



NELSAP-CU  
**NILE BASIN INITIATIVE**  
INITIATIVE DU BASSIN DU NIL

GUIDELINE

NILE BASIN SUSTAINABILITY FRAMEWORK

# **NELSAP ENVIRONMENTAL AND SOCIAL MANAGEMENT GUIDELINES**



## Document Control Sheet

Title	NELSAP Environmental and Social Management Guidelines
Document type	<input type="checkbox"/> Policy <input type="checkbox"/> Strategy <input checked="" type="checkbox"/> Guidelines <input type="checkbox"/> Legal and Foundational Document
Prepared by	<input type="checkbox"/> Nile-SEC <input type="checkbox"/> ENTRO <input checked="" type="checkbox"/> NELSAP-CU <input type="checkbox"/> Other: _____
Status	<input checked="" type="checkbox"/> New Policy/Strategy/Guideline/Legal and Foundational Document <input type="checkbox"/> Revision of existing Policy/Strategy/Guideline/Legal and Foundational Document
Revision Date	
Effective Date	December 2012

Consideration by <del>Nile-COM</del> / <del>EN-COM</del> /NEL-COM (cross out whichever body is not applicable)	
Date of submission for consideration	
Action by Council of Ministers	
Comments satisfactorily addressed	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable

Consideration by <del>Nile-TAC</del> / <del>ENSAPT</del> /NEL-TAC (cross out whichever body is not applicable)	
Date of submission for consideration	
Action by the Technical Advisory Committee:	
Comments satisfactorily addressed	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable

Responsible Officer: Ms. Francoise Kayigamba

NILE BASIN INITIATIVE  
NILE EQUATORIAL LAKES SUBSIDIARY ACTION PROGRAM (NELSAP)



# **NELSAP ENVIRONMENTAL AND SOCIAL MANAGEMENT GUIDELINES**

December 2012

---

## TABLE OF CONTENTS

1.	INTRODUCTION .....	4
2.	PURPOSE OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT GUIDELINES (ESMG) .....	5
2.1	Scope of the ESGM .....	5
2.2	Legal framework of the ESGM .....	6
2.3	International standards.....	7
3.	DESCRIPTION OF THE GUIDELINES .....	7
3.1	Project identification .....	7
3.2	Project categorization .....	9
3.3	Project preparation.....	10
3.4	Project appraisal .....	16
3.5	Project implementation and supervision.....	17
3.6	Project operation and decommissioning.....	18
4.	ROLES AND RESPONSIBILITIES .....	19
5.	APPENDICES .....	21

## **LIST OF ACRONYMS**

**NBI:** Nile Basin Initiative

**NELSAP:** Nile Equatorial Lakes Subsidiary Action Program

**NELCOM:** Nile Equatorial Lakes Council of Ministers

**NELSAP-CU:** NELSAP Coordination Unit

**UNEP:** United Nations Environment Program

**ESAP:** Environmental and Social Assessment Procedures

**IEE:** Initial Environmental Examination

**ESIA:** Environmental and Social Impact Assessment

**ESMP:** Environmental and Social Management Plan

**RAP:** Resettlement Action Plan

**ESCA:** Environmental and Social Compliance Audit

**PIU:** Project Implementation Unit

**PMU:** Project Management Unit

## 1. INTRODUCTION

The water resources of the NEL region include a complex of lakes, wetlands, and rivers. Despite the vast natural resources, the region is among the poorest in the world, characterized by economies dependent on rain fed agriculture, subsistence farming; low industrialization; poor infrastructure, low levels of education attainment and skilled human resources, gender exclusion and high population growth (2.6% p.a.).

The population within the NEL region is estimated at 294.3 million people (2011) expected to rise to 461.1 million by 2030 (HDR 2011). Close to 80% of the population lives in rural areas where food security and social well-being depend on the water resources.

In recent years, water resources within the NEL region have been affected by numerous and interlinked pressures such as population growth, economic development, globalization of agricultural markets, changing consumption patterns, growing energy demand, and food prices variation. These pressures coupled with environmental degradation and climate variability have increased the pressure on the freshwater resources as well as permanent or temporary wetlands.

The Nile Basin Initiative (NBI) is a Partnership of the Riparian States of the Nile comprising of Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. Eritrea is participating as an observer. The Republic of South Sudan is yet to become a full member of the NBI. The NBI contributes towards addressing regional development issues, through a basin-wide framework to reduce poverty and promote growth, guided by a Shared Vision and a set of policy guidelines. The NBI aims to develop the basin resources in a cooperative manner, share benefits and promote regional stability. It consists of a secretariat and two Subsidiary Action Programmes (SAPs), the NELSAP and the ENSAP.

With regards to environment management, NBI has prepared in 2000, a basin-wide Transboundary Environmental Analysis (TEA) report, aiming at identifying environmental issues which will need attention from project developers. NBI has also prepared a Nile Basin Wetlands Management Strategy (2010 – 2016) based on an inventory of wetlands and has established a database actually managed from the NBI Secretariat.

NELSAP mandate is to facilitate the preparation and resource mobilization for investment projects at sub-basin level, and has been a vehicle for diagnostic studies which have provided a base for project preparation in the fields of power trade and development and natural resources management and development. This program has decided to define guiding principles of environmental and social assessment procedures, to ensure that projects and programs developed are environmentally and socially sustainable, involving stakeholders and timely public disclosure.

The projects prepared and implemented by NELSAP shall comply with the countries environmental and social legislation, policies and guidelines including local and national public consultations and disclosure requirements. They have also to be compliant with international agreements ratified by the country members. In the absence of transboundary legislative framework, projects shall consider these following guidelines developed based on international standards in order to satisfy to the best to the principles of environmental protection and social equity.

The NBI Secretariat is developing an NBI Environmental and Social Policy (ESP) which shall (1) provide a framework of principles and measures for mainstreaming environmental and social concerns in the management and development of the common water and environmental resources of the Nile to ensure their sustainable and equitable utilisation; and (2) demonstrate commitment to international best practices with regarding to project identification, preparation and implementation.

These Guidelines will be reviewed to be fully anchored into this NBI (ESP) as soon as this policy is completed and validated.

Other NELSAP cross-cutting strategies have also been developed such as the NBI Gender Strategy and the Communication Strategy but need to be updated while the Stakeholder Participation Guidelines have still to be developed. These strategies will include also the key recommendations from the NBI ESP and the NELSAP Environmental and Social Management Guidelines.

## **2. PURPOSE OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT GUIDELINES (ESMG)**

The *NELSAP Environmental and Social Guidelines for Investment projects* provides a useful source document guiding the assessment of potential environmental and social impacts for investment projects, preparation and implementation of management plans for the mitigation of the identified impacts. The guidelines shall help avoiding incurring costs and delays in the project's implementation due to unanticipated environmental and social issues and shall also assist in reducing the need for project conditionalities as appropriate measures can be taken in advance, incorporated into project design, or alternatives to the project can be considered. The purpose of these *Guidelines* is to provide developers and contractors involved in the design, preparation, implementation and operation of investments projects with:

- Procedures to avoid and/or minimize environmental and social adverse impacts by selecting the preferable cost-effective option based on environmental, social and economical multi-criteria analysis;
- Best practices for enhancing potential positive impacts, controlling or mitigating potential negative impacts and undertaking remedial actions.
- Guiding tools based on international best standards for projects prepared in a transboundary context. However, planners, developers and contractors will have to ensure that their project complies with the relevant national laws of each of the countries involved, as long as a regional policy and legal framework is not in place.
- Mechanisms for monitoring projects' compliance with national regulations throughout the project cycle.

### **2.1 SCOPE OF THE ESGM**

The environmental and social assessment guidelines outline a review process that relies on the use of various instruments. The instruments most frequently referred to in these guidelines are the

Environmental and Social Impact Assessment (ESIA), Strategic Social and Environmental Assessment (SSEA) and Environmental and Social Compliance Audit (ESCA).

The ESMG shall apply to all NELSAP investment projects financed by bilateral as well as multilateral donors and throughout the project cycle.

## **2.2 LEGAL FRAMEWORK OF THE ESMG**

The specific environmental policy and legislation from each country would be the principal legislation and policy within which this ESMG shall be implemented. The table attached as Appendix 1 provides guidance on some of the pertinent laws and policies that are in force in the NEL countries. Policy and legal review is a continuous process and some of the mentioned instruments may have been amended at the time that reference is made to the ESMG. Accordingly, it is imperative for the user of this ESMG to ascertain the applicable laws and policies as at the date of the environmental and social assessment.

Key recommendations from the NEL countries assessments on environmental and social policies conducted in Burundi, DR Congo, Kenya, Rwanda, Tanzania and Uganda in November 2011 have also guided the preparation of this ESMG:

- Transboundary matters such as different compensation schemes for compulsory acquisition of land in the border areas of two countries are not comprehensively addressed.
- There is no recognition of practitioners across national boundaries; each country maintaining its own register of EIA practitioners and requiring entry onto its register prior to practice in each country.
- There is no clarity on the process through which a resettlement action plan (RAP) is done and no procedures in place or regulatory mechanism for RAP practitioners. None of the NEL countries reviewed maintains a register of RAP practitioners and yet RAP are a very important aspect of the social impact assessment.
- There is a need to formulate a robust environment management regime for each country forming a firm foundation for the application of an effective EIA and monitoring process. Countries should look to provide the finer detail through sector specific EIA Guidelines for each of the areas of the environment listed as needing an EIA.
- The challenge of implementation of laws even where a comprehensive legal regime exists must be looked into. Progressing from EIA as an event to EIA as a process, as a tool of sustainable development is the next frontier that must be crossed.
- The issues of resource and capacity constraints need to be addressed to enable the full realization of the potential of the EIA process. Lead agencies should be involved from the initial stages of the EIA process through the agreement on the terms of reference for an EIA study, to the approval and monitoring stages of environment assessment.
- The opinion of the public, the affected communities, non-governmental organisations and community based organisations should be taken into consideration. Consequently, the system of communication with the public should not be limited to or heavily reliant on internet and other electronic disclosure in societies where the majority may not easily access to internet.



