *Component 2* – Article 5.9 promotes environmentally friendly tourism for communities surrounding and or bordering protected areas. The policy advocates for increased private sector participation in tourism development as well as increase of awareness to the public on the importance of tourism in economic development. Thus support under this component should also aim at creating balance between community needs and interests of tourism industry.

- *Component 3* – Weirs and boreholes to be established in specific REGROW areas should aim at relieving encroachment by communities to the protected areas. The boreholes should be dug in a way which does not disturb fauna and flora whilst reducing community pressure for water from bordering communities.

Tanzania Wildlife Policy, 1998

The Wildlife Policy of 1998 emphasises the establishment of protected area networks which are the basis for conserving the country's biological diversity, and growth of the wildlife industry. The long term perspective is to ensure that wildlife contributes to a healthy environment and contributes significantly to the country's economy. In order to attain this goal, the wildlife sector puts emphasis on maintaining and developing the wildlife protected area network and involving all stakeholders in the conservation and management of the resource, especially the local communities, and the private sector.

- *Component 1* – Article 2.7 notes that wildlife areas have relatively poor infrastructure and recommend for improvement. However, infrastructure development in these areas should comply to Articles 2.1 and 3.3.1 which advocate for the preservation of biological diversity the fauna and flora.
- *Component 2* – Art 3.3.15 is a clear statement that public awareness is the back bone to ensuring wildlife conservation. The communities in particular those in the areas bordering REGROW will require awareness on the importance of wildlife and conservation consciousness. In conduct of awareness activities (i) creation appropriate and relevant knowledge products (ii) delivery of programmes for schools and mainstreaming the same in the national curricula, with visual access where possible will serve to enhance the culture of biodiversity and wildlife conservation.
- *Component 3* – Any development and or agricultural intervention particularly in the wetlands and any boreholes to be drilled should be cautious of wildlife corridors and not restrict access.

Forest Policy, 1998

The policy provides for the ways the trees and forests are supposed to be utilized for sustainable meeting of community needs. The policy looks at ever increasing need of forests and how best the country should balance the needs and preservation. In short balancing a need to preserve forests as national heritage and a need to utilize forests for economic and social development.

The policy has two key statements that are pertinent to REGROW:

- Policy statement (1): To ensure sustainable supply of the forest products and services and environmental conservation, all types of forest reserves will be managed for production and/or protection based on sustainable management objectives defined for each forest reserve. The management of all types of forest reserves will be based on forest management plans.
- Policy statement (5): To enable sustainable management of forests on public lands, clear ownership for all forests and trees on those lands will be defined. The allocation of forests and their management responsibility to villages, private individuals or to government will be promoted. Central, local and village governments may demarcate and establish new forest reserves.

- Articles 4.3. 4 provides for a need to incorporate in planning the implementation of EIA in order to measure and control unnecessary damage to the environment .REGROW takes in to consideration a need for EIA measures to plan for component 1 on construction of infrastructure such as bridges, roads and ranger posts.

National Land Policy, 1997

The National Land Policy 1997, promotes and ensures secure land tenure system, to encourage the optimal use of land resources and facilitate broad-base social and economic development without endangering the ecological balance of environment for sustainable development.

- *Component 1* – Article 7.1.1 Prior to use of land, existing land tenure is recognized and this is done in the form of inter-ministerial committees that ensure all modes of land use are represented.
For REGROW the inter-ministerial committees (in this case the project management team) will discuss areas to be affected before actual development. The project management team will also ensure that licensed permits and any claims relevant to the proposed developments are issued in accordance with environment conservation best practices and regulations.
- *Component 2* – Similarly proposed community activities will be required to be compliant with land policy
- *Component 3* – It is a requirement of the land policy Article 7.6.1, that Wetlands should be first studied and be properly allocated to users and thus this will be adhered to.

For all three project components, involvement of local government authorities in land use planning (Article 6.10.1) is pertinent.

The National Irrigation Policy 2009

The policy ensures sustainable availability of irrigation water and its efficient use for enhanced crop production, productivity and profitability that will contribute to food security and poverty reduction. The policy bears relevance particularly to Component 3 of REGROW where Article 2.4.8.1 advocates for proper utilization of irrigation in the areas where it will help to reduce pressure on the natural resources and provide access to wildlife.

In compliance to the policy REGROW will promote improved technologies in agriculture for water management; ensure that the proposed boreholes provide adequate water storage; promote agriculture for high value crops for generation of employment and promote value addition; create awareness on water management (part of component 2) and where relevant strengthen or establish water users associations.

National Transport Policy, 2003

Development of an efficient, well integrated and coordinated transport infrastructure and operations that are economically, financially, social and environmentally sustainable are guided by the Transport Policy of 2003. The policy advocates for reduction of poverty in rural areas through improvement of rural transport and infrastructure to minimise travel related hardships. For REGROW the interventions of Component 1 will facilitate the movement of goods and services in rural areas and in part enable rural communities have more time and energy for productive works.

National Agriculture Policy, 2003

The Agriculture Policy of 2003 recognizes the importance of environment and proposes several measures to arrest degradation of natural resources. The policy emphasises intersectoral linkages to ensure integrated sustainable use and management of natural resources in order to conserve and improve standards of living in the rural areas through increased income generation from agricultural and livestock production, processing and marketing.

Specifically, Component 2 for which Article 3.14 of the policy promotes an agricultural value chain and agro processing is of relevance. Component 3 will also benefit from the Policy as Article 3.25.3 emphasises sustainable agricultural development that is coordinated with relevant ministries, addresses risks and sensitizes the public on environmental conservation.

National Water Policy, 2002

The objective of the policy for Water Resources Management is to develop a comprehensive framework for promoting the optimal, sustainable and equitable development and use of water resources for the benefit of all Tanzanians, based on a clear set of guiding principles.

- i. Socio-Economic and Water Allocation: Water is a basic need and its use is to be determined by and have consistence in the legislation, the allocation system should distinguish and separate water use permit from land titles and a sufficient supply of water and an adequate means of sanitation are prioritised.
- ii. Protection and Conservation of Water Resources: The "polluter pays principle" shall apply and water conservation for all aspects of water use are to be enforced. "Demand management" is to be used in conjunction with water supply provision.
- iii. Water and the Environment: Water related activities should aim to enhance or to cause least detrimental effect on the natural environment. Furthermore the allocation and consumption of water for environmental purposes shall be recognized and given appropriate considerations.

For the REGROW project components, developments in proposed protected areas should be implemented while observing Article 3.3 which advocates for water sources conservation and assurance of minimal environmental degradation and destruction of water sources. For Component 2 community involvement/participation for sustainable water conservation should be part of the awareness initiative and ownership of well should be in accordance with Article 4.1 of the policy.

The Water policy considers wetlands as a source of activities for hunting and fishing thus any developments should be in line with Articles 2.8 and 2.9 ensuring environmental conservation.

Construction Industry Policy, 2003

The goal of the Construction Industry Policy is to develop an internationally competitive industry and export its services and products and ensure value for money to industry clients in an environmental sustainable manner.

For REGROW the policy is of particular relevance to Component 1 whereby Article 8.2.2 emphasises the need to use modern technology that is not harmful to the environment.

The National Investment Policy, 1996

Article 5(d) of the policy requires Investments to be undertaken in a manner which supports among other things environmental protection. All investments to be undertaken in components 1 and 3 will have to comply with this policy requirements. REGROW has to put in to consideration the requirements of the policy to ensure that their implementation will be in line with the policy on environmental protection.

ACTS

The Environmental Management Act No 20 of 2004

The act provides legal and institutional framework for sustainable management of the environment; outlining principles for management, impact and risk assessments, prevention and control of pollution, waste management, environmental quality standards, public participation, compliance and enforcement; to provide a basis for implementation in Tanzania. The Act serves to ensure that the conservation and management of wildlife and natural resources benefits present and future generations as well as promotes and enhance the development of international instruments of environment.

Components 1& 2 – The Act provides environmental protection mechanisms in particular sections 49,50 through 58 for PAs and ecologically fragile or sensitive areas. Accordingly, construction of touristic establishments (i.e. road infrastructure, airstrips, park headquarters, and lodges etc.) and flow management structures in sensitive areas will follow the necessary compliance mechanisms.

The National Parks Act No 11 of 2003

The Act provides for establishment management and control of national parks in which it manages biodiversity such as flora and fauna. The Act does not extend to game reserves which are managed under other pieces of legislation. For REGROW this Act needs to be considered in tandem with specific laws or other pieces of legislation governing the areas to be affected by project such as the Wildlife Conservation Act, 2013 for areas surrounding the National Parks and Selous Game Reserve.

National parks are managed by TANZANIA NATIONAL Parks Authority (TANAPA).

The Hotels Act, Chap No. 105 of 2006

The Act provides for establishment and licensing of hotels in Tanzania . It establishes a Board which, is responsible for issuance of licenses for hotels. Section 10 and 11 of the Act provide for the circumstances and conditions for renewal of licenses and issuance of new licenses.

It is therefore recommended that the private sector investors setting up tourist facilities in the REGROW area will have to comply with provisions of Hotels Act, 2006 with regards the procedures to establish hotels or lodges.

Wildlife Conservation Act of 2013

The Act advocates sustainable utilisation and management of wildlife resources promoting and enhancing the contribution of the sector to sustainable development of eco-systems as well as development of PA networks for biodiversity conservation.

Component 1 – The Act requires consultation with authorities managing the PAs in which the development of transport, hospitality and wildlife protection infrastructure is to be delivered in accordance with Section 22(7).

Component 2 – Sensitization of PA-adjointing communities to sustainable natural resource harvesting and participatory conservation should be done in consultation with director of wildlife who has been charged with a duty of public awareness see Section 37 of the Act. Section. 22 (8) prescribes for associations managing Wildlife Management Areas (WMAs) to have the right to negotiate and sign agreements with potential investors, provided that representatives of the Director General of Tanzania Wildlife Authority and the respective District Council are involved in the process of negotiation and the signing of such agreements.

The Forest Act No 10 of 2002

The Forest Act delineates the forest types and their management/ ownership. For any development that would impact the forest such as extraction/ exploitation of products, an assessment of impacts is necessary. The Act thus enables local government authorities, including village governments to have power over some forests that are within their area of jurisdiction.

The Act specifies the need for conducting an EIA for development activities such as mining, commercial logging, road construction and/ or utility laying in road area etc., to ensure that the vegetation in particular trees cleared are done so in regard to the law.