- Social considerations are usually not addressed exhaustively and implementation in the environment management plans is unsatisfactory. Specific social assessment tools should be developed to lend greater credence to social impact assessment instead of having it subsumed in the ecological and other considerations of an EIA.

## 2.3 INTERNATIONAL STANDARDS

The United States National Environmental Policy Act of 1969 (NEPA) is generally considered to have introduced the concept of the EIA. This concept spread rapidly, with countries around the world adopting EIA laws, procedures, and institutions.

The United-Nations through UNEP have in 1987 defined Goals and Principles of Environmental Impact Assessment which clearly recommend in its first principle that “States (including their competent authorities) should not undertake or authorize activities without prior consideration, at an early stage, of their environmental effects. Where the extent, nature or location of a proposed activity is such that it is likely to significantly affect the environment, a comprehensive environmental impact assessment should be undertaken in accordance with the following principles”<sup>1</sup>.

By signing the ESPOO Convention in 1991, Europe has extended the Principle of EIA to its transboundary aspect, common with international watercourses. This Convention clearly recommends in its Article 2 that “the Party of origin shall ensure that in accordance with the provisions of this Convention an environmental impact assessment is undertaken prior to a decision to authorize or undertake a proposed activity that is likely to cause a significant adverse transboundary impact. TEIA is normally required wherever there is risk of significant environmental impact to States other than the “source State”—the State where the environmental harm originates.

The World Bank’s Operational Policies (OP) give guidance on Environmental Assessment (EA) requirements and ensure that operations of Bank financed projects do not lead to adverse impacts or cause any harm. The Environmental Assessment process includes the process of mitigating and managing environmental impacts throughout project implementation. The EA Sourcebook (1993) and its updates (1996, 1997) provide technical guidance on these issues. A synopsis of operational safeguards that have a particular bearing on project preparation under this ESMF include:(i) OP 4.01 (Environmental Assessment), (ii) OP 4.04 (Natural Habitats), (iii) OP 4.09 (Pest Management), (iv) OP 4.11 (Cultural Property), (v) OP 4.12 (Involuntary Resettlement), (vi) OP 4.20 Indigenous People (vii) OP 4.36 (Forests), (viii) OP 4.37 (Safety of Dams), (ix) OP 7.50 (Projects in International Waterways) and (x) OP.760 (Disputed Areas).

## 3. DESCRIPTION OF THE GUIDELINES

### 3.1 PROJECT IDENTIFICATION

#### 3.1.1 General assessments

The Early Stage assessment tool is about preliminary screening aiming to assess the environment from which projects emerge. It identifies project risks and opportunities at an early stage, in order

---

<sup>1</sup> UNEP, Governing Council Decision: Goals and Principles of Environmental Impact Assessment, princ. 4, UNEP/GC.14/17 Annex III, UNEP/GC/DEC/14/25 (June 17, 1987) [hereinafter UNEP EIA Principles], *reprinted in* UNEP, *Principles of Environmental Impact Assessment*, 17 ENVTL.POL’Y & L. 36 (1987).

to identify the challenges and management responses to proceed with a more detailed project investigation. The process should identify consistencies and conflicts relating to existing needs and opportunities in a sustainability context. Such an assessment would inform a proponent as to whether there is a strategic basis to move forward with a project proposal.

The Early Stage assessment tool includes key topics related to the strategic environment; first by reviewing existing needs, options and policies, then looking at the political situation and institutional capacities, followed by an assessment of the technical, social, environmental and economic risks. The objective is to encourage better analysis and identification of knowledge gaps before further investments on preparatory studies.

This early stage assessment will include the following analysis:

**a. Needs assessment**

An assessment of identified needs for the services shall be undertaken that includes environmental, social and economic considerations. Examples of evidence: Energy Master Plan; Water Development Plan; country or regional development report.

**b. Options assessment**

An assessment of the options available to meet demonstrated energy and water needs that considers a range of planning approaches, optional sites and design alternative options with respect to the project under consideration shall be conducted. The option assessment shall clearly show that the project is one of the priority options for addressing the need for energy and water services.

**c. Policies and plans analysis**

An assessment of the most relevant policies and plans, including any river basin development or integrated water resource management plans has to be conducted for the project to fit within existing policies and plans, and identify any gaps or shortfalls to be managed by the project. Examples of evidence: national and regional policies and plans, evaluation of status of river basin plans and river basin sustainability issues.

**3.1.2 Social and Environmental screening**

This screening is commonly named initial ESIA and is part of the Project pre-feasibility study and aims at determining whether a project is necessarily likely to have social and environmental adverse impacts. The assessment will focus on some key indicators:

- Existence of critical ecosystems such as wetlands, forests, protected areas
- Existence of Natural waterways and catchments
- Existence of dense settlements, social and economic infrastructures
- Existence of social unsolved critical issues and tensions

In determining whether a proposal requires further EA, should be rejected, or exempted, screening considers the alignment of the proposal with existing policies and plans, scale of the proposed development, intensity and significance of potential impacts. Checklists (*appendix 8*), together with information on typical project impacts and mitigation measures are used to categorize the projects and to conduct the screening. The Initial Environmental Examination (IEE) report<sup>2</sup> is the principle output from the screening process. The report classifies the project according to its likely environmental sensitivity, which determines whether an Environmental

---

<sup>2</sup>The World Bank recommends that screening results be recorded and explained in a Project Concept Document and Environmental Data Sheet including the appropriate screening decision.

Impact Assessment (EIA) is needed and the required detail. An initial Social Assessment report will identify social dimensions and associated processes that may be important in the project; selects key elements for further social analysis; identifies potential social issues and impacts, particularly with regards to potential resettlement and compensation.

### **3.1.3 Stakeholder analysis and consultation**

This topic addresses the identification and engagement with project stakeholders, both within the project as well as between the project and external stakeholders (e.g. affected communities, governments, key institutions, partners, contractors, catchment residents, etc). The intent is that stakeholders are identified and engaged on the issues of interest to them, and communication and consultation processes establish a foundation for good stakeholder relations throughout the project life.

The identification and mapping of stakeholders shall be conducted as part of the social impact assessment. It is the process of identifying the individuals or groups that are likely to affect or be affected by a proposed project, and sorting them according to their impact on the project and the impact the project will have on them. This information is used to assess how the interests of those stakeholders should be addressed in the proposed project.

The Developer is recommended to initiate consultations at this early stage, especially for projects that might induce involuntary resettlement or heavy impact to critical ecosystems (category A projects). For meaningful consultations, the developer shall provide relevant information in a timely manner and in a form and language accessible to the groups being consulted.

## **3.2 PROJECT CATEGORIZATION**

Following the type of projects to be developed and based on the screening, the developer will determine in which category the project is likely to fall following the national as well as international criteria.

- Category A project is the one likely to have the most severe environmental and social impacts and require a full ESIA.
- Category B project is the one likely to have detrimental and site-specific environmental and social impacts that can be minimized by the application of mitigation measures included in an ESMP.
- Category C project shall not induce any adverse environmental and social impacts and do not need further ESA action.

This early assessment will also indicate the need or not to conduct a Resettlement Action Plan as part of the Environmental and Social Assessment.

The majority of the NEL countries have defined National Environmental Impact Assessment Guidelines which clearly specify the type of projects that have to conduct an ESIA and the level of detail of this assessment. It is from this stage that the developer is expected to be informed about the most updated national regulations required for an environmental certificate as well as other required permits such as water permits, road permits...

If the Financier and the National Environmental Agency do not require the same level of environmental and social assessment, the Developer will follow the most constraining requirements. If the project aims at developing a catchment or a sub-basin through multiple

projects, the developer will conduct the same level of assessments but at a programmatic level, and come up with a Strategic Environmental and Social Impact Assessment report.

#### **SUMMARY OF THE KEY OPERATIONS AND INPUTS AT THIS PHASE:**

- ⇒ **Preliminary Processes to conduct:**
  - TORs for the Initial Environmental and Social Assessment for a specific project
  - TORs for the Strategic Environmental and Social Assessment for a set of projects
- ⇒ **Type of reports expected:**
  - Initial ESIA report
  - Strategic Environmental and Social Assessment report
- ⇒ **Following Process to conduct:**
  - Following the categorization of the project, preparation of the TORs for the ESIA and RAP of the project.
  - Approval of the TORs for the ESIA and RAP by the Environmental Agency and the Financier.

### **3.3 PROJECT PREPARATION**

The Preparation assessment tools are defined for the project phase during which investigations, planning and design are undertaken for all aspects of the project. This project stage is normally subject to national regulatory processes regarding project-specific Environmental and Social Impact Assessment (ESIA) requirements.

#### **3.3.1 Site identification and project design**

This topic addresses the evaluation and determination of project site and design options, including dams, transmission lines, reservoir and associated infrastructure. The intent is that site and design are optimized as a result of an iterative and consultative process that has taken into account technical, economic, financial, environmental and social considerations.

Sustainability considerations for sites and project design shall include prioritizing alternatives guided by the following aspiration:

- provides opportunities for multiple use benefits
- minimize the area flooded per unit of energy (GWh) produced for hydropower plant
- maximize opportunities that do not pose unsolvable threats to vulnerable social groups
- enhance public health and minimize public health risks
- minimize population displacement
- avoid exceptional natural and human heritage sites
- have lower impacts on rare, threatened or vulnerable species
- maximize natural habitat restoration and protect high quality habitats
- achieve or complement community development objectives in downstream areas (i.e. environmental flows)
- have associated catchment management benefits
- have lower sedimentation and erosion risks
- avoid exceptional greenhouse gas emissions from reservoirs, etc...

The site assessment will includes technical considerations for sites including geological characteristics, morphology, flow characteristics, access issues, etc...

### **3.3.2 Project Benefits**

This topic addresses additional benefits that can arise from the project, and the sharing of benefits beyond compliance requirements of a onetime compensation payments or resettlement support for project affected communities. The intent is that opportunities for additional benefits and benefit sharing are evaluated and implemented, in dialogue with affected communities, so that benefits are delivered to communities affected by the project.

Benefit sharing is distinct from one-time compensation payments or resettlement support examples include:

- access to electricity services whereby project affected communities are enabled to access the benefits of electricity services from the project, subject to contextual constraints (e.g. power safety, preference);
- non-monetary entitlements to enhance resource access whereby project affected communities receive enhanced local access to natural resources;
- revenue sharing whereby project affected communities share the direct monetary benefits of hydropower according to a formula and approach defined; this is a long term enhancement strategy beyond a one-time compensation payment or short-term resettlement support.

Examples of evidence: analysis of potential project benefits; analysis of benefit sharing options and opportunities; meeting minutes or reports of stakeholder consultations and inputs from the stakeholders; benefit sharing plan.

### **3.3.3 Impact analysis**

#### **3.3.3.1 Environmental Impact Assessment**

Once a site has been selected, it is necessary to conduct an environmental assessment that identifies the intended and unintended consequences, both positive and negative, of the planned intervention with the primary purpose of engendering a more sustainable and equitable biophysical and human environment. This point addresses the assessment for environmental and social impacts associated with project preparation over the area of impact of the project and the planning processes of the required mitigation measures. The intent is that environmental and social impacts are identified and assessed, and avoidance, minimization, mitigation, compensation and enhancement measures designed and implemented. Measures to avoid or prevent negative or adverse impacts are always prioritized, and where avoidance is not practicable, then minimization of adverse impacts is sought.

Key environmental issues include aquatic and terrestrial biodiversity, threatened species, migration of aquatic species, critical habitats, ecosystem integrity and connectivity issues, water quality, erosion and sedimentation, wetlands of global significance, weeds and pest species, greenhouse gas emissions from reservoirs, water quality, air quality, legacy issues, cumulative impacts, etc...

Environmental impacts of the project that extend beyond the jurisdictional boundaries in which the project is located would need to be assessed and included in management plans. For some environmental assessment, there might be need for laboratory analysis (soil, water, sediments, air pollution...), the consultant will have to confer with registered or recommended national laboratories.

### **3.3.3.2 Social Impact Assessment**

Key social impacts include social and cultural impacts; economic impacts and impacts on infrastructure and public services. The analysis of social impacts will entail taking into account the following activities:

- i. identifying affected entities;
- ii. facilitating consultation and participation of stakeholders;
- iii. collection of baseline data;
- iv. in-depth review of the local socio cultural context;
- v. prediction of likely impacts;
- vi. evaluation of alternatives;
- vii. recommending mitigation measures and coping mechanisms where impacts are immitigable;
- viii. advising on the appropriate institutional and coordination arrangements;
- ix. devising appropriate implementation, monitoring and management mechanisms;

Within the framework of the social assessment, gender analysis, poverty assessments and stakeholder analysis should be undertaken. These analyses shall constitute the foundation of the socioeconomic profile and the development of mitigation strategies. Social impacts of the project that extend beyond the jurisdiction of the project would also need to be assessed and included in management plans.

As part of the social assessment, a stakeholder analysis has to be conducted. The identification and mapping of stakeholders should include, for example: the geographic or compositional extent of stakeholder groups identified and considered, the interrelationships amongst stakeholder groups, the level of vulnerability to adverse project impacts and risks, and consideration of rights, risks and responsibilities, etc.

Cumulative impacts are those that result from the incremental interaction of impacts of the project in combination to other past, present, and reasonably foreseeable future actions. Effects should be assessed in terms of the capacity of the water resource, ecosystem, and/or affected communities to accommodate such impacts. Analyses need to be defined within realistic boundaries.

An evaluation of climate change would be undertaken either as a stand-alone evaluation or as part of the environmental and social impact assessment. It would typically include analysis of site-specific temperature and precipitation changes over the short- and long-term using one or more global climate models (also known as general circulation models), as well as evaporation and runoff modeling to estimate changes in net water yield.

### **3.3.4 Mitigation and impact management**

#### **3.3.4.1 Environmental and Social Management Plan**

An Environmental and Social Management Plan is a Project Specific Plan developed to ensure that mitigations measures are set up and followed to address the risks identified by the environmental and social management impact assessment during the project's construction, operation and decommissioning.

An effective ESMP should ensure:



- That environmental and social risks associated to the project are properly managed through specific management plans, these plans are defined based on existing best practices
- That the schedule and costs for the effective implementation of this ESMP are realistic and are included in the overall project schedule and costs.
- That the institutional arrangement for the implementation of the ESMP is realistic and comprises an inclusive capacity building plan for the key actors and stakeholders.

The main components of an ESMP are as follows:

- *Work scheduling*: Actions taken to reduce or avoid environmental impact by rescheduling works, or prohibiting or limiting certain activities from times of the year when unfavorable climatic conditions exist should be stated.
- *Contingency plans*: site-specific contingency plans are required for significant risks that have not been controlled. For example, the plan in certain conditions may include procedures for managing storm water from intense storm events or repairing a control structure should it fail.
- *Control Measures*: The plan should identify the position and design specification of structures and measures taken to control:
  - sediment run-off
  - noise and vibration
  - dust emission
- A schedule for installation of these controls should be included in the plan.
- *Special operational precautions*: when work is being done near an environmentally sensitive area, then special precautions should be identified in the plan
- *Rehabilitation*: The site should be rehabilitated so that the impact on the environment is minimal. A rehabilitation plan should be developed as soon as possible after the design is finalized. A schedule for stabilizing and revegetating cleared areas should be given, and an ongoing program to maintain rehabilitated areas should also be included.
- *Maintenance, inspections and surveillance*: a maintenance and inspection program should be provided for all control measures. Ongoing surveillance of the site is required to ensure that new risks are identified as they arise. This allows the environmental management plan to be adjusted to ensure that any new risks are adequately managed.
- *Ongoing risk assessment and management*: construction sites are continuously changing. It is therefore important that the initial risk assessment is updated for each segment. This needs to be integrated into the inspection program.
- *Updating the plan*: the plan should be updated annually to address deficiencies identified by the monitoring or audit program and as new risks are identified through surveillance.

#### 3.3.4.2 Resettlement Action Plan

Resettlement is defined as the process whereby people are moved to a different location, due a project. The choice of a resettlement tool is dependent on whether or not the project footprint known. If the project footprint is not known, a **resettlement framework** is prepared; if the project footprint is known and the number of affected persons is less than 200, an **abbreviated resettlement action plan** is prepared; if the number of project affected persons is more than 200, a **full resettlement action plan** is prepared. As most of the time in the NEL region, the developer do not have the funds for the implementation of the project while preparing it, the full

resettlement action plan will be replaced by the preliminary resettlement action plan in order to reduce the delays between the identification and payment of the compensations.

A Resettlement Action Plan (RAP) refers to a document or set of documents specifically developed to identify the actions that will be taken to address physical displacement arising from the development of a project. A RAP defines a strategy for avoiding, minimizing and mitigating impacts caused by land acquisition and resettlement and its scope and detail varies with the magnitude and complexity of the resettlement. It addresses the impacts of the project on individuals and communities, including economic displacement, impacts on incomes, livelihoods and living standards, and impacts on rights of access to resources, of those affected by the project. The intent is that livelihoods and living standards impacted by the project are restored or improved relative to pre-project conditions for project affected people and communities. The major types of potential impacts of land acquisition and resettlement may be direct or indirect; permanent or temporary; physical or economic. These include the following:

- i. **Land**: These will consist of agricultural, residential and business premises that are permanently, temporarily lost or restricted from use.
- ii. **Structures**: These will include housing whether permanent, semi permanent, rural, urban, owned and rented premises; all domestic associated structures; businesses; utilities and all other fixed assets.
- iii. **Trees and standing crops**: These will comprise all trees and crops and their harvest.
- iv. **Livelihoods** - These will comprise markets, incomes from employment or loss of profits from income generating activities
- v. **Common property resources**: These will include access to forests, water bodies, fishing and grazing rights and lands belonging to local governments or other public agencies.
- vi. **Community infrastructure and facilities**: These will consist of public infrastructures such as schools, churches, mosques and other worship places, water supply structures, existing or planned, that will be affected by the proposed development,
- vii. **Cultural resources**: These will comprise tangible cultural resources such as graves, antiquities, archeological features, cultural heritage sites and sacred locations that may require be avoiding or relocating as there is a risk that they may be disturbed by construction activities. Intangible cultural resources will include rituals, customs, norms and values that are at risk of disappearing as a result of the project activities.
- viii. **Social capital**: This includes social networks, community institutions and mutual help mechanisms.
- ix. **Vulnerability**: This is the risk of exclusion of particular groups due to the activities and outcomes of the project.

A RAP will be prepared following national regulations of each the benefiting countries and in accordance with the requirements of international standards. In cases where the Project Affected Persons livelihoods are highly land-based, and where consistent with their preferences, strong consideration is given to land-for-land compensation. A RAP will not be relevant if credible evidence provided indicates that there will be no involuntary resettlement arising from the project activities.

Issues that affect project affected communities may include, for example: loss or constraints on livelihoods, lowering of living standards, or economic displacement brought about due to changes associated with the project such as changes to river management and flow regimes.

Specific examples could include: impacts on health or safety; impacts on cultural practices; impacts on lands, forest and riverbanks; loss of paddy lands, of home gardens, of riverbank

gardens; loss of ownership, access to, or use of sacred sites, community forest, or other natural resources, etc.

Measures to address project affected communities issues may include, for example: works to protect downstream riparian lands; downstream flow regime agreements to enable sustained livelihoods for downstream communities; access agreements to project lands to enable continued access to sacred sites, community forest, traditional medicinal plants; support for new industries; protection of sacred sites; etc. Opportunities for project-affected communities may include, for example: training and capacity building; education; health services; employment; transportation; promotion of cultural traditions or events, etc.

Examples of evidence: assessment report on project affected communities and livelihoods; gender analysis; human rights issues analysis; records of consultation and project affected community involvement; records of response to project affected community issues; third party review report; report on compensation measures; agreements on compensation measures; assessments and agreements on cultural sensitive areas and customs.