Section 18 of the Act requires preparation of EIA on any plan to develop within a forest. Construction of roads, airstrips, touristic utilities, PA staff facilities and flow management infrastructure under Components 1 and 3 will require REGROW to prepare EIA and submit it to the Director of forests and the EIA shall be prepared by independent consultant approved by Government of the United Republic of Tanzania. Section 18(2) of the Act lists developments which need approval to be such as logging, road construction, mining, laying of pipes etc.

The Employment and Labour Relations Act, GN No. 6 of 2004

The Act provides for core labour rights, creates employment standards and settlement of disputes. In all REGROW components 1, 2 and 3 labour is an important element to facilitate implementation of project. Part II and Part III of the Act which provide for fundamental rights and protections and employment standards respectively are to be observed.

The Occupational Health and Safety Act of 2003

This legislation deals with protection of human health from occupational hazards. It specifically requires employers to ensure the safety of workers by providing safety gears, i.e. personal protective equipment (PPE) to the work place. Sections of the Act pertaining to the construction and operation of transport, touristic, and staff establishments and of flow management structures along River Ruaha, as well as to the conduct of biophysical surveys in the sub-catchment include Part IV which deals with general health provision, such as provision of regular medical examination of employees, safe means of access and safe working place and prevention of fire etc. Part V on health and welfare provisions, which includes provision of supply of clean and safe water to workers, sanitary convenience, washing facilities and first aid facility. Part VI deals with special safety provisions for workplaces involving handling of hazardous chemicals, hazardous process or hazardous equipment.

National Land Use Planning Commission Act of 1984

This Act specifies standards, norms and criteria for effective protection and enhancement of land quality and encourages better land use planning. For the PAs the general management plans provide the land use profiles emphasizing Exceptional Resources of Value (ERVs) and Key Ecological Attributes (KEA) for sensitive areas. The areas adjacent to the PAs have land use plans and for some villages these also double up as WMAs and have titles of recognition to demonstrate that.

The National Land Act No 4 of 1999

The Act provides for management of land in Tanzania and establishes or identifies categories of reserved land in Tanzania therefore subjecting use of each land to comply with relevant category of each part of land.

Section 6 of the Act provides for the following categories of land which are governed under other specified laws of the country. REGROW will have to be compliant to such relevant laws which will affect all REGROW components 1, 2 and 3. These Acts include the Forests Act, the National Parks Act, the Wildlife Conservation Act, the Town and Country Planning Act, the Public Recreation Grounds Act and the Land Acquisition Act.

The Act also provides for preservation of other categories of land including those reserved for public utilities; parcels within a natural drainage system from which the water resource of the concerned drainage basin originates; land declared by minister to be hazardous land (as defined under section 7 of the Act).

The Village Land Act No 5 of 1999

The Act provides for the management and administration of land in villages, and for related matters including the application of fundamental principles of the national land policy, transfers and hazard land, village lands and dispute settlement. For components 2 & 3, the construction of riverine control structures (artificial weir, pools, boreholes and river pools) and communal establishments on village land as defined under section 7 of the Act shall require approval from village council which in terms of section 8 has powers to manage village land.

The Water Resources Management Act No. 11 of 2009

The Act provides institutional and legal framework for sustainable management and development of water resources it outlines principles for water resources management; prevention and control of water pollution; participation of stakeholders and the general public in implementation of the National Water Policy.

The Act is of relevance to all three REGROW Components, particularly Component 3 which focuses on the construction of flow management structures and boreholes for bulk supply along River Ruaha, improvement of priority irrigation systems, catchment conservation initiatives and associated permitting, and stipulates the need for consultation with the Water Basin Boards in the area. The boards are empowered to approve any developments in the basins as stated in Section 23.

Other water related Acts include the Water Supply and Sanitation Act, the Environment Management Act, the Land Act and the Forest Act.

The National Irrigation Act of 2013

The Act established the National Irrigation Commission to provide for the development, operation and maintenance of irrigation and drainage systems and effectively implement the National Irrigation Policy, and the National Irrigation Development Strategy.

The Irrigation commission promotes efficient water use in irrigation systems and ensures compliance with the Integrated Water Resources Management best practice standards and guidelines as a regulatory body.

Compliance with section 44 of the Act for construction of irrigation flow and drainage controls under planned Component 3 is to be adhered to as a list of prohibited activities in the irrigation area is enumerated. The Act provides for regular monitoring and evaluation of performance of irrigation schemes is under section 45 and assurance of environmental health is mandatory under section 50.

Energy and Water Utilities Regulatory Authority Act No 11 of 2002

The Act empowers the Authority to regulate energy and water utilities supply and sanitation entities of Tanzania.

REGROW takes in to account of the provisions of the Act in respect to regulating water and energy utilities, it is part of the project to seek and obtain necessary permissions from relevant authority whenever applicable in the course of implementing or prior to implementation of the projects as the case may be.

Water Supply and Sanitation Act No 12 of 2009

The Act establishes water supply management authorities which have duties or functions provided under section 20 of the Act. One of the functions of the authorities is to protect and maintain water sources.

Under Component 3 the proposed boreholes shall require prior consultation and authorization from the water authority if the boreholes will be drilled outside protected areas. The Act provides the following on restriction of water supply and sanitation services 29.-(1) No person other than a community organisation shall provide water supply and sanitation services except under authority of a licence issued under this Act.

Tourism Act No. 11 of 2008

Act for establishing tourism framework, administration and licensing of tourism facilities in Tanzania. Section 4 establishes technical advisory committee which advises the minister responsible for tourism to include issuance of licence; grading of tourism facilities; registration of tourism facilities and tourism development.

All tourism activities are to be licensed by the Board established under section 21 of the Act. Any plans for development or creation of tourism facility should take on board the need to obtain licence from Tanzania Tourism Licensing Board. The development of touristic establishments and services under Components 1 and 3 will consider of the requirements under this Act.

HIV and AIDS (Prevention and Control) Act of 2008

The Act provides for prevention, treatment, support and care, control of HIV AIDS and support using available resources.

The Project should take in to consideration of section 9 of the Act providing for HIV AIDS education at the work place as the implementation of all three components of the project will involve hiring labour. Observing rights and Obligation of people living with HIV AIDS as provided under section 33 of the Act.

Public Health Act No 1 of 2009

The Act provides for promotion preservation and maintenance of public health and sustainable public health to the general public. Section 168 of the Act provides for ensuring welfare and health of every worker is maintained therefore it is an obligation for proposed establishment under the components to maintain welfare of their workers.

Section 169 confers powers to the minister to make regulations regarding health standards. REGROW will have to ensure health standards are maintained in particular working equipment and environment this may include keeping of inventories in up to date and conducting routine medical examination during implementation of the components.

Occupational Health and Safety Act No. 5 of 2003

The Act provides for securing the safety, health and welfare of persons at work places. Part VI of the Act, that is to say sections 60, 61 and 63 of the Act provide for safety measures to be taken by each employer in the specified conditions. REGROW addresses how best workers safety will be taken care of during the project especially implementation of components whose nature involve safety risk to workers, such as the construction works under Components 1 and 2.

The Roads Act of 2007

The Act makes provision for road financing, development, maintenance, management and gives direction to the responsible ministry to prepare guidelines, standards and specifications for road works and monitoring performance of the road network; to oversee and monitor road safety and environmental issues.

Construction and upgrading of roads and their ancillary facilities (i.e. trials, solid drifts and box culverts) in the PAs under Component 1 will have to comply with sections 15 and 16 of the Roads Act in addition to the national parks best practice guidelines. The Act outlines procedures for construction as well as compensation where road are constructed.

Regulations and Guidelines

A list of existing guidelines that have relevant to REGROW interventions, especially for the use in mitigation of short term impacts during implementation related to construction and road rehabilitation activities are provided in the table below.

Table 7-1 General Guidelines for Compliance that is applicable to REGROW interventions

Dep.	Guidelines	Year
DoE	Guidelines for Mainstreaming Sustainable Consumption and Production (SCP) in National -Policies and plans	2013
	Guidelines for Management of Hazardous Waste	2013
	Guidelines on Management of Liquid Waste	2013
	Guidelines for Protection of the Ozone Layer and the Stratosphere	2013
	Guidelines for Integrating Climate Change adaption into National Sectoral Policies, Plans and Programmed of Tanzania	2012
VPO	The National Guidelines for Mainstreaming gender into Environment	2014
	Guidelines of Management of Environmental Emergencies	2014
	Guidelines for Sustainable Management and Utilization of Rangelands in Tanzania	2014
	Guidelines for Sustainable Management of Wetlands	2014
	National Biodiversity Strategy and Action Plan	2001
	Draft Environmental Impact Assessment Procedures and Guidelines	undated
NEMC/TANAPA	Draft Guiding Principles for Environmental Monitoring of Tourism facilities and Activities in National parks	2016
TANAPA	Programmatic Environmental Assessment for Road Improvements in Tanzania's National Parks	2001
	TANAPA Procedures for Environmental Reviews of Road Improvements	2000
	Development Action Lease Procedure (EIA procedures)	2013
	Guidelines for Invasive Alien Species Management	2015
World Bank	Draft Guidelines for Waste Management	2015
	Environmental Guidelines of Small Scale Activities in Africa (EGSSAA) Agriculture: Soil and Water Resources, including Irrigation	
	Environmental, Health and Safety Guidelines for Tourism and Hospitality Development	2007
	Environmental, Health and Safety Guidelines for Airports	2007
	Environmental, Health and Safety Guidelines for Perennial Crop Production	2016
	Environmental, Health and Safety Guidelines for Aquaculture	2007
	Environmental, Health and Safety Guidelines for Construction and Decommission	2007
	Environmental, Health and Safety Guidelines for Occupational Health and Safety	2007
	Environmental, Health and Safety Guidelines for Environmental Waste management	
	Environmental, Health and Safety Guidelines for Hazardous Materials Management	
	Environmental, Health and Safety Guidelines for Environmental Waster Conservation	
Environmental, Health and Safety Guidelines for Wastewater and Ambient Water Quality		

The Environmental Impact Assessment and Audit Regulations, 2005

These regulations provides for the implementation of the EMA (2004). In accordance with the regulations, project proponents for any development listed in Schedule I of the Regulations is required to first register the project, by submitting the Form EA1 to NEMC, which outlines details of the project and its likely impacts.