### **3.3.4.3 Public Consultation and Communication**

During the ESIA process, the Developer is required to conduct meaningful, targeted and free consultations with relevant stakeholders, including potential beneficiaries, affected groups, Civil Society Organizations (CSOs) and local authorities, about the project's environmental and social aspects and take their views into account. These consultations shall take place according to the country's legal requirements, if they exist, but should at least meet the minimal requirements described hereafter.

These public consultations aim at discussing the proposed project's objectives and activities with primary and secondary stakeholders, assessing potential environmental and social impacts and to solicit their recommendations on project improvements.

For projects on category A that might be nationally controversial for one reason or another, the developer will be requested to develop a Communication strategy including some grievance mechanisms to be set in place during the implementation phase.

Two types of public consultations shall be conducted during the project preparation:

- (i) **Public consultation:** at least one public consultation shall involve beneficiaries as well as people affected by the projects (PAPs), local authorities as well as people interested by the project (NGOs, Private sector...). The developer shall ensure that participants have been informed and consulted in their local language and that the majority (at least 80% of the PAPs have been consulted).
- (ii) **Disclosure of documents:** the national lead agency(ies), environmental agency, national NGOs networks and the project funder shall have access to the draft and the final reports. The reports that shall be disclosed are:
  - a. Environmental and Social Assessment & Environmental and Social Management Plan
  - b. Resettlement Action Plan, Policy Framework or Process Framework
  - c. Indigenous Peoples Plan or any other management based on the needs.

The developer shall ensure that the ESIA Report documents the public consultation process and findings and that the concerns/recommendations of the various stakeholders were clearly reported (dates, locations, list of participants and their contacts as well as the major issues and comments raised) and taken into consideration in the final report.

Examples of evidence: project stakeholder mapping document; public consultation and disclosure plans; communications strategies; grievance mechanisms.

#### **SUMMARY OF THE KEY OPERATIONS AND INPUTS AT THIS PHASE:**

- ⇒ **Preliminary Processes to conduct:**
  - preparation of TORs for the ESIA and RAP of the project.
  - Approval of TORs for the ESIA and RAP by Donor and national Environmental Agency
  - Recruitment of registered consultancy firm
- ⇒ **Type of reports expected:**
  - Project brief
  - If required, scoping report
  - Full ESIA and RAP report
- ⇒ **Following Process to conduct:**
  - Register the project using the Project brief, CV of the consultant and TORs
  - Submit a scoping report if required
  - Submit the full ESIA& RAP to the environmental agency

The finality of the preparation phase is to obtain a well designed, economical viable and environmentally and socially acceptable investment project ready for implementation. This supposes to obtain all the required permits from the benefiting Government(s) including the environmental agencies.

### **3.4 PROJECT APPRAISAL**

For Category A and B projects, the Developer and NELSAP EMS & SDO will review ESIA& RAP Reports on the basis of TOR and ensure that stakeholder participation findings are included.

The Developer will send the ESIA &RAP reports to the environmental agencies as well as to the Donor for approval. Certificate of approval shall be issued by each of the country benefiting from the project, this document constitute most of the time a conditionality to the financing of the project' implementation by the Development Partners.

Development partners and national environmental agencies shall review ESIA & RAP reports, and conduct site visits as necessary and later suggest modifications or changes in the reports. The developer shall secure enough funds during the preparation phase to facilitate the field assessments by the environmental agencies.

The certificate might be issued with recommendations and conditions, the Developer will ensure that Government requirements are clearly understood and implemented by the Project Implementation Unit (PIU) that will be set in place. The PIU will ensure also that the EIA certificate as well as all the required permits are regularly renewed prior to their date of extinction.

### **3.4.1 Public Notification**

One prerequisite for the Project appraisal by some Development partners is the Public notification of the Project (final disclosure) including a non-technical executive summary of the project and the ESIA report which shall be disseminated to local stakeholders in local language and using the existing media channels (newspapers, radio or leaflets) which are the most affordable to the local stakeholders.

Ideally, this process shall be conducted after the issuance of the EIA certificate by the national environmental agency. Few Environmental Agencies in the NEL region regularly publicize a notice for the projects that have received an EIA certificate, however, this process as well as the release of the EIA certificate might take several months while the some projects could be rapidly implemented. Therefore, the developer is requested to prepare and publicize a public notification in partnership/consultation with the national environmental agency and the lead agency in order to strengthen the ownership and support of national entities to the project.

The ESIA and RAP reports shall also be available on the NELSAP website and comments channeled to the Developer.

For the projects to be appraised by the World Bank, a public notification in English shall also be available early enough to be placed in the World Bank infoshop at least 120 days before the project being submitted to the Board of Director.

## **3.5 PROJECT IMPLEMENTATION AND SUPERVISION**

The PIU shall ensure that (i) the implementation of the ESMP and the RAP is included in the annual Work plan of the Project and (ii) project impacts and results are monitored. Clear indications shall be given to contractors of project' works in relation with the management plans defined in the ESMP.

### **3.5.1 ESMP and RAP Implementation**

The costs of the implementation of the ESMP have to be part of the overall Project implementation and the funds shall be available by the financier (Donor or Government) at the beginning of the project implementation.

The costs of the RAP can either be covered by the Project or be covered by the benefiting country(ies). In the second case, development partners will generally request the completion of the RAP implementation process before the release of the project's financing. The developer will ensure that the lead agency and the government have committed the funds and that the RAP process is conducted according to the agreed report. If the RAP costs are covered by the Project, the PIU will ensure that this activity is among the first activities to be conducted by the Project.

The PIU shall have a clear understanding of the managements plans to be implemented and the institutional arrangements to be established. The management plans listed in the ESMP and RAP shall be implemented by different actors, contractor(s), local authorities, water monitoring agencies, research institutions, NGOs and the PIU. The implementation schedule of the ESMP and the RAP has to be reviewed in partnership with the identified actors and contracts prepared with clear TORs.

Whenever non-compliance to agreed requirements or unexpected impacts are noted, the PIU will be requested to review the ESMP and the RAP in collaboration with relevant stakeholders and come-up with some corrections or mitigation measures as appropriate. PIU shall inform the countries and the Donor prior to the implementation of the proposed modifications.

For project that shall induce heavy environmental and social impacts including involuntary resettlement a Communication strategy including grievance mechanism shall be implemented at the beginning of the implementation phase. The PIU shall also continue consultations with relevant stakeholders throughout project implementation (construction and operation), as necessary, to address ESIA related issues affecting stakeholders. These consultations shall reflect into the quarterly reports.

NELSAP EMS & SDO shall regularly verify compliance of the project through the review the quarterly reports and supervision missions to the project. NELSAP EMS & SDO shall also ensure that the affected groups and other key actors in the implementation of the ESMP & RAP are consulted, during their supervision missions, as appropriate.

### **3.5.2 Monitoring and evaluation**

The PIU shall produce progress reports on the implementation of the ESMP and the RAP sent to NELSAP-CU and to the Donor.

Annual reports of the ESMP and the RAP implementation will be prepared and transmitted to the National Environmental Agency.

For Projects on Category A or based on the request of the Donor and/or the Country, a compliance environmental and social audit will be conducted every year and report transmitted to the National Environmental Agency. The Audit provides systematic information indicating whether the project fulfils the project objectives and environmental and cross-cutting policies of the Country and/or the Donor. The audit recommendations shall guide the PIU in continuous improvement of environmental and social aspects of the on-going project implementation and future project preparation (final audit prepared at the complementation of the project implementation).

## **3.6 PROJECT OPERATION AND DECOMMISSIONING**

Project in Category A will conduct annual compliance audit and shall conduct a final Audit evaluation prior to the Project decommission. This final audit evaluation shall highlight the finding of the previous audits and provide clear recommendations to the Country and the Donor who might which to conduct a post-evaluation audit in order to provide a terminal assessment of the environmental and social performance of a project.

For Project in Category B a final report related to the implementation of the ESMP will be transmitted officially to the Country Environmental Agency for further monitoring. The audits reports as well as other project documents will provide the baseline situation for any new project to be developed on the bases of the current project outputs and outcomes.



## 4. ROLES AND RESPONSIBILITIES

*The Developer:* He/she can be from the NELSAP-CU or from an NELSAP Project Management Unit (PMU) already established. As the PMU, he will oversee the implementation of project preparatory activities on a day to day basis. The Developer shall do his best to collect and avail all relevant documentation to the environmental and social context of the project area, prior to the preparation of the Project Brief. He/she will ensure that key stakeholders including the People affected, the Local authorities and the CSOs are consulted and involved from an early stage and their recommendations documented in the studies. He/she will also ensure that Environmental agencies and Donors recommendations are fully included in the project document and considered during the implementation of the ESMP and RAP.

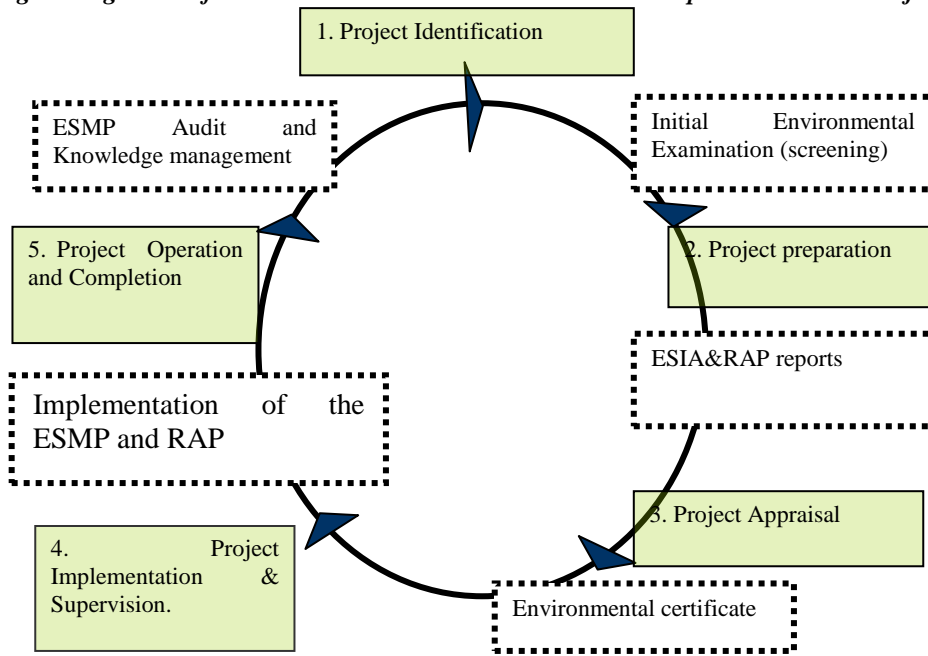
*NELSAP CU.* The primary responsibility for compliance with Environmental and Social assessment procedures rests with the Environmental Management Specialist (EMS) and Social Development Officer (SDO) supported by other staff under the Water Resources Development as well as Power Development programs. Overall quality assurance lies with the program officer responsible for WRD at the NELSAP CU. The EMS and SDO will be responsible for the preparation of relevant standards and checklists depending on key environmental and social issues related to projects under preparation and implementation and will contribute to the preparation of environmental and social related NBI policy framework into which these guidelines shall be anchored. Short term consultants are however contracted when the need arises to prepare the mitigation plans, project-specific environmental management plans and/or resettlement action plans, quality assurance of reports or any other specific studies required. These tasks are explicitly defined in the project preparation consultant's ToR.

*Project Management Units (PMU).* This Unit comprises technical personnel who oversee the implementation of project preparatory activities on a day to day basis. Each of the PMUs with guidance from the Environmental Management Specialist/Social Development Officer, are responsible for implementing the ESMG for projects.

*Project Implementation Unit (PIU).* This Unit comprises technical personnel who oversee the implementation of the project implementation activities including the ESMP and RAP. They shall be established at the national level, ideally with a regional coordination structure within the NELSAP-CU and/or the PMU.

*Development Partners.* During Project supervision, the Financiers assess the implementation of the ESMF and recommend additional measures for strengthening the management framework and implementation performance. The reporting framework, screening procedures and preparation of management and mitigation plans are discussed and agreed by the Donor team and implementing agencies during the early part of project preparation.

*Fig1: Integration of the Environmental and Social Assessment process into the Project Cycle*



## 5. APPENDICES

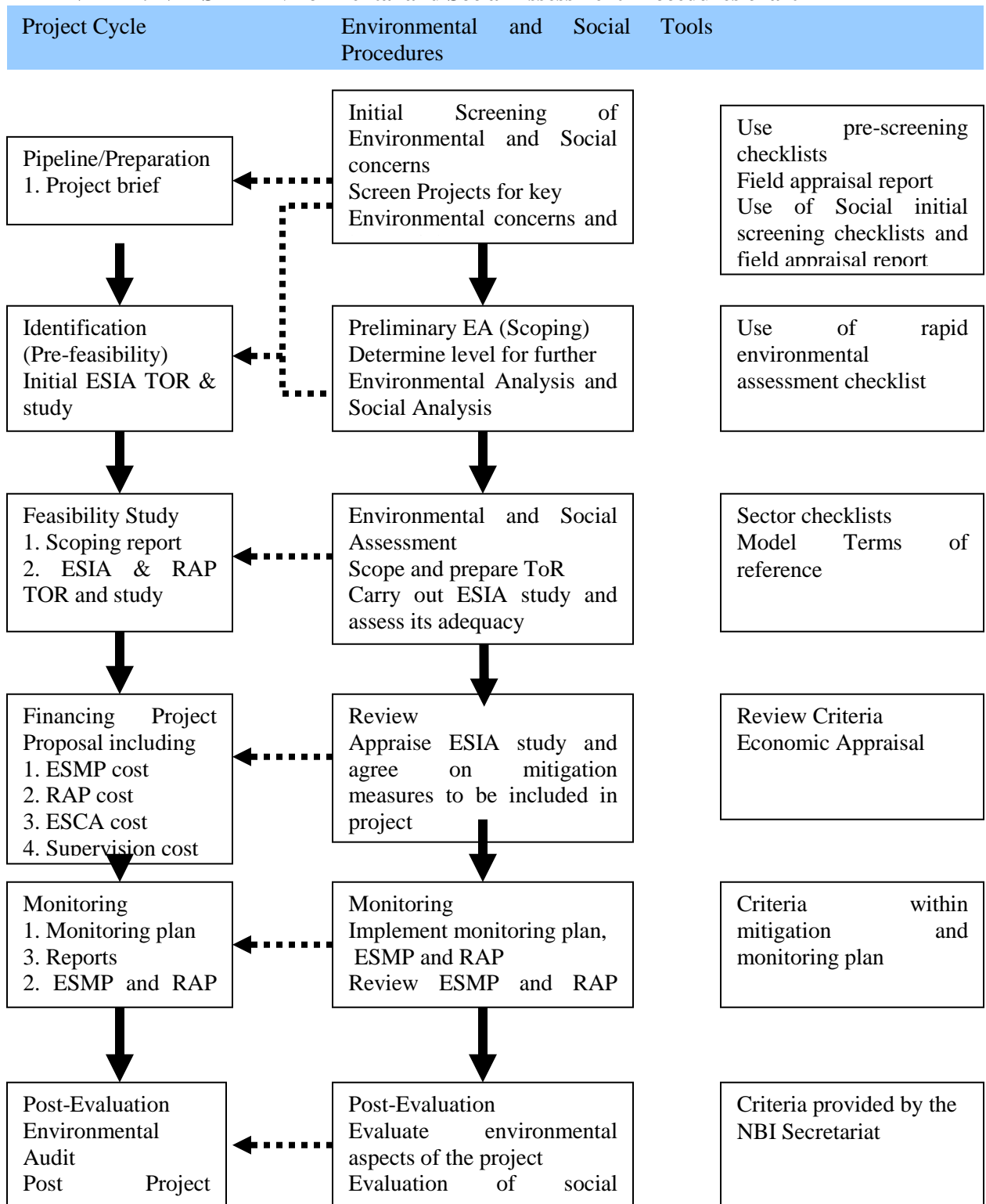
### APPENDIX 1: National Environmental and Social Policies

	Laws	Policies
<b>Burundi</b>		
1.	The Constitution of the Republic of Burundi, 2005	Vision 2025
2.	Environment Code of the Republic of Burundi, Law No.1/10 of 30/06/2000	Politique Nationale De L'Eau, Décembre 2009
3.	EIA Procedures, 2010, Decree No. 100/22 of 07/10/2010	Stratégie Nationale De L'Eau, 2011-2020, Septembre 2011
4.	The Revised Land Code of Burundi, Law No.1/13 of 09/08/2011	Action Plan for Integrated Management of Water Resources, December, 2009
5.	Ordonnance Ministérielle No.720/CAB/304/2008 du 20/03/2008, Portant Actualisation Des Tarifs D'Indemnisation Des Terres, Des Cultures, Et Des Constructions En Cas D'Expropriation Pour Cause D'Utilité Publique	Stratégie Nationale De Réintégration Socio-Economique Des Personnes Affectées Par Le Conflit (Dans un Cadre De Relèvement Communautaire
6.	Water Code, 2012	
7.	Presidential Decree No.100/95 of 28/03/2011 Portant Missions Organisation et Fonctionnement du Ministère De L'Eau, De L'Environnement, De L'Aménagement Du Territoire et De L'Urbanisme	
<b>Democratic Republic of Congo</b>		
1.	The Constitution of the Democratic Republic of Congo, 2006	
2.	Environment Code, Law No.11/009 of 09/07/2011	Document De La Politique De L'Eau De La Communauté Economique Des États De L'Afrique Centrale, Mars 2009
3.	Land Code, Law 001/1977 of 22/02/1977	National Gender Policy, 2009
4.	The Forest Code, Law No.011/2001 of 29/08/2002	Rapport Intermédiaire sur la Mise en oeuvre de la Convention sur la Conservation de la Diversité Biologique, 2007
5.	Law on Protection of Cultural Assets, 1975	
6.	The Mining Code, Law No.007/2002 of 11/07/2002	
7.	Mining Regulations, Presidential Decree No.038/2003 of 26/03/2003	
<b>Kenya</b>		
1.	The Constitution of Kenya, 2010	Vision 2030
2.	The Environment Management and Co-ordination Act, 1999 (Act 8 of 1999)	National Policy on Water Resources Management and Development, 1999
3.	The Environment (Impact Assessment and Audit) Regulations, 2003 (Legal Notice No.101)	The National Policy on Water Resources Management and Development, Sessional Paper No. 1 of 1999
4.	The National Land Commission Act, 2012 (Act 5/2012)	National Water Services Strategy 2007-2015 and the Pro-poor Implementation Plan, Popular Version, June 2009
5.	The Land Act, 2012 (Act 6/2012)	National Water Services Strategy, 2007
6.	Trust Land Act, Cap 288	National Climate Change Response Strategy, April 2010
7.	The Valuer's Act, Cap 532	Kenya Forestry Policy, Sessional Paper No. 9 of 2005
8.	The Environment and Land Court Act, 2011 (Act 19/2011)	National Policy on Gender and Development, 2000
9.	The Mining Act, 1986 (Cap 306)	NACC, Kenya National AIDS Strategic Plan 2009/10-2012/12, November 2009
10.	The Wildlife (Conservation and Management) Act, Cap 376 (revised 2009)	
11.	The Forest Act, 2005 (Act 7 of 2005)	
12.	Water Act, 2002	