The regulations advocate for periodic and independent re-assessment of development projects and that the outcome of such assessments should serve to provide instructive feedback into the environmental management process. Consultation is mandatory when undertaking an EIA but the degree and target group in which are involved varies for each proposed action. At minimum, the proponent must meet with the principal stakeholders to inform them about the proposed activity and to solicit their views about it. For the proposed action, the scoping exercise identified those parties that need to be informed and or actively involved in the EIA process. Their views and concerns are presented in the following sections as well as the recommended consultations to be undertaken during the EIA.

The Environmental Impact Statement (EIS) that is a key outcome of the EIA process is submitted to the Technical Advisory Committee (TAC) coordinated by NEMC for review. It is expected that all projects (as stipulated by the regulations) should seek EIA certificate before its implementation.

Some of the interventions under REGROW Components 1, 2 and 3 – including the construction roads (and their ancillary facilities), airstrips, tourism/recreational facilities, irrigation systems and river flow control structures, as well as establishment of new protected areas and associated resettlement – may require an EIA prior to implementation and thus this regulations is of relevance for the project.

The Environmental management (solid waste management) regulations, 2009

The Environmental management (solid waste management) regulations, 2009: These regulations provide for the implementation of the EMA (2004). The regulations are guided by three principles; the precautionary principle, the polluter pays principle and the producer extended responsibility principle.

The regulations are enforced by local governments and/ or regulatory bodies in this case TANAPA and schedule 1 of the regulations highlights the types of waste and recommended modes of treatment for the same. The contractor and proponent for REGROW will comply with these regulations when dealing with solid waste generated by large-scale construction works, notably those envisaged under Components 1 and 3.

The Environmental Management (Hazardous Waste Management) Regulations, 2009

Similar to the regulations for management of solid waste, these regulations also subscribe to the three principles of precaution, polluter pays and producer extended responsibility. The Director of the environment enforces these regulations and schedules 1 and 4 indicate the main types of wastes and disposal mechanisms respectively.

Environmental Management (Air Quality Standards) 2007

The regulations provide for prevention and control of air pollution and require the National Environmental Standards Committee to, among other things: prescribe criteria and procedure for measurement for air quality; (b) establish air quality standards; (c) establish emission standard for various sources of air pollution.

REGROW takes into consideration the set standards specifically PART III of the regulations and designs how best to comply and mitigate from air pollution which can be caused by implementation of the project in all components.

Environmental Management (Water Quality Standards) 2007

The regulations provide for water pollution and water quality standards, in respect to compliance by polluters and enforce minimum water quality standards prescribed by the National Environmental Standards Committee. The established committee may prescribe classifications, criteria and procedure for measuring standards for water quality.

Noting this legal obligation, REGROW has considered and plans to establish mechanisms which may control water pollution through catchment conservation interventions, biophysical surveys of hot-spots, enforcement of legal water resources management requirements and monitoring. Further the project takes in to consideration of the whole PART II and PART III of the Regulations and other relevant parts of the regulations as the case may be in the course of implementation of the project.

Environmental Management (Standards for the Control of Noise and Vibration Pollution) 2011

The regulations made under EMA, 2004 provides for control of noise and vibration pollution. REGROW has noted the regulations setting standards for control of noise and vibration pollution and recommends the mechanisms to mitigate such pollution in the course of construction works planned under Components 1 and 3.

Wildlife Management Areas Regulations, 2012

These Regulations detail the process for establishing community-based organization and declaration of a WMA, it's administration and management. It also provides a framework for sharing benefits among stakeholders utilization, investments and developments of the common resources.

The regulations promote increased participation of local communities in the management of wildlife resources; enabling them to derive benefits and enhance the conservation of wildlife resources. This must be observed in the establishment and reform of new and existing WMAs under Component 2.

APPENDIX 6 EXISTING LGA STRUCTURE AND COMMITTEES

Tanzania mainland local government structure summary

Level	Office/Title/ Position	Elected / Political Appointed / Administrative appointed	Function/Responsibilities
Regional	Regional Commissioner	Politically appointed by President	Principal representative of govt. in region Oversees coordination of all development and admin services
	Regional Administrative Secretary	Politically appointed by President	Regional head of civil service
District	District Commissioner	Politically appointed by President	Govt. Representative at district level Ensuring maintenance of law and order in district
	District Administrative Secretary	Politically appointed by President	District head of civil service
Local Government Authority	Mayor/ District Council Chairman	Elected by fellow councillors in council	Conduct the full council meetings
	District Executive Director/Municipal Director	Administratively. appointed by President	Secretary to District/Municipal Council Responsible for budgetary affairs and implementation of plans in district
	Members of parliament	Elected by residents in relevant constituency	Address concerns and disputes by citizens in constituencies Represent their party at the constituency level and the constituency in parliament
	Standing Committees	Consist of elected councillors and employed Heads of Departments	Efficient functioning of District Council
	Technical Departments	Employed civil servants	The running of the day-to-day activities and implementing district work plans
	Support Departments	Employed civil servants	Support the District (and Municipal) Council and the technical departments
Division	Divisional Secretary	Politically appointed by Minister for Local Govt.	Ensuring maintenance of law and order in division
Ward	Ward Executive Officer	Administratively appointed by Municipal or District Executive Director	Secretary of the Ward Development Committee
	Ward Development Committee	Consists of elected chairmen and councillor (and MP if residing in Ward) as well as the WEO	Ensuring implementation of decisions & policies of District/Municipal Council and of development plans pertaining to ward
	Ward Councillor	Elected in Ward	Addressing citizens' concerns and bring these forwards to the District or Municipal councils Represent their party at the ward level
Mtaa	Mtaa Executive Officer	Administratively appointed by Municipal Director	Secretary to Mtaa Council
	Mtaa Chair	Elected by residents of the Mtaa (the municipal equivalent to a village)	Representative of the people, chairs the Mtaa Council and oversees all Mtaa committees
	Mtaa Council	Elected by the Mtaa Assembly	The main governing body of the Mtaa
	Mtaa Committees	Elected by Mtaa Council	Responsible for various specific issues related to Mtaa development
	Mtaa Assembly	All mtaa residents above 18 years	The supreme authority of the mtaa
Village	Village Executive Officer	Administratively. appointed by District Executive Director	Secretary to Village Council
	Village Chair	Elected by village residents	Representative of the people, chairs the Village Council and oversees all village committees
	Village Council	Elected by the Village Assembly	The main governing body of the Village

	Village Committees	Elected by Village Council	Responsible for various specific issues related to village development
	Village Assembly	All village residents above 18 years	The supreme authority of the village

APPENDIX 7 ESMPS DEVELOPED FOR REGROW

Impacts are mitigated in the various custom made ESMP plans, reference is made in the table to which ESMP the impact will be mitigated under. The ESMPs are:

- ❖ PEA for road improvement (to be revised)
- ❖ STCIM Short Term Construction Impact Mitigation
- ❖ MUDD Managing Undesirable Discharge and Debris
 - Solid Waste Management, Treatment and Disposal (SWMTD)
 - Liquid (Sewage) Waste Treatment and Disposal (LWTD)
 - Stormwater Management and Control (SMC)
- ❖ Viewshed design criteria
- ❖ AWARE ESMP – Avoiding Wildlife Related Accidents and Responding to Emergencies
- ❖ E-ACT Environmental Awareness and Competence Training
- ❖ PRUNE Permitted Resource Utilization in Natural Environments
- ❖ 3Cs Hazardous Substance Control and Management

Table 7.2 ESMP Objectives and Plan of action

ESMP	Impact Description	Ease of Mitigation	Description of ESMP Objectives
3Cs	Soil contamination from mishandling of fuels.	Constant Threat	Cover, Contain and Control all substances that have the potential to create hazardous situation or pollution. Ensure that all vehicles and equipment are in good working condition. Inspect and service regularly - vehicle, electric pump and generators. All used oil, grease and other hydrocarbon waste must be removed from the park, and documentation of volume, type and final disposal (reuse included) location should be provided.
	Generator emissions leading to significant air or noise pollution.	Easy	Limit generator operation to < 10 hours per day, and during hours that guests are on game drives.
AWARE	Emergency Response Capacity to Wildlife Dangers: Predators like Lion, Leopard, Hyena and other animals like elephants can cause injury, property damage and or death.	Challenging	Wildlife Danger Mitigation: Conduct awareness raising to all workers on the dangers and precautions to use when encountering wild animals. Patrol site on a routine basis. PA rangers to be posted at the construction 24/7.
	Emergency Response Capacity to Medical Emergencies	Constant Threat	OHS: Comply with relevant OHS guidelines and/or regulations. Provide appropriate PPE and train staff on their use. Each task that requires any PPE must follow OSH regulations or manufacturer's instructions. Maintain a first aid kit and have trained personnel on site. Report all accidents or incidents that result in illness or injury.
	Fires: Natural and manmade bush fires are a common occurrence, especially along park borders. Also, recreational campfires, the incinerator, kitchen and fuel storage present fire risks.	Constant Threat	FPPR: Display of fire extinguisher schedule and location plan. Refill fire extinguish containers in a timely manner. Clearly display hazard signs at fuel storage following MSDS guidelines and warning categories. Have No smoking signs placed in strategic areas. Clearly display emergency evacuation map in all guest rooms and back of house. Mark Evacuation Meeting Points with visible signs. Firebreak routinely slashed to maintain at least a 3 meter wide barrier. Clearly displayed hazard signs at generator following MSDS guidelines and warning categories for electrical equipment. All electrical main control panels with labels indicating hazard of electrocution.
MUDD	Pollution of land or water resources due to sewage waste leaks or malfunctioning sanitation systems. Sewage waste creating unhygienic conditions or spread of	easily mitigated	Sewage Waste Treatment and Disposal: Proper design capacity, installation and regular inspections of system. Prevent items from being flushed in the toilet. Protect River from being polluted with unnatural or polluted runoff by placing sewage infrastructure outside the WPZ.