13.	The National AIDS Control Council Order, 1999	
14.	HIV and AIDS Prevention and Control Act, 2006 (Act 14 of 2006)	
15.	The National Museums and Heritage Act, 2006 (Cap 216)	
Rwanda		
1.	The Constitution of the Republic of Rwanda, 2003	Vision 2025
2.	Organic Law Determining the Modalities of Protection, Conservation and Promotion of the Environment in Rwanda, Law No. 4 of 2005 of 08/04/2005	National Environment Policy, 2003
3.	Law Establishing REMA, Law No. 16, 2006 of 03/04/2006	Resettlement Policy for Rural Areas
4.	Ministerial Order No. 003/2008 of 15/08/2008 (EIA Procedures)	National Land Policy, 2004
5.	Cabinet Directive 2009 (Resolution of 25/03/2009, Minute 3)	Rwanda Biodiversity Policy, 2011
6.	Organic Law Determining the Use and Management of Land in Rwanda, 2005	National Gender Policy, 2010
7.	Organic Law No.53/2008 of 02/09/2008 Establishing Rwanda Development Board and Determining its Responsibilities, Organization and Functioning	Policy on Cultural Heritage, 2008
8.	Law No.53/2010 of 25/01/2011 Law Establishing Rwanda Natural Resources Authority and Determining its Mission, Organization and Functioning	
9.	Law Establishing an Agency for the Regulation of Certain Utilities, Law No.39/2001 of 13/09/2001	
10.	Law No. 43/ 2010 of 07/12/2010 Establishing Rwanda EWSA	
11.	The Law Relating to Expropriation in the Public Interest, Law No. 18/2007 of 19/04/2007	
12.	Law Establishing and Organizing the Real Property Valuation Profession in Rwanda, Law No.17/2010 of 12/05/2010	
13.	Law No. 57/2008 of 10/09/2008 Law Relating to the Prohibition of Manufacturing, Importation, Use and Sale of Polythene Bags in Rwanda	
14.	Ministerial Order N°007/2008 of 15/08/2008 Establishing the List of Protected Animal and Plant Species	
Tanzania		
1.	The Constitution of United Republic of Tanzania, 1998	National strategy for Growth and Reduction of Poverty II (MKUKUTA II), 2010
2.	The Environment Management Act, 2004	National Strategy for Gender Development, 2005
3.	The Urban Planning Act, 2007 (Act 8/2007)	Community Development Policy, 1996
4.	Water Resources Management Act, 2009 (Act 11/2009)	The Second National Multi-Sectoral Strategic Framework on HIV and AIDS (2008-2012)
5.	Wildlife Conservation Act, 2009 (Act 5/2009)	National Water Policy, July 2002
6.	The Land Act, 1999	
7.	Land (Assessment of Value of Land for Compensation) Regulations, 2001	
Uganda		
1.	The Constitution of the Republic of Uganda, 1995 (as amended)	The National Development Plan, 2010/11-2014/15
2.	The National Environment Act, Cap 153	The National Environment Management Policy, 1994
3.	The National Environment (Environment Impact Assessment) Regulations (S.I. 153-1)	The National Water Policy, 1999
4.	The Water Act, Cap 152 (Uganda)	The National Policy for the Conservation and Management of Wetland Resources, 1995
5.	The National Forestry and Tree Planting Act, 2003	Mineral Policy of Uganda, 2004
6.	The National Environment (Wetlands, Riverbanks and Lakeshores Management) Regulations (SI 153-5)	Uganda Wildlife Policy, 1996

7.	The Mining Act, 2003 (Uganda)	National Land Use Policy
8.	Uganda Wildlife Act, Cap 200	The Uganda Gender Policy, 2007
9.	The Land Act, Cap 227 (Uganda)	Community Mobilization and Empowerment Strategy, December 2006
10.	The Land Acquisition Act Cap 226 (Uganda)	Uganda National HIV and AIDS Policy, 2011
11.	The Access to Information Act, 2005 (Act 6/2005)	The National Priority Action Plan, 2011/12-2013/14, March 2011
12.	The Equal Opportunities Commission Act, 2007 (Act2 of 2007)	National HIV and AIDS Monitoring and Evaluation Plan 2011/12-2014/15, December 2011
13.		National HIV and AIDS Strategic Plan 2011/12-2014/15, December 2011
14.		Draft National Museums and Monuments Policy, 2011
15.		Uganda National Culture Policy, 2006

**APPENDIX 2: NELSAP Environmental and Social Assessment Procedures chart**





**APPENDIX 3: Outlines of the Environmental and Social Procedures for NELSAP project identification, preparation and approval**

Project steps	Milestones	Objectives	Process	Responsibility	Decision/Product
Project Concept & Pre-feasibility	Environmental & Social Screening	Screening determines whether a project is necessarily likely to have adverse impacts on environment, on communities or on cultural heritages	a) Proponent to submit a project brief to the NELSAP-CU, or b) If insufficient information, Proponent to prepare TOR for Initial ESIA which combine E&S screening and scoping, and conduct Initial ESIA with approval of the Donor	Proponent	
			a) Screening report of the project by the EMS& SDO using the rapid E&S assessment checklist and field appraisal if necessary to recommend the project environmental category. b) Review the Initial ESIA report by NELSAP and Donor. NELSAP to transmit to Country Environmental agencies (CEA) and donors the Project Brief with describing of the screening findings/ initial ESIA report	NELSAP CU	project category proposed with key elements for further social analysis and potential social issues and impacts, including potential resettlement and compensation are identified
			CEA to appoint an EIA expert or consult lead agencies and determine the project category and the required EA procedure	Environmental agency of country benefiting from project	Project category defined
	Donor to proceed to initial screening and recommend the project environmental category	Donor	Project category confirmed		
Environmental and Social Scoping		Scoping determines the scope of work that will be required in making an EA Study.	Proponent (i) consults local stakeholders and identifies which environmental and social concerns need detailed examination or recruit a consultant to prepare a scoping report and (ii) prepares TOR to define the scope of work of the EA Study and SA study submits to NELSAP-CU. If approved by the Donor, Proponent to conduct the study. Based on the findings of the study, Proponent to prepare TORs for ESIA and RAP studies.	Proponent	TOR with defined scope of EA study prepared Scope of the EA& SA study reviewed and approved Initial ESIA report adopted
			Environmental agencies and Donor to review the TOR and approve or request revision.	Environmental agencies & Donors	TOR approved

Project steps	Milestones	Objectives	Process	Responsibility	Decision/Product
Feasibility Studies	Environmental and Social Impact Assessment and Resettlement Action Plan (for project in category A&B)	Comprehensive assessment of potential impacts and mitigation measures required.	Consultant develops a comprehensive ESIA and RAP reports following the identified scope of work.	Consultant	ESIA reports including ESMP and RAP produced.
			Proponent to ensure public consultations and stakeholder's inputs considered in ESIA & RAP reports. Proponent to ensure Environmental agencies and Donors recommendations are taken into consideration in the Project. Proponent to ensure ESMP and RAP costs, supervision and compliance audits costs are included into Project financing.	Project Developer and Consultant	Stakeholders informed about the findings of the studies and comments/recommendations collected and considered in the Project.  Project Financing includes ESMP and RAP costs, E& S supervision costs and annual compliance audits costs
			NELSAP EMS&SDO to review of the ESIA reports and conduct site visits as necessary	NELSAP CU	ESIA & RAP reports reviewed
Project appraisal	Detailed Environmental and social Appraisal	Appraise of environmental components of project	Environmental agencies to (i) review the ESIA and RAP reports and provide recommendations if necessary (ii) proceed to internal disclosure and sectoral consultations. (iii) Issue approval certificate if Project ESIA report meets country requirements. If it does not, ESIA report to be reviewed or shall be rejected.	Environmental agencies	Project ESIA & RAP reports approval certificate provided.
			Financiers review reports, and conduct site visits as necessary and later (i) Suggest modifications to be incorporated in environmental components of the project (ii) appropriate changes in other components of project; and (iii) Finalize environmental components as part of project appraisal report.	Donor	Donor Project Appraisal Report accept project as submitted ; with modifications ; or reject project Project financing approved and budget for ESMP and RAP availed. Information disclosure by the Donor ensured.
Project steps	Milestones	Objectives	Process	Responsibility	Decision/Product
Project Implementation	Implementation of Mitigation Measures	Implementation of Environmental and Social mitigation measures	PMU oversees Implementation of the ESMP and RAP	PMU/NELSAP-CU to provided reports to the environmental agencies and Donors	Reports on ESMP and RAP produced and disseminated
			NELSAP-CU & RPSC's members will prepare TOR for the ESMP and RAP Review	PMU/NELSAP-CU	ESMP and RAP reviewed
			Consultants will review the ESMP and RAP	Consultants	

Project steps	Milestones	Objectives	Process	Responsibility	Decision/Product
			based on the context, national and international safeguards.		
			Environmental agencies and lead agencies to approve the review of the ESMP and RAP	RPSC's members, Lead agencies and environmental agencies	
			World Bank to appraise the review report.	World Bank	Required financing for ESMP and RAP availed.
Project Monitoring and Evaluation	Monitoring and Evaluation of implementation of Mitigations measures	Assessment of the environmental and social impacts of the project	PMU to implement the monitoring plan and provide quarterly reports to the NELSAP-CU and to local environmental representative	PMU	Annual reports on project ESMP and RAP implementation produced and disseminated
			NELSAP EMS and SDO to review the reports and prepare annual report to be shared with environmental agencies, lead agencies and donors proceed to field monitoring visits if necessary	NELSAP Environmental Advisor and SDO	
			NELSAP-CU & RPSC's members to prepare TOR for Environmental Audit	NELSAP-CU	
Project Termination	Evaluation of the mitigations measures efficiency and environmental and social benefits or negative impacts generated by the project	Project Environmental Audit	Consultant carries out project Environmental audit	Consultant	Audit reports produced, reviewed and approved  Lessons learned collected and shared.

**APPENDIX 4: ENVIRONMENTAL AND SOCIAL SCREENING FORM**

The Environmental and Social Screening Form (ESSF) has been designed to assist in the evaluation of NELSAP projects. The form is designed to avail information to the decision-makers and reviewers so that impacts and their mitigation measures, if any, can be identified and/or that requirements for further environmental analysis be determined.