ESMP	Impact Description	Ease of Mitigation	Description of ESMP Objectives
	disease to humans and/or wildlife.		
	Pollution of land or water resources. Solid waste creating hazardous or unhygienic situations.	Constant Threat	Solid Waste Treatment and Disposal: Separate waste at source with different kinds of dustbins (plastic, food waste, paper, mixed). Put the waste bins in strategic positions. Limit the volume of solid waste to be discarded. Wildlife proof waste pit. Limited duration of waste storage on site that is to be removed from park. Wildlife proof stores. Stringent cleaning regime at kitchen and food stores.
	Ecological impacts to receiving terrestrial and aquatic environs	0	Stormwater Management and Control: Inspect drainage during each rain event that creates flow from site.
E-ACT	Substandard conditions at ranger post	easy	PA to liaison with organization and authorities that focus on health issues pertinent to the local community
	Living and working conditions. Staff need to be provided a safe work environment as well as clean and healthy living situation (accommodations and meals).	easily avoided	Provide shelter, food water, lighting, power, and medical help that is of sufficient quality and quantity. Maintain staff compound and provide nutritious meals with variety as well as water and lighting.
	Opportunities for local communities	easy	Recruitment policy to include engaging local labour, especially marginalized groups such as youth or females, particularly when semi-skilled or unskilled labour is required.
PDCF	business opportunities for local communities	easily mitigated	Liaison with PA Community Outreach for collaboration and insight to goods available at local level.
PRUNE	Overexploitation of groundwater sources leading to depletion	easily mitigated	NO shallow water abstraction, borehole casings to be sealed the first 30 mbgl. 24 hour pump test required to confirm yield. Installed pump capacity not to exceed 75% of confirmed yield. Water demand to be regulated.
	Surface disturbance from road grading, site clearance and cut-and-fill during construction causing erosion or siltation especially with slopes > 7% gradient.	0	Establish a ZAD, not to exceed more than 12 hectare of the 27 hectare hillside area. Minimize need for cut and fill through building placement on slope no greater than 7%. Backfill holes properly and restore site to as natural contour as possible. Overburden disposed properly or used for backfill and compacted. Construction scar to be landscaped. All revegetation is with indigenous vegetation species from park under supervision of PA Ecology Department.
STCIM	Nuisances and disturbances due to noise, dust and/or heavy equipment movements	easy	Keeping workplace cleared of waste or hazardous situations. Provide temporary pit latrine, showers and tents for workers sleeping on site.
	Construction hazards and public safety (traffic, work injuries etc.)	easily avoided	Control speed and movement of project vehicles. Workers provided with PPE. Train workers in construction safety measures. Safety signs in

ESMP	Impact Description	Ease of Mitigation	Description of ESMP Objectives
			hazardous places. Institute a "Driver's Code of Conduct". Management of skilled workers. Insurance of workers and public liability.
	Accumulation of construction waste in uncontrolled manners.	challenging	Institute the Solid Waste Treatment and Disposal plan at construction phase. Dedicate a staging area where construction waste can be consolidate and temporary stored until final disposal outside the park at approved landfill.
	Black cotton soils in the lower lying (mbuga) are prone to water logging and subsequently make road impassable during rainy season or storm events.	challenging	Follow PA Engineers directives for establishing road access to site; most likely from an eastern or western (Hembe) approach.
VDC-k	Viewshed impact from unsightly project activities	Close supervision required	PA and TANAPA to confirm and approve all design plans. Constant supervision of construction progress to ensure that buildings blend harmonizing in with the surroundings. Use o camouflage techniques, colouring, and cut and fill scare remediation is paramount for impact mitigation.
WPZ	Potential impact on ESA (hot spots) conservation efforts for riverine systems in PA.	easy	Recognize the River Conservation zone which is the area within 60 meters from the River embankments.

7.2 AWARE ©^{wegs}: Avoiding Work/Wildlife-related Accidents and Responding to Emergencies

This plan sets out Emergency Preparedness and Response Plan (EPPR) for medical emergencies and fire-fighting plan. The objectives of the AWARE plan are to be able to detect and respond quickly and effectively to emergencies of which 1: Prevention, 2: Preparedness and 3: Response is integral to this plans mitigation power.

Medical Emergency Preparedness and Response Procedures: For proactive planning, implementing partners should train personnel in first aid and emergencies procedures and protocol. Emergency procedures should also clearly posted in the main office and staff canteen where all persons can find and follow during a real emergency. Posted materials include contact numbers for doctors, hospital, emergency services such as Air ambulances, first aid information, medical information and evacuation procedures.

Medical Emergencies Procedures: The project will maintain a first aid kit with typical medications. Emergency evacuation procedures will be drafted and project staff aware of the procedures through monthly drills and posting procedural placards clearly on boards in English and Swahili.

Dangerous Wildlife Encounter Prevention: Clearly all large animals represent a threat to humans; especially leopard, elephant, buffalo and hippo. **Dangerous wildlife encounters** are inevitable and protection-awareness and emergency response is crucial.

7.2.1 Fire Prevention, Preparation and Response Plan (FPPR):

Bush fires are a constant issue in PAs. There are custom made fire control regime for each PA, where ‘cold burns’ usually are released during the months of June-August in the attempts to avoid the ‘hot burns’ that occur in between august and September.

Provide additional details of their fire fighting systems, which are summarized in the following section.

7.2.1.1 Proactive Fire Prevention

High risk ignition sources are at the kitchen, workshop, and incinerator and fuel stores. The program has some criteria that assists with prevention of fires generated from the camp. They are:

- ❖ Locate any incinerator at least a 25 meter radius from high risk ignition sources (buildings, trees, etc.)
- ❖ All flammable materials (including fuels) need to be properly protected using the 3C's system.
- ❖ Electrical mains to be fire and spark proof with appropriate earth and lightening resistor equipment.
- ❖ Regional winds change direction twice a year, staff to be aware of this and make appropriate changes to fire prevention regimes and incineration locations.

7.2.1.2 Fire Preparedness and Response

The first line of defence is to prevent fires by controlling ignition sources. The next line of defence it to prepare appropriate and functioning fire-fighting equipment that is easily accessible. The final defence is being able to respond and control/extinguish fires. This can be done through:

- ❖ Providing appropriate fire extinguisher in strategic positions;
- ❖ Training workers on the usage of fire fighting gear;
- ❖ Conducting routine fire drills;
- ❖ Refilling fire extinguish containers at appropriate times; and
- ❖ Instituting a fire prevention and response plan.
- ❖ Rapid intervention techniques in the event of accidents, injuries or other calamities;
- ❖ Response to fires involves being prepared and having the necessary fire-fighting equipment and trained personnel constantly on the alert. Extinguishers should be placed in strategic fire-prone areas, especially fuel stores, during the Construction phase. All Fire and Rescue Services Act regulations must be followed.

The following criteria are recommended.

- ❖ Display evacuation maps with location of escape routes to “meeting places” in guest rooms and staff areas.
- ❖ Clearly mark and maintain “Meeting point”
- ❖ Fire extinguisher inspection and expiration records to be posted in project office
- ❖ Place extinguishers in strategic fire prone areas, especially kitchen, fuel stores and guest/staff rooms.
- ❖ Ensure full function, and routine checks, drills and maintenance of fire fighting equipment.
- ❖ Ensure fire extinguisher are recharged annually and inspected according to Tanzanian fire code.

7.2.2 Performance Indicators for M & E for STCIM ESMP

This section contains a tabulated summary of recommended M & E indicators and procedures for the STCIM ESMP

Table 7.3 EMAP - Summary of Environmental Monitoring Schedules for AWARE ESMP

Monitor Item	Monitor Location	Monitor Purpose	Monitor Indicators	Responsible Monitor	Evaluation frequency
Fire Prevention, Preparedness and Response Plan					
fire extinguisher	various locations	ensure fire extinguishers are not expired	fire extinguisher recharge schedule posted in office	manager	bi annual
fire blanket	kitchen	available for accidents	blanket is present		bi annual
evacuation plan	guest tent, back of house	brief on evacuation and report incidents	Signs are posted and guest briefed upon their arrival of emergency response procedures and evacuation maps. Meeting point signs clearly posted.		bi annual
mock drills	na	maintain readiness	keep staff sensitive and confident to respond to fires		Refer to FPPRP schedule

Table 7.4 M & E requirements for AWARE – Avoiding Work/Wildlife Related Accidents and Responding to Emergencies

Impact Description	Infrastructure Required	Training required	Tools PPE Required	Documentation	Parameter to be monitored	Monitoring Location	Monitoring Activity	Legislative Compliance
Emergency Response Capacity to Wildlife Dangers: Predators like Lion, Leopard, Hyena and other animals like elephants can cause injury, property damage and or death.	walkie talkie, torch	Train staff emergency respond protocol and conduct routine mock emergency drills.	Construction site first aid kit. Provide and maintain a First Aid Kit. Appropriate protective gear provided and used.	Posted medical evacuation procedures and contacts in appropriate areas.	No. incidents	All departments	Interview staff as to their proficiency in ERP. Confirm display of ERP procedures at main office and staff compound. Confirm use and provision of walkie talkie. Interview staff and inspect First Aid kit. Review OSH incident reports (if any). Ensure that all wildlife are left unharmed and report any issue with wildlife to PA. Interview PA rangers. Review security Log and Incident Reports (If any)	The Occupational Health and Safety Act 2003, TZS 1511: 2012(1st Ed) Occupational health and safety management system requirement
Emergency Response Capacity to Medical Emergencies	PPE PRN	basic first aid, CPR, use of PPE	first aid kit, gloves, boots, eye protection, ear plugs, masks, overalls, etc.	Injury report	No. incidents	depends on work task	Review Injury Report	
Fires: Natural and man made bush fires are a common occurrence, especially along park borders. Also, recreational campfires, the incinerator, kitchen and fuel storage present fire risks.	Firebreak around site. Signs. Fire fighting equipment. Smoke alarms.	Train staff on the use of fire extinguishers and conduct routine mock fire and emergency drills.	warning signs posted	Warning signs at fuel store, workshop, gas cylinder storage. MSDS binder in PA office or workshop. Refill schedule and tags on fire extinguishers.	Equipment in working order	Fuel store, workshop and Kitchen. Firebreak. Main circuit board and earthing rod.	Provision and maintenance (refill schedule) of sufficient fire fighting equipment. Confirm display of signs and review MSDS binder. Inspect fire alarms for proper function. Inspect earthing. Confirm signs are posted. Inspect Fire break. Confirm display of signs and fire extinguishers.	Fire codes, PA rules and regulations and OSH regulations

7.3 Environmental Awareness and Compliance Training ©^{wegs} (E-ACT)

This plan sets out awareness and training on safety procedures, and use of safety equipment needed for safe working environments. An integral part of E-ACT is to have trained staff, with the proper protective gear and attitude to undertake the day to day best management practices. Construction can be a safe occupation when workers are aware of the hazards and safety and health programs are effectively implemented. Public and worker health risks can be negligible when proper equipment, procedures, training and supervision is effective in prevention and response. (Mwombeki, 2005)

Safety hazards are those that pose imminent danger of causing injury or death to workers or damage to materials, equipment or structures. Health hazards in construction include heat, radiation, noise, dust, shock and vibrations, and toxic chemicals. The production and use of building materials also contribute to health hazards. (URT Construction Policy)

To reduce the incidence of occupational and project related accidents, implementing partners should provide training and educational sessions for all workers. The training sessions focus on Safety and Health precautions as well as compliance standards. All employees will be required to undergo the Environmental Awareness and Compliance Training (E-ACT). Workers complete the training will understand how to prevent, detect and respond to hazards on the job. Those staff having specialized jobs (electricians and machinist) will be trained in specific responsibilities and techniques for safe work procedures.