The ESSF contains information that will allow reviewers to determine the characterization of the prevailing local bio-physical and social environment with the aim to assess the potential sub-project impacts on it. The ESSF will also identify potential socio-economic impacts that will require mitigation measures and/or resettlement and compensation. This form can also be utilized also to complete the project brief.

Name of sub-project.....  
Sector.....  
Name of the Village/Ward/Town/District/Municipality in which the sub-project is to be implemented.....  
Name of Executing Agent.....  
Name of the Approving Authority .....

Name, job title, and contact details of the person responsible for filling out this ESSF:  
Name: .....  
Job title:.....  
Telephone numbers:.....; .....  
Fax Number:  
E-mail address  
Date:  
Signature:.....

**PART A: BRIEF DESCRIPTION OF THE PROJECT**

Please provide information on the type and scale of the sub-project (area, required land, approximate size of total building floor area).  
Provide information about actions needed during the construction of facilities including support/ancillary structures and activities required to build it, e.g. need to quarry or excavate borrow materials, laying pipes/lines to connect to energy or water source, access road etc.  
Describe how the sub-project will operate including support/activities and resources required to operate it e.g. roads, disposal site, water supply, energy requirement, human resource etc.

**PART B: BRIEF DESCRIPTION OF THE ENVIRONMENTAL AND SOCIAL SITUATION AND IDENTIFICATION OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS**

Describe the project location, project site, surroundings (include a map, even a sketch map)

\_\_\_\_\_  
Describe the land formation, topography, vegetation in/adjacent to the project area

\_\_\_\_\_  
Estimate and indicate where vegetation might need to be cleared.  
\_\_\_\_\_

Environmentally sensitive areas or threatened species

Are there any environmentally sensitive areas or threatened species (specify below) that could be adversely affected by the project?

- (i) Intact natural forests: Yes \_\_\_\_\_ No \_\_\_\_\_
- (ii) Riverine forest: Yes \_\_\_\_\_ No \_\_\_\_\_
- (iii) Surface water courses, natural springs Yes \_\_\_\_\_ No \_\_\_\_\_
- (iv) Wetlands (lakes, rivers, swamp, seasonally inundated areas)  
Yes \_\_\_\_\_ No \_\_\_\_\_

(v) How far is the nearest wetland (lakes, rivers, seasonally inundated areas)?

\_\_\_\_\_ km.

(vi) Area of high biodiversity: Yes \_\_\_\_\_ No \_\_\_\_\_

(vii) Habitats of endangered/ threatened, or rare species for which protection is required under Tanzania national law/local law and/or international agreements.

Yes \_\_\_\_\_ No \_\_\_\_\_

(viii) Others (describe). Yes \_\_\_\_\_ No \_\_\_\_\_

#### Rivers and Lakes Ecology

Is there a possibility that, due to construction and operation of the project, the river and lake ecology will be adversely affected? Attention should be paid to water quality and quantity; the nature, productivity and use of aquatic habitats, and variations of these overtime.

Yes \_\_\_\_\_ No \_\_\_\_\_

#### Protected areas

Does the project area (or components of the project) occur within/adjacent to any protected areas designated by government (national park, national reserve, world heritage site etc.)

Yes \_\_\_\_\_ No \_\_\_\_\_

If the project is outside of, but close to, any protected area, is it likely to adversely affect the ecology within the protected area areas (e.g. interference with the migration routes of mammals or birds).

Yes \_\_\_\_\_ No \_\_\_\_\_

#### Geology and Soils

Based upon visual inspection or available literature, are there areas of possible geologic or soil instability (prone to: soil erosion, landslide, subsidence, earthquake etc)?

Yes \_\_\_\_\_ No \_\_\_\_\_

Based upon visual inspection or available literature, are there areas that have risks of large scale increase in soil salinity?

Yes \_\_\_\_\_ No \_\_\_\_\_

Based upon visual inspection or available literature, are there areas prone to floods, poorly drained, low-lying, or in a depression or block run-off water

Yes \_\_\_\_\_ No \_\_\_\_\_

#### Contamination and Pollution Hazards

Is there a possibility that the project will be at risks of contamination and pollution hazards (from latrines, dumpsite, industrial discharges etc)

Yes \_\_\_\_\_ No \_\_\_\_\_

#### Landscape/aesthetics

Is there a possibility that the project will adversely affect the aesthetic attractiveness of the local landscape?

Yes \_\_\_\_\_ No \_\_\_\_\_

#### Historical, archaeological or cultural heritage site.

Based on available sources, consultation with local authorities, local knowledge and/or observations, could the project alter any historical, archaeological, cultural heritage traditional (sacred, ritual area) site or require excavation near same?

Yes \_\_\_\_\_ No \_\_\_\_\_

#### Resettlement and/or land Acquisition

Will involuntary resettlement, land acquisition, relocation of property, or loss, denial or restriction of access to land and other economic resources be caused by project implementation?

Yes \_\_\_\_\_ No \_\_\_\_\_

If "Yes" Involuntary Resettlement OP 4.12 is triggered. Propose the appropriate mitigation measures to be taken.

#### Loss of Crops, Fruit Trees and Household Infrastructure

Will the project result in the permanent or temporary loss of crops, fruit trees and household infra-structure (such as granaries, outside toilets and kitchens, livestock shed etc)?

Yes \_\_\_\_\_ No \_\_\_\_\_

Block of access and routes or disrupt normal operations in the general area

Will the project interfere or block access, routes etc (for people, livestock and wildlife) or traffic routing and flows?

Yes \_\_\_\_\_ No \_\_\_\_\_

Noise and Dust Pollution during Construction and Operations.

Will the operating noise level exceed the allowable noise limits?

Yes \_\_\_\_\_ No \_\_\_\_\_

Will the operation result in emission of copious amounts of dust, hazardous fumes?

Yes \_\_\_\_\_ No \_\_\_\_\_

Degradation and/or depletion of resources during construction and operation

Will the operation involve use of considerable amounts of natural resources (construction materials, water spillage, land, energy from biomass etc.) or may lead to their depletion or degradation at points of source?

Yes \_\_\_\_\_ No \_\_\_\_\_

Solid or Liquid Wastes

Will the project generate solid or liquid wastes? (including human excreta/sewage, hospital waste)

Yes \_\_\_\_\_ No \_\_\_\_\_

If "Yes", does the project include a plan for their adequate collection and disposal?

Yes \_\_\_\_\_ No \_\_\_\_\_

Occupational health hazards

Will the project require large number of staff and laborers; large/long-term construction camp?

Yes \_\_\_\_\_ No \_\_\_\_\_

Are the project activities prone to hazards, risks and could result in accidents and injuries to workers during construction or operation?

Yes \_\_\_\_\_ No \_\_\_\_\_

Will the project require frequent maintenance and or repair

Yes \_\_\_\_\_ No \_\_\_\_\_

Public Consultation

Has public consultation and participation been sought?

Yes \_\_\_\_\_ No \_\_\_\_\_

#### PART C: MITIGATION MEASURES

For all "Yes" responses, describe briefly the measures taken to this effect.



## APPENDIX 5: ENVIRONMENTAL IMPACT ASSESSMENT REPORTS<sup>3</sup>

The scope and level of detail of an Environmental Impact Assessment should be commensurate with the potential impacts of the project. The Environmental Impact Assessment report should include the following items (not necessarily in the order shown):

**Executive summary:** concisely discusses significant findings and recommended actions.

**Scoping:** identifies the issues and impacts that are likely to be important and establishes the terms of reference for the Environmental Impact Assessment.

**Policy, legal and administrative framework:** discusses the policy, legal, and administrative framework within which the Environmental Impact Assessment is carried out.

**Project description:** describes the proposed project and its geographic, ecological, social, and temporal context, including any offsite investments that may be required (*e.g.*, dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities); indicates the need for any resettlement or social development plan; and normally includes a map showing the project site and the project's area of influence.

**Baseline data:** assesses the dimensions of the study area and describes relevant physical, biological, and socio-economic conditions, including any changes anticipated before the project commences. Also, it takes into account current and proposed development projects within the project area but not directly connected to the project. Data should be relevant to decisions about project location, design, operation, or mitigation measures; the section indicates accuracy, reliability and sources of the data.

**Environmental and social impacts:** predicts and assesses the project's likely positive and negative impacts on the surrounding natural environment and on the humans reliant on that environment, to include effects on cultural property, indigenous peoples, and involuntary resettlement, as well as the impacts on human health and safety, in quantitative terms to the extent possible. This may also include significant induced, indirect, and cumulative impacts and reasonably foreseeable effects that may be associated with or ancillary to the project. It identifies mitigation measures and any residual negative impacts that cannot be mitigated. It explores opportunities for environmental enhancement. It identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions, and specifies topics that do not require further attention.

**Analysis of alternatives:** systematically compares feasible alternatives to the proposed project site, technology, design and operation (including the "without project" situation) in terms of their potential environmental and social impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training and monitoring requirements. For each of the alternatives, it quantifies the environmental and social impacts to the extent possible and attaches economic values where feasible. It states the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement.

**Environmental Management Plan:** describes mitigation, monitoring and institutional measures to be taken during project implementation to eliminate adverse impacts, offset them, or reduce them to acceptable levels.

**Consultation:** lists and describes consultation meetings, including consultations for obtaining the informed views of the affected people, local nongovernmental organizations and regulatory agencies. Project-level consultation should begin at scoping and continue through implementation.

---

<sup>3</sup> This Appendix is based on the World Bank Operational Manual, OP 4.01, Appendix D - 1 January 20, 2006

### **Key additional information and analysis to include into ESIA report:**

The following information needs to be included to the ESIA report:

- a map of soil types and their erosion potential
- climate, weather patterns and stream flows
- topography and natural geographic features (including whether site is in a floodplain)
- the construction schedule
- changes to the topography of the site during each stage of the project
- a map of existing vegetation identifying areas to be retained
- details of areas of cleared land at each stage of the development, and period of time that each section will be exposed
- changes to drainage and identification of sources of clean and contaminated stormwater
- Calculation of storm water flows within micro-catchments within the site, based on a one-in-two-year storm event, for each stage of the project
- Potential location of stockpiles, batters, haul roads and cuts
- nature and location of works that will occur within 50 metres of a natural waterway or other sensitive environmental area

**Hazard identification:** this analysis involves identifying activities that could lead to an adverse effect on the environment, impair human health, result in a nuisance, or decrease the amenity of residents adjacent to a construction site. It is necessary to consider both direct and potential causes of hazard, which could cause water, air, land or noise pollution. Hazards may arise out of features of the site, or the nature of construction activities. For example, clearing vegetation from large areas and exposing erodible soil is a high-risk activity which may lead to dust generation and sediment run-off.