The E-ACT training uses the following approach:

- ❖ Project and ESMP orientation where persons assigned to intervention implementation receives a comprehensive project overview
- ❖ Job Orientation where job specific training includes the use of PPE, tools, gear, equipment and apply Emergency Response Procedures (ERP) relevant to job responsibilities.
- ❖ Situational Orientation where relevant staff are required to attend scheduled drills to demonstrate in ERP as well as basic first aid and fire drill procedures.

ESMP and M & E Orientation where all management and administrative positions are thoroughly briefed on the required compliance to these plans. Training includes how to prepare and document monitoring records and maintain all required permits required for the project operation.

These orientations assist with carry out the recommended ESMP work. The training will ensure that all staff have adequate knowledge, skill and attitudes for safe use and handling of equipment and vehicles through the E-ACT orientation -process.

MNRT and its implementing partners should provide and maintain a safe and conducive work environment for its entire staff and as well as a safe place for those who visit the project. This can be done by ensuring the following:

- ❖ Orientation training of project supervisors, managers and workers;
- ❖ Maintaining safe and health workplaces, plant equipment and monitoring warning systems
- ❖ Through E-ACT, provide information, instructions and training to enable workers to identify, prevent and response to hazards encountered on the job, especially in areas know to be hazardous (wildlife dangers, fire hazards, proper waste management etc.
- ❖ Collaborate with regulators and employee designated representatives in regards to concerns and issues arising from project activities,

- ❖ Provide and enforce the use of adequate PPE as well as maintaining appropriate signage for areas and materials that could pose a hazard to all persons in the project area
- ❖ Ensure chemicals and dangerous substances are stored in appropriate containers and stores, and follow labelling ,storage and handling advice set out in material safety and data sheets (MSDS)
- ❖ When appropriate, use signs with iconic graphics and Swahili for ease of understanding.
- ❖ Ensure that first aid kits and stations are regularly stocked with items appropriate in size and scale for expected first aid response. Easy access to and sufficient supplies in First aid Kit. Staff with first aid training, in particular CPR, resuscitation and training in response to electrocution.
- ❖ Follow all OSH and Fire codes that are applicable for this project and ensure that all workers are trained in the basic requirements of the codes.

Personal Protective Equipment (PPE) (helmets, earmuffs, gloves etc.) will be available to workers and their use mandatory, where required. Non-compliant staff must be appropriately reprimanded. As a matter of principal, all contractors must ensure that “safety first” is the rule that governs all activities and operations.

Job Training: Workers need to be QUALIFIED to perform the tasks that pertain to their job. They need to be trained on:

- ❖ Orientation of the 3Cs plan in Hazard Assessments, knowing about potential hazards and what to do when something goes wrong
- ❖ Use of Personal Protective Equipment (PPE)
- ❖ Orientation of the AWARE Emergency Action Plan
- ❖ OSH awareness training (selection and use of PPE, signs of heat stroke, avoid contact with live wires, etc.)

7.3.1 AIDS and HIV Awareness

AIDS and other communicable diseases: Reducing HIV/AIDS incidences involves facilitating awareness campaigns. Workers Health Awareness could consist of:

- ❖ Raise awareness to workers on the effects/dangers of STDs like HIV/AIDS
- ❖ Provide life skills and personal development planning
- ❖ Support voluntary HIV counselling and testing when requested by staff
- ❖ Seek for professional assistance from organizations working in the field of public health and control of HIV/AIDS

7.3.2 Performance Indicators for M & E for E-ACT ESMP

This section contains a tabulated summary of recommended M & E indicators and procedures for the E-ACT ESMP.

Table 7.5 M & E requirements for E-ACT

Impact Description	Infrastructure Required	Training required	Tools PPE Required	Documentation	Forecasted Impact Rating after ESMP	Parameter to be monitored	Monitoring Location	Monitoring Activity	Legislative Compliance
Lack of personal hygiene and disease prevention	workplace hand wash basins	Annual health seminars and medical officer visits.	hand wash signs, condoms, health awareness posters in staff areas	Number of staff voluntarily tested. Number of seminars or testing sessions (2 per year)	low	No. staff complaints	Hand wash stations and toilets	Health campaign signs on HIV/AIDS. Availability of condoms. Inspect hand wash stations and toilets. Review Medical Leave Request. Interview staff.	OSH Regulations. The Tanzania Food, Drugs and Cosmetics Act 2003. Various HIV relevant acts and regulations
Living and working conditions. Staff need to be provided a safe work environment as well as clean and healthy living situation (accommodations and meals).	Rooms, ablution, canteen, recreation area	-	mosquito nets, mattresses, furniture	-	low	Living and working conditions	throughout site	Ensure that the ESMP complies with all OSH regulations in regards to the health and safety for workers and public.	Employment and Labour Relations Act, 2004
Opportunities for local communities	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

7.4 PRUNE ©^{wegs} – Permitted/Prohibited Utilization of Nature Resources in Natural (Protected) Environments

The main activities of the programs are:

Groundwater Monitoring: Since there is no baseline water data for surface and groundwater quality and quantity, implementing partners should commit to undertaking the following, in association with the appropriate agencies charged with monitoring such environs:

- ❖ Register borehole data (water test and yield results) with the District Water Department or relevant basin authority like RBWO.
- ❖ Install a water meter on boreholes to monitor water consumption rates. This should be a prerequisite for all PAs and private sector camps and lodges that have boreholes. This could provide valuable information that was lacking during this exercise.
- ❖ Measure borehole water levels on a monthly basis, or more frequent if levels fluctuate radically
- ❖ Maintain a Borehole Log that includes operation hours, water levels, and meter readings.

Remediation of Construction earthworks, Minimize the need for cut and fill by placing buildings on slope no greater than 5%. Backfill holes properly and restore site to as natural contour as possible. Overburden disposed properly or used for backfill and compacted. Construction scar to be landscaped. Any revegetation is with indigenous vegetation species.

Establishing the Conservation Zone: Demarcate zone boundary clearly and obviously prior to any site clearance work. Ensure contractor recognizes the Conservation Zone and commits not to place buildings within 60 meters from the dry stream habitat.

Demarcate areas where controlled surface clearance is tolerated (mostly where footing or foundations are to be built). Demarcation includes tagging of trees and shrubs which are to be left untouched. Accommodate and protect rock outcrops and mature trees in the camp design. Avoid haphazard clearing.

7.4.1 Performance Indicators for M & E for PRUNE ESMP

This section contains a tabulated summary of recommended M & E indicators and procedures for the PRUNE ESMP

Table 7.6 M & E requirements for AWARE – Avoiding Work/Wildlife Related Accidents and Responding to Emergencies

Impact Description	Infrastructure Required	Training required	Tools PPE Required	Documentation	Parameter to be monitored	Monitoring Location	Monitoring Activity	Legislative Compliance
Emergency Response Capacity to Wildlife Dangers: Predators like Lion, Leopard, Hyena and other animals like elephants can cause injury, property damage and or death.	Walkie talkie, torch	Train staff emergency respond protocol and conduct routine mock emergency drills.	Construction site first aid kit. Provide and maintain a First Aid Kit. Appropriate protective gear provided and used.	Posted medical evacuation procedures and contacts in appropriate areas.	No. incidents	All departments	Interview staff as to their proficiency in ERP. Confirm display of ERP procedures at main office and staff compound. Confirm use and provision of walkie talkie. Interview staff and inspect First Aid kit. Review OSH incident reports (if any). Ensure that all wildlife are left unharmed and report any issue with wildlife to PA. Interview PA rangers. Review security Log and Incident Reports (If any)	The Occupational Health and Safety Act 2003, TZO 1511: 2012(1st Ed) Occupational health and safety management system requirement
Emergency Response Capacity to Medical Emergencies	PPE PRN	Basic first aid, CPR, use of PPE	First aid kit, gloves, boots, eye protection, ear plugs, masks, overalls, etc.	Injury report	No. incidents	Depends on work task	Review Injury Report	
Fires: Natural and manmade bush fires are a common occurrence, especially along park borders. Also, recreational campfires, the incinerator, kitchen and fuel storage present fire risks.	Firebreak around site. Signs. Fire fighting equipment. Smoke alarms.	Train staff on the use of fire extinguishers and conduct routine mock fire and emergency drills.	warning signs posted	Warning signs at fuel store, workshop, gas cylinder storage. MSDS binder in PA office or workshop. Refill schedule and tags on fire extinguishers.	Equipment in working order	Fuel store, workshop and Kitchen. Firebreak. Main circuit board and earthing rod.	Provision and maintenance (refill schedule) of sufficient fire fighting equipment. Confirm display of signs and review MSDS binder. Inspect fire alarms for proper function. Inspect earthing. Confirm signs are posted. Inspect Fire break. Confirm display of signs and fire extinguishers.	Fire codes, PA rules and regulations and OSH regulations

7.5 Short Term Construction Impact Mitigation (STCIM)

The majority of short term direct adverse impacts caused by REGROW are during the construction activities. Responsibility for mitigation caused by short term construction lies solely with MNRT, its implementing partners and its various contractors involved. The STCIM program aims to prevent potentially adverse impacts due to typical construction hazards, temporary living conditions of workers, common nuisance such as dust and noise, build up and mismanagement of construction waste. Also additional impacts related to construction are also mitigated in the PRUNE and OSH, and thus are discussed in those sections. The main activities of the programs are:

Contractor Commitment: MNRT has the ultimate responsibility of their ‘environmental and social behaviour’. MNRT must supervise its various contractors and guarantee that they follow the rules and regulation of the park ordinances as well as the relevant mitigation measures set out in the various project ESMPs. The contractor needs to support and commit to the relevant mitigation measures for their assigned jobs. Contractors must guarantee that they use well maintained equipment as well as employ appropriately trained staff that can easily adapt to the required mitigation measures set out in any contract.

This section details the contractor’s environmental obligations to workers and site safety as well as controlling waste and excessive surface disturbance. The contractor must have these conditions attached to the contractual obligations to effect impact mitigation of the construction.

During construction, the following items and elements of other ESMP must be applied.

- ❖ **AWARE:** Ranger protection: Avoiding dangerous wildlife encounters (especially snakes, buffalo etc) that would lead to injury or death (both of workers and or animal) by having a ranger at construction posts at all time.
- ❖ **E-ACT: Public safety and project traffic mitigation:** All construction sites must be well marked, warning both workers and general public of any dangers to their safety. Project related vehicles would be required to abide by good driving control, obey speed limits and always follow the rules of safe driving. All vehicles will be equipped with properly maintained lights and audio warning systems. Night driving must be minimized and strictly controlled. When transporting of wide or hazardous load Sumatra Regulations must be followed. Safety measures such as provision of safety signals, temporary barriers, night beacon lamps, personnel stationed for traffic control and mobility, etc. and training on safety when working in or around heavy equipment traffic. After, construction, traffic to and from the sites will reduce to normal levels.
- ❖ **Noise mitigation:** The generator house must be designed to properly muffle exhaust, noise and vibration by installing a muffler system that is routinely maintained to avoid soot build up. Follow the various Noise Regulations to remain in compliance, like
 - Maximum Permissible levels for general (noise) environment EMDC 6 (1733) Limits for Environmental Noise Table 1.1
 - Maximum Permissible Noise Levels (Continuous /intermittent noise) from a Factory/workshop EMDC 6 (1733) Limits for Environmental Noise Table 1.2
 - Noise Emission Standards for Construction Equipment and Small and Large Vehicles in Tanzania
- ❖ **Operation hours:** not before 6 Am not after 6 PM. construction hours of operation in order not to disturb park visitors during their game drive routines.
- ❖ **OSH Regulations:** Comprehensive occupational health standards established by the GoT must be followed. MNRT will be responsible for the full implementation and compliance of laws, in particular compliance to the OSH Act and Employment and Labour Relations Act.

- ❖ Provide safe and clean accommodations, preferably at nearby ranger posts or HQ rather than at the construction site. For workers staying on site provision of tents, temporary pit toilet, meals, safe drinking water, etc..
- ❖ PRUNE: Construction scar: Short term temporary surface disturbance, construction scar, to be revegetated and returned to its natural state and contour. The PA ecologist can provide assistance to the construction scar landscaping. This is the most important mitigation period in the project phase of the camp development.
- ❖ PRUNE: Natural resources utilization: No aggregate taken from the Park without prior written approval from the CPW. All timber must be supplied from a licensed timber dealer; will obtain all legal license and permits for timber and hard woods.
- ❖ **PRUNE: Prevention of excessive and unnecessary clearing:** Prohibit clearing of any tree or shrub without the supervision of the ecologist. When required avoid cutting trees with > 20 dbh. Tag and inventory existing trees with dbh greater than 20 cm. Avoid damage to root systems of mature trees by placing pilings and or any pipeline outside of the 'canopy shade profile' of the tree in question. Also consult the short term construction impact mitigation.
- ❖ PRUNE: Prevent erosion by prohibiting works on slopes $\geq 5\%$. This will ensure that erosion is avoided and that viewsheds, for primary users of the game circuits, are not degraded by reflecting or obvious buildings of the camp.

7.5.1 Performance Indicators for M & E for STCIM ESMP

This section contains a tabulated summary of recommended M & E indicators and procedures for the STCIM ESMP.

Table 7.7 M & E requirements for Short Term Construction Impact Mitigation (STCIM)

Impact Description	Infrastructure Required	Training required	Tools PPE Required	Documentation	Parameter to be monitored	Monitoring Location	Monitoring Activity	Legislative Compliance
Nuisances and disturbances due to noise, dust and/or heavy equipment movements	temporary pit latrines and showers	OSH	masks, earplugs	-	dust, No. of complaints	construction site	Inspection	CRB, OSH
Construction hazards and public safety (traffic, work injuries etc.)	warning signs of road works in progress	Road safety for drivers and flagmen	helmet, mask, warning flags, reflective clothing	Post of PA rules and regulation in office, staff compound and guest rooms. Post PA Codes of Conduct (driver).	vehicles and road	construction site	Interview PA to confirm if PA has complied with rules and regulations	Relevant Road safety regulations. PA Rules and Regulations, PA Code of Conduct
Accumulation of construction waste in uncontrolled manners.	Waste Handling stations that are wildlife proof	handling of solid waste	gloves, overalls	SWTD table Chain of Custody Form III Waste Transport and Disposal Log	visible waste on site	construction site	Monitoring requirement completed at Construction Phase	EMA Solid Waste Management and Control 2009, TANAPA Draft Guidelines for Waste Management 2015, PA SOP - Solid Waste Treatment and Disposal. TZS 698 2012 (E)
Black cotton soils in the lower lying (mbuga) are prone to water logging and subsequently make road impassable during rainy season or storm events.	PA Works Department equipment	-	As per PA SOP	-	Road alignment and condition	Road	Inspect road condition	PA updated PEA for Road Improvements

7.6 MUDDD ©^{wegs} Managing Undesirable Debris (Solid Waste) and Discharge (Sewage and Stormwater) and Dust

The MUDD program aims to mitigate potentially adverse impacts due to mismanagement of solid waste treatment and Disposal, Sewage Waste Treatment and Disposal, Stormwater Management and Control and Change in Wildlife behaviour and zoonotic disease due to mishandling of waste. The main programs of MUDD are:

- ❖ DEBRIS (Pollution Control): Solid Waste Treatment and Disposal Program (SWTD)
- ❖ DISCHARGE (Effluent Treatment): Liquid (Sewage) Waste Treatment and Disposal (LWTD)
- ❖ DISCHARGE (Erosion and Sediment Control): Stormwater Management and Control (SMC)

7.6.1 Debris (Pollution Control): Solid Waste Treatment and Disposal Program

The project will generate various types of solid wastes, but mostly i) paper and packaging ii) Tin/Aluminium iii) plastics iv) food waste v) glass waste. The Projects' SWTD procedures are summarised in the Table 7.8 Solid Waste Treatment and Disposal Plan.

Preventing wildlife pest and nuisances: In PAs, where there is permanent human activities and infrastructure, there is a constant battle with making on site waste disposal wildlife proof. Typical wildlife nuisance in regards to waste and food storage are described below.

Foraging in waste: Hyenas, warthogs, birds and monkeys commonly forage through accessible waste leading to the need to wildlife-proof the food waste (organic) waste pits and secure other waste in cages or buildings.

'Bandits': Small animals (primate, birds and rodents) are also notorious for 'stealing' food left out in the open.

Eating food stuff: Rodent infestation/damage especially in dry bulk food stores is a challenge leading to the need to rodent-proofing food containers as well as cage or cold store perishable foods.

Infestations of pests: Small insects, like cockroaches, may reproduce in numbers that require their eradication in terms of keeping facilities hygienic for the health of staff and guests. Termites pose a real issue with property damage since a large percentage of building materials are wood and canvas.

Solid waste requirements to be monitored:

- ❖ As a BMP, use only licensed waste transporters which includes having the disposal contract provide chain of custody forms proving that the final disposal volume and site are at an appropriate landfill.
- ❖ Keep records of the amount of each waste type generated, and make attempts to minimize the amounts.

When burning, pre-treatment and precaution the following BMP should be applied:

- ❖ Establish a fire break prior to any burn program
- ❖ Burn Only small portions of solid waste at a time
- ❖ Do not burn on windy days and pay attention to wind direction
- ❖ A trained staff member MUST be presented when incinerators in use,

Table 7.8 Solid Waste Treatment and Disposal Plan During Construction Phase

Waste Category	Description	Waste Source	Waste Hazard	Container colour	Waste Container description	Waste Treatment	Recycle Potential	Disposal Route and Site
Project Specific Scrap	Broken materials, glass, cabling, metal	construction activities	List B*	na	dedicated staging area	3Cs: consolidate by category and landfill neutralized items	unlikely	to Approved landfill
Mixed Earth and Vegetation	soil mixed with vegetation including roots	construction earthworks during site clearing and cut and fill	List B*	na	open pile keep surplus soil near excavation site for backfill and construction scar landscaping	use as much as possible for back fill, remaining to be used in landscaping	for backfill of foundations	on site

Table 7.9 Solid Waste Treatment and Disposal Plan During All Project Phases

Waste Category	Description	Waste Source	Waste Hazard	Bin colour	Waste Container description	Waste Treatment	Recycle Potential	Disposal Route and Site
Biodegradable (food) Waste	biodegradable, vegetable and organic waste	from kitchens	List B*	Green	leak proof GREEN plastic bin <20 litre capacity each	composted at on site wildlife proof compost pit	none	on site
Burnable Waste	paper, scrap wood, cardboard	project packaging	List B*	Red	leak proof RED plastic or metal bin < 200 litre drum capacity each	Incinerate in burn barrel that has ember reducer and bury ashes in food waste pit	low, minimizing its generation is important	and > 25 meter from any building or fuel storage
Plastic	Containers, packaging, scrap	project packaging	List B*	Blue	bag (100 kg)	compact, reduce, consolidated and prepare for transport	possible, find a recycler	to Approved landfill or recycler
Metal	cabling, metal	packaging	List B*	na	covered in pile	none	none	to Approved landfill
Glass (Recyclable)	wine, soda and spirit bottles	packaging	List B*	na	crates, bag	recycle or return for deposit	yes	to recycler
Glass broken or non recyclable	various beverage and food bottles	packaging	List B*	na	cardboard box (recycled from packaging)	remove food waste	none	to Approved landfill

Batteries and items contaminated with oil	fuel filters, car parts, broken equipment	project vehicles and equipment	List A*	Yellow	3Cs: leak proof metal drum of 60 or 200 litres capacity and labelled hazmat	3Cs: possible kerosene rinse	none	Approved landfill or other facility licensed waste disposal
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7.6.2 Sewage Waste Treatment (septic tank) and Disposal (Soak pit)

Waterbody Protection Zone Considerations: No sanitation structures within the influence of the river and water logged areas. Maintain all waste and sanitation systems on the compound, ensure that they do not overflow or pollute any surroundings, especially the river area. This means making sure the project is in compliance with:

NESC Compulsory Standards of Sanitary Protection of Water Intake and Surrounding Land:

Distance to Source of Contamination: The following distances from sources of pollution should always be taken into account and be an integral part of every **water** supply system:

- ❖ 50 meters for pit preview, septic tanks, sewers;
- ❖ 100 meters from borehole latrines, seeping pits, trenches; and sub surface sewage disposal fields.
- ❖ 150 meters from cesspools (septic tanks), sanitary land field areas and graves.

In addition to the above minimum distances, the following precautions must also be observed:

- ❖ Domestic livestock and other animals should be kept away from the intake by fencing the area of a minimum radius of 50 meters from the installation.
- ❖ Defecation and urination around the intake should be completely prohibited, by law.
- ❖ Drainage and run off waters should be led away from intakes.
- ❖ The water source should be guarded against inundation by the flooding of nearby rivers.
- ❖ Soil erosion should be prevented by reforestation and other methods.
- ❖ Algal growth should be prevented by draining swamps and pools around the intake or reservoir.

Sewage System Criteria: No discharge policy; all effluent discharged in underground septic or infiltration systems. Make all attempts to decrease the amount of wastewater being produced via effective water conservation (low flush toilets, immediate hot water delivery, high dispersal spray for showers, etc.) No oxidation ponds. Ventilated Improved Pit latrines (VIP) are usually the most appropriate toilets for remote areas that do not have adequate amounts of available water supply. Undertake appropriate infiltration tests in areas where soak way systems are located. Avoid the water logged areas bordering the river zone.

Sewage water effluent management²⁶: MNRT must use standard designs for sewage treatment and disposal. Therefore, the most important aspect of properly functioning sanitation systems is to monitor all the systems on a regular basis.

7.6.3 Discharge: Stormwater Management Control (SMC) avoiding erosion and water pollution

The objective of the stormwater discharge portion of the MUDD- plan is to maintain the natural drainage patterns on site; namely the water flow direction, speed and quality. Rainfall run-off is a natural element and to be 'escorted', free from pollutants²⁷, through the project area until the final exit point of

²⁶ Notes NESC Compulsory Standards of TZS 860:2005 Tolerance Limits for Municipal and Industrial Wastewaters

²⁷ The Hazmat Program is set up to avoid pollution of rainfall run-off

the project boundary. Roof run-off must be directed in a manner as to not undermine foundations or erode soils. Stormwater released as natural as possible, retains the natural conditions in any receiving waters downstream.

The scattered and decentralized plan of the camp greatly enhances the ability for the run-off to remain 'natural'; however in the more concentrated area, like the staff compound, run-off and its control need some attention.

Project run-off and the natural erodability of the soil create a challenge to be dealt with, especially during the construction earthwork. There is potential erosion due to the natural erodability of soils in the project areas. Fortunately, sheet flow from the roofs is not extreme and, naturally, there are very few days in the year where there is a slight possibility of storm water flow exceeding natural conditions on and off site.

Management Mitigation: In order to control any increased velocity of run-off from the project, the following mitigation infrastructure should be specified during the construction activities:

- ❖ Storm water ditches in the form of simple compacted swales can be installed in strategic places where erosion attributed to project structures is anticipated. The swales perform two functions:
 - i) prevent erosion by diverting run-off from areas prone to erosion and flooding and ii) decrease / dissipate run-off velocity.
- ❖ Rain gutters especially on workshop roofs
- ❖ The topographical survey undertaken for Camp assisted the architect in avoiding placement of camp structures in areas where hill drainage was evident.

Landscaping as Mitigation for Construction Scar and Dust: The objective of the Landscaping portion of the MUDD- plan is a multi-functional impact mitigation as it i) covers construction scars, ii) decreases project run-off through better infiltration rates (absorption of rainfall into the ground), and iii) reduces dust. All areas with significant surface disturbance (bare ground or excavated ground) must be restored back to their original condition and allowed to naturally be re-vegetated.

7.6.4 Performance Indicators for M & E for MUDD ESMP

This section contains a tabulated summary of recommended M & E indicators and procedures for the MUDD ESMP.

Table 7.10 M & E requirements for MUDDD – Management Undesirable Discharge, Debris and Dust

Impact Description	Infrastructure Required	Documentation	Parameter to be monitored	Monitoring Location	Monitoring Activity	Legislative Compliance
Pollution of land or water resources due to sewage waste leaks or malfunctioning sanitation systems. Sewage waste creating unhygienic conditions or spread of disease to humans and/or wildlife.	Septic tanks, Class B or better pipes, infiltration systems	Sewage System Inspection and Maintenance Logs	TDS, Conductivity, E. Coli	Sewage System including kitchen grease traps	Routine weekly inspection of septic tanks to detect, early, any issued with sewage treatment and disposal.	TZS 860: 2006 (E) Effluent of Municipal and Industrial Wastewater, TZS 922: 2006 (1st Ed) Plastics piping systems for non-pressure underground drainage and sewerage – Polyethylene (PE) TZS 923: 2006 (1st Ed) Plastics piping systems for non-pressure underground drainage and sewerage – Polypropylene (PP). TBS Compulsory Standards of Sanitary Protection of Water Intake and Surrounding Land
Pollution of land or water resources. Solid waste creating hazardous or unhygienic situations.	Waste Handling stations that are wildlife proof	SWTD table Chain of Custody Form III Waste Transport and Disposal Log	waste	Waste Handling Stations and organic waste pit	Confirm i) solid waste segregation (inspect Waste Handling in stations), ii) food pit function, iii) incinerator condition, iv) disposal documentation. Inspect all areas for scattered or mixed waste. Review chain of custody Form III Waste Transport and Disposal Log. Inspect to ensure that the incinerator is functioning properly and regularly cleared of ash. Inspect Incinerator.	EMA Solid Waste Management and Control 2009, TANAPA Draft Guidelines for Waste Management 2015, PA SOP - Solid Waste Treatment and Disposal. TZS 698 2012 (E)
Ecological impacts to receiving terrestrial and aquatic environs	Rain gutters	0	turbidity % slope	Extreme slopes and sandy soils and point of drainage entering water body	Backfill and restore site, avoid earthworks in rainy season	EMA Section 57,

Table 7.11 Summary of Environmental Monitoring Schedules for MUDD ESMP

Monitor Item	Monitor Location	Monitor Purpose	Monitor Indicators	Responsible Monitor	Evaluation frequency
Sewage Treatment and Disposal					
Septic tank	septic tanks	ensure the septic tank- is functioning properly	no signs of overflow or malfunction	maintenance staff	weekly or when incident occurs
			tank contains layer of liquid cover (not dried out)		
			odour from tank is earth like, not offensive		
			outlet not clogged, grey water effluent flows to infiltration system		
			PPE required: gloves and gumboots		
			DOCUMENTS: Inspection report is completed and filed		
Soak pits	soak pit	ensure the soak pit is functioning properly	no signs of overflow or malfunction	maintenance staff	weekly or when incident occurs
			DOCUMENTS: Inspection report is completed and filed		
	laundry effluent	early detection of overflow issues	no signs of overflow or malfunction	laundry staff	daily
Kitchen grease trap	kitchen	ensure grease and food waste do not clog infiltration system	no signs of overflow or malfunction of grease trap	kitchen staff	daily
			DOCUMENTS: signage at sinks reminding staff to check grease trap		
Solid Waste Treatment and Disposal					
Waste segregation	Waste Handling Stations	Ensure waste segregated according to Camp Solid Waste Treatment and Disposal Procedures	waste handling stations are used to temporarily store waste to be removed from park	Maintenance Department	daily
		Prevent wildlife foraging through stored waste.	Waste taken out of park is disposed in an approved landfill. NO waste to be dumped in villages or in unapproved manners		daily
		Ensure that proof of final disposal site is provided	DOCUMENTS: Solid Waste Chain of Custody Form III		each time waste is transferred
Bio-degradable waste pit	back of house	ensure pit is wildlife proof and cover is functioning	path to waste pit clear of waste scraps		daily
			no signs of animals foraging		
			no offensive odours or disposal of non-biodegradable waste		
Incinerator	back of house	ensure proper functioning of incinerator	oven chamber shows full ash burn, no unburnt items, no non-combustible items including in ash		daily
			ground cleared of high vegetation within a 10 meter radius of incinerator		

Table 7.12 EMAP - Summary of Environmental Monitoring Schedules for MUDD ESMP

Monitor Item	Monitor Location	Monitor Purpose	Monitor Indicators	Responsible Monitor	Evaluation frequency
Stormwater Management					
Dry stream CZ	Entry Point at dry stream	Ensure run off from camp does not change natural conditions of the dry stream habitat	Comparative Water test upstream camp and downstream camp: TSS, Conductivity, pH, oil, TDS. No visible erosion that appears to be unnatural.	Maintenance Department	during storm water event flow
Back of House	Drainage from Garage/Workshop	Ensure run off from garage does not contain oil or undesirable suspended solids			
	Drainage from Staff Compound	Ensure run off velocity from staff compound does not create erosion			
Front of House	Drainage from Front of House	Ensure run off velocity from front of house does not create erosion			

7.7 3 Cs Hazardous Substances Management

This plan mitigates potential impacts related to fuel handling and storage on site. The basic guidelines for the hazmat handling must be adapted using following the “3C’s concept which is summarized below.

Cover: Cover and protect containers with hazardous materials from wind, fire, rain, sun and the elements. Rain comes into contact with these materials and can spread spills vertically and horizontally on the ground. Cover to be fire proof and well ventilated.

Contain: All storage containers must be leak proof, in good condition and stored on protected bunded ground, which can contain the volume of any spill. Avoid any horizontal storage of fuel drums. Have properly functioning automatic dispensing units for each fuel. All work that involves oil, lubricants, fuels or toxic substances must take place on protected ground or surfaces. Sufficient grease pans or oil sumps must effectively hold all fluids that may leak during construction or vehicle service.

Control: Control by recording all dispensing and disposal volumes/weights of all products; new and used. Keep records of consumption rates of the various equipment using fuels. Maintain a fire break around the camp as well as secondary fire breaks around flammable materials. Check for gas leaks. All used oils, fuels and other toxic/hazardous wastes must be put in a leak proof drum and be appropriately disposed of outside the park. All contaminated ground or resources must be cleaned and neutralized.

Hazardous waste from both the construction and operation and maintenance will be mostly from used oil from vehicle service and fuel storage. Although the project tends to have limited potential for significant pollution issues, must avoid events that might lead to pollution of surrounding land, air and drainage.

The project creates some potentially dangerous situations (usually caused by heavy machinery, equipment and vehicles). Servicing heavy equipment, machinery and vehicles have the potential to contaminant soil if used oil and lubricants spill. The hazmat program should follow all manufacturers’ recommendations of application, use and disposal of the various hazardous materials at the project.

7.7.1 Hydrocarbon fuel storage and dispensing

The fuels stored on site need to be housed and dispensed properly. Following simple guidelines of the 3Cs: cover, contain and control in which fuel and oil containers are in a covered area on protected bunded ground with non-leaking dispensing systems. Following three basic rules, “3C’s” can ensure that fuel and other hazardous materials are handled properly, avoiding spills, soil contamination and exposure to staff.

The necessary safety placards will be displayed on containers (in English and Swahili) and have MSDS sheets on file for all chemicals used or stored on site.

7.7.2 Use of Hazardous Chemicals

Hazmat handling program (dangerous substances and situations): The camp needs to operate by using some hazardous substance and situations (machines and vehicles). Most of these hazardous substances are hydrocarbon fuels (diesel, petrol, kerosene) pressurized gases, household insecticides, other chemicals etc.

Prohibit use of chemicals listed in the sixth schedule “List of Highly Hazardous Chemicals ‘of the Industrial and commercial Chemicals (Management and control) Act. Use of permitted chemicals, such as insecticides, herbicides etc., must follow manufacturers’ safety instructions and dosages. Use of chemicals must be as a last resort after manual techniques fail. All manufacturers’ safety, handling and dosage instructions must be followed. Proper labelling of containers and provision of PPE for those workers applying chemicals must follow

MSDS. Chemicals listed as prohibited according to international codes as well as the Industrial and Commercial Chemicals (Management and Control) Act must NEVER be used.

A hazmat program must follow all manufacturers' recommendations of dosage, use and disposal of the various hazardous materials at the camp.

No chemicals used that are prohibited by the Industrial and Commercial Chemicals (Management and Control) Act.

Ban on all liquid toxics chemicals, including evasive long half-life insecticides, algaecides and herbicides.

Use of low phosphate and no corrosives soaps and detergents (eco-friendly soaps and detergents) to prevent eutrophication or algal blooms in any receiving water.

Air quality: No emissions or noise beyond allowable levels.

Generator House Criteria: Generator is silent, low emission type. Generator house is banded²⁸, and fitted with appropriate sound, vibration and emission mufflers. The house is to be wildlife proof and well camouflaged.

Fuel Storage: All fuel stored, to be in a banded areas connected to a sump; this enables ease of cleaning accidental spill.

Occupational Hazards: Provide training and protective gear for staff handling or dispensing fuels. DO NOT ALLOW dispensing of fuels via MOUTH Priming.

7.7.3 Performance Indicators for M & E for 3Cs ESMP

This section contains a tabulated summary of recommended M & E indicators and procedures for the 3Cs ESMP.

²⁸ Using the 3C criteria

Table 7.13 Summary of Environmental Monitoring Schedules for 3Cs Hazardous Substances Control and Management ESMP

Monitor Item	Monitor Location	Monitor Purpose	Monitor Indicators	Responsible Monitor	Evaluation frequency
fuel storage	back of house	Ensure dispensing is controlled and no ground contamination occurs. Use 3Cs principles	clean floor in storage room	staff in charge of fuelling	daily
			dispensing and spill respond procedures properly posted on wall		
			containers properly labelled and not leaking DOCUMENTS: Fuel dispensing log, incident record is up to date. Warning SIGNS: No Smoking and MSDS Labels.		
generator	generator room	ensure safety measures are being followed	emission muffler is functioning	maintenance staff	daily
			check operating times and fuel consumption		
			check all safety gear and warning signs are present		
			PPE required: ear plugs DOCUMENTS: Generator Operation and Maintenance Log. Warning SIGNS: No Smoking and MSDS Labels.		
chemical store	stores	ensure proper storage and handling of dangerous chemicals	check that all containers are properly labelled	staff in charge of store	daily
			ensure no spills or leaks occur		
			DOCUMENTS: Inventory/Stock list, MSDS sheets & spill incident reports filed		

Table 7.14 M & E requirements for 3 Cs Hazardous Substances Management (Cover, Contain and Control)

Impact Description	Infrastructure Required	Training required	Tools PPE Required	Documentation	Parameter to be monitored	Monitoring Location	Monitoring Activity	Legislative Compliance
Soil contamination from mishandling of fuels.	Bunded and covered fuel storage/dispensing area with proper pumping system.	Fuel Dispensing and Spill Prevention/remediation	gloves, drip pans, used oil drum	Fuel Dispensing Records and Log book. Chain of Custody Form III Waste Transport and Disposal Log. Vehicle Maintenance and Odometer Log.	oil	Fuel store and workshop	visual inspection of fuel dispensing area and workshop surroundings	TZS 972:2007 (1st Ed) Soil Quality - Limits for soil contaminants in habitat and agriculture. EMA Soil Quality Standards 2007. EMA Hazardous Waste Control and Management 2009, MSDS guidelines for each specific substance.
Generator emissions leading to significant air or noise pollution.	Soundproof building. Silent generator with noise and emission reducing capacities	Generator O & M	Funnel, Automatic pump, gloves	Generator Operation and Maintenance Log book.	decibel	Generator Room	Review Generator Operation and Maintenance Log book. Sound inspection at various points when generator operating.	Air Quality Standards 2007, TZS 845: 2012 (2nd Ed) Air Quality Specifications. TZS 932: 2007 (E) General tolerance limits for environmental noise, Standards for the Control of Noise and Vibration Pollution 2010. TZS 827: 2011 (2nd Ed) Emission Standards for Stationary Sources in Tanzania

ⁱNotes NESC Compulsory Standards of TZS 860:2005 Tolerance Limits for Municipal and Industrial Wastewaters

ⁱⁱThe Hazmat Program is set up to avoid pollution of rainfall run-off

ⁱⁱⁱUsing the 3C criteria

APPENDIX 8 TOC FOR ESIA REPORTS

Content of a Scoping Report

Chapter	Description
Introduction	<ul style="list-style-type: none"> • Brief description of the project i.e. nature, location scale etc • Description of how the scoping exercise was carried out
Environmental and social Context	<ul style="list-style-type: none"> • Description of the spatial and temporal boundaries • Description of project alternatives • Description of the environmental and social situation in the identified boundaries
Policy, legal and institutional Context	<ul style="list-style-type: none"> • 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.
Stakeholder Participation	<ul style="list-style-type: none"> • 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
Preliminary Impacts	<ul style="list-style-type: none"> • Description of potential environmental impacts • Description of potential socio-economic impacts • Description of other impacts: public health, OHS, etc
Impact Assessment Approach	<ul style="list-style-type: none"> • 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
Terms of Reference	<ul style="list-style-type: none"> • Terms of reference to guide the impact assessment including the scope, objectives, tasks and duration

Content of an Environmental Impact Statement

Chapter	Description
Executive Summary (English and Swahili)	<ul style="list-style-type: none"> • 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, acronyms, etc	
Introduction	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Identification of alternatives: project site, design, technologies etc and reasons of preference • Description of mitigation measures for each of the impacts identified
Environmental and Social Management Plan	<ul style="list-style-type: none"> • Description of activities likely to cause potential impacts • Description of the impacts (negative and positive)

	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Plan on how the project infrastructure will be demolished or re-used after the life-span of the project
Summary and Conclusions	<ul style="list-style-type: none"> • Summary of key stakeholder issues and impacts • Conclusion based on the findings (not to be subjective)
References	<ul style="list-style-type: none"> • List of any documents, reports or websites used
Appendices	<ul style="list-style-type: none"> • List of people consulted with names, organisation and contacts • Meeting minutes • Picture library • ESIA Terms of Reference • RAP report (if applicable)

Environmental and Social Management Plan

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

Environmental and Social Monitoring Plan

<u>Potential impact</u>	<u>Proposed mitigation measure</u>	<u>Monitoring Parameter</u>	<u>Target level/Standard</u>	<u>Monitoring frequency</u>	<u>Status</u>	<u>Comments</u>
Environmental impacts						
Socio-economic impacts						
Public health and safety impacts						

APPENDIX 9 TOR TEMPLATE FOR ESIA

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

[Summarise 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) 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 Operational Directive (OD) 4.00, Annex A: "Environmental Assessment" and other pertinent ODs, Operational Manuals (OMs), Operational Notices (OPNs), and Guidelines.]

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.]

6. 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, specialised field studies or modelling 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. Characterise 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 minimised (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:

- Planned and unplanned (spontaneous) in-migration of people;
- Clearing of forest lands for agriculture;
- Increased pressure on fuel wood, fodder, and water resources;
- Social disruption and conflict; and threats to woodlands and important wildlife species.

The EIA should also examine the potential for linear resettlement, as road projects usually involve linear patterns of land acquisition (e.g., highways, railways, canals, power transmission lines). 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 minimise 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, demobilisation 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 detailing 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).

7. 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 organised in compliance with the requirements of the Environmental Assessment and Audit Regulations, 2005, and according to the following outline:

- Executive summary;
- Policy, legal, and administrative framework;
- Description of the proposed project and alternatives considered;
- Description of the existing environment;
- Significant environmental impacts and mitigation measures;
- Analysis of the alternatives;
- Emergency plan;
- Environmental management plan (including monitoring plan);
- Interagency and public/NGO involvement;
- List of references;
- Appendices;
- Terms of Reference;

- List of the EIA team;
- Records of Interagency and public/ NGO communications;
- Data and unpublished reference documents.

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

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

Y 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 finalise the EIS.

Y 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.

8. Consulting team

[Identify the expertise to include on the ESM-WG. Environmental assessment requires interdisciplinary analysis. Members of the team could consist of people with the following specialisations: 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.]

9. Schedule

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

10. Activity/time schedule

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

11. 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 belongs to the [NAME OF THE PROJECT PROPONENT ORGANISATION].