Proposed pollution prevention and control measures should be considered when identifying hazards, because if they fail, there will be an adverse impact on the environment.

**Hazard analysis.** Hazard analysis considers the likelihood of an environmental hazard being realized. This analysis is based on previous experience, historical data for the failure rate of structures and systems, and includes the impact of site specific conditions which may influence risk levels. The level of risk is also a function of time. The longer a risk is allowed to continue, the more likely it is that there could be an undesirable consequence.

**Consequence analysis.** Consequence analysis determines the effect on the environment should a risk be realized. Two factors that should be considered in the consequence analysis are:

- significant long-term consequences, such as permanently altering the ecology of an environmental system
- significant short-term consequences, where the effects are temporary

**Determination of the overall risk.** The overall risk is a function of the probability of a measure, structure or system failing, or of an event or activity causing environmental damage, and the magnitude of the environmental damage, should it fail. Determining risk levels is an iterative process, the objective of the process is to reduce risk to acceptable levels by implementing an action plan.

**Ranking.** Wherever possible, risks should be quantified using scientific data, experience and judgment. Unfortunately, many risks cannot be quantified because of the lack of historical data. In addition, site-specific factors, such as site topography, have a major effect on risk levels.

The magnitude of the risk is either estimated or ranked in order of importance. Ranking involves listing risks relative to one another, from high to low. Ranking risks, based on uncertain and limited data, requires a high degree of judgment. It is therefore important that this step is conducted by an expert with experience in assessing risks on major construction sites. Rankings need to be reviewed as actions are taken to eliminate or reduce the risk.

**Risks management.** Management of risks can through avoiding, reducing or mitigating the identified risks by choosing a better option, modifying the design and establishing controlling measures.

## APPENDIX 6: SOCIAL IMPACT ASSESSMENT REPORT STRUCTURE

**Executive Summary:** Indicating key impacts related to land acquisition and mitigation strategies/actions, brief project description, total land take and number of people requiring resettlement including vulnerable groups requiring special assistance, synopsis of the consultation and disclosure process, summary entitlement matrix and livelihood restoration strategies.

**Introduction and project description:** Description of the project rationale and scope, objective of the SIA and scope of work, the project, its components and the site, the land and structures affected.

**Policy and regulatory framework:** Detailed description of the policy and legal context as it applies to the project, identification of gaps between international development partner and local policy and mechanisms to address the differences, eligibility criteria for compensation.

**Stakeholder analysis, consultation and disclosure:** Discussion of how stakeholders were identified and consulted, a detailed stakeholder analysis including a detailed consultation and communication strategy, documentation of consultation including community perceptions and concerns, disclosure plan.

**Methodology:** Discussion of the data collection, analysis and use, information on secondary literature review, tools used, sample size and sampling strategy,

**Socio economic profile:** This is the survey of household and community variables to establish baseline conditions and inform mitigation strategies. It entails discussion on production systems, incomes and income stream analysis, expenditures, land tenure, distribution and use, gender analysis, poverty assessment, the presence of indigenous, marginal, and vulnerable groups,

**Types and inventory of loss and impacts:** Discussion of the area to be covered, analysis of losses identification and categorization of project affected people, definition of vulnerable groups and severity of vulnerability.

**Alternate analysis:** Provide an analysis of project versus no project scenario, change in alignment or options.

**Cut of dates:** Discussion on the establishment of cutoff dates and issuance of identification cards.

**Compensation and livelihood restoration:** Discussion on mitigation strategies including compensation, resettlement and livelihood restoration measures.

The generally accepted principles of social impact assessment include:

- Involvement of the diverse, larger public
- Specification and analysis of impacts
- Focus the assessment
- Identify methods and assumptions
- Use Social Impact Assessment practitioners
- Establish monitoring and mitigation plans
- Identify data sources and plan for gaps in data

## APPENDIX 7: RESETTLEMENT ACTION PLAN STRUCTURE

**Project overview:** Brief description of the project background, potential impacts and benefits, scope of land acquisition and resettlement, measures to avoid, minimize land acquisition and resettlement, the main objectives of the resettlement program

**Socioeconomic profile of the project affected people:** Description of the project area, demographic and .....information, definition of the socioeconomic status and livelihood of the people affected, gender and vulnerability analysis;

**Census and project impacts:** Results of census and impact details for households and individuals;

**Consultation, communication and disclosure:** A concise account of the participation of consultation with project affected persons and households and information exchange;

**Policy, regulatory and administrative frameworks:** The legal and policy framework to be applied on the acquisition of land and in the valuation of assets and compensation;

**Eligibility and entitlement:** The eligibility framework and entitlement matrix and the strategy for identification of valuation and compensation packages;

**Relocation and livelihood restoration:** Relocation requirements, options and strategies, including site selection, preparation, relocation and integration with host communities and enhancement measures to be implemented as assistance to restore the livelihoods of affected people;

**Grievance management and redress mechanisms:** Procedures in place for project affected persons to lodge complaints and the resolution instruments in place;

**Implementation arrangements:** Institutional framework and identification of organizational roles and responsibilities, capacity building, implementation structure, schedule and timeframe;

; **Budget and financing:** Cost, budget allocation and financial management;

**Monitoring and evaluation:** Framework for internal and external monitoring including third party monitoring ,evaluation frame and reporting;;

The generally acknowledged principles applied to land acquisition and resettlement are:

- Consultation with and participation of project affected persons;
- Avoidance or minimization of resettlement as an action;
- Negotiated compensation options;
- Resettlement must be guaranteed to ensure project affected persons benefit;
- Establishment of resettlement baseline data;
- Vulnerable social groups are taken account of
- Resettlement upfront project cost;

Livelihood refers to the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. Improvement of livelihoods refers to compensatory measures taken to address impacts of the project on pre-project livelihoods so that those affected are able to move forward with viable livelihoods with improved capabilities or assets relative to the pre-project conditions; for example supporting farmers to continue to be able to farm or to pursue alternatives, accompanied by sufficient support mechanisms that not only enable any changes to livelihoods to be well-established but also so that they have increased capabilities or access to the necessary resources (including training, information, materials, access, supplies etc).

Living standards refer to the level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Resettlees are those people who are required to be resettled, including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

Socio-economic baseline for resettlement includes analysis of community structures, gender, vulnerable social groups, living standards and economic valuation of livelihoods and asset loss. Host communities refers to the communities to which resettlees are relocated.

Grievance mechanisms refer to the processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Stakeholder support may be expressed through community members or their representatives, and may be evident through means such as surveys, signatures on plans, records of meetings, verbal advice, public hearing records, public statements, governmental license, court decisions, etc.

Consent means signed agreements with community leaders or representative bodies who have been authorized by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

Project Affected People are the interacting population of various kinds of individuals in the area surrounding the project who are affected either positively or negatively by the hydropower project and its associated infrastructure.

Assessment of Project Affected People would include their livelihoods, living standards, the nature of the impacts of the project on their livelihoods and living standards, and the degree of economic displacement; analysis of gender and vulnerable groups should be included.

Economic displacement refers to the loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

## APPENDIX 8: CHECKLISTS FOR ENVIRONMENTAL IMPACTS OF DEVELOPMENT PROJECTS

The checklists provided below gives a comprehensive guide of the areas of environmental concern which should be considered in the planning, design, operation and management of projects.

SECTOR CHECKLIST I. POWER TRANSMISSION/TRANSPORT	SECTOR CHECKLIST II. WATER RESOURCES SECTOR	SECTOR CHECKLIST III - AGRICULTURE
<p><b>1.1 SOURCES OF IMPACTS</b> The Power Interconnection sector falls into three sub-sectors, that is air, land and water transport. Some of the programmes and projects in this sector that may lead to significant environmental impacts include the following:</p> <ul style="list-style-type: none"> <li>• Road transport network and related facilities</li> <li>• Railway transport network and related facilities</li> <li>• Air transport network and the related facilities</li> <li>• Water transport network and related facilities</li> <li>• Oil and gas pipelines and related facilities</li> </ul>	<p><b>2.1 SOURCES OF IMPACTS</b></p> <ul style="list-style-type: none"> <li>• Dams and reservoirs</li> <li>• Inter-basin water transfer</li> <li>• Irrigation and drainage</li> <li>• Flood control schemes</li> <li>• River diversions</li> <li>• Groundwater abstraction</li> <li>• Rural sanitation (pit latrines, septic tanks and cesspools)</li> <li>• Urban sanitation (sewage collection, treatment, storm drainage)</li> <li>• Water purification plants</li> <li>• Household water supply (e.g. boreholes, shallow wells and rainwater harvesting) and water conveyance and distribution<sup>1</sup></li> <li>• Agriculture</li> <li>• Energy generation projects (hydroelectric power and geothermal projects)</li> <li>• Water navigation and recreation</li> </ul>	<p><b>3.1 SOURCES OF IMPACT</b> Agricultural programmes and projects have the potential to lead to certain environmental impacts (both positive and negative). The sources of these impacts include the following:</p> <ul style="list-style-type: none"> <li>• Change from shifting to settled agriculture or from subsistence farming to cash crop farming.</li> <li>• Introduction of unfamiliar/exotic crops not previously grown in a specified region.</li> <li>• Crop intensification and diversification programmes.</li> <li>• Change from pastoral-nomadic practice to sedentary agriculture.</li> <li>• Introduction of mechanized farming.</li> <li>• Soil and water management programmes.</li> <li>• Irrigation.</li> <li>• Livestock farming</li> <li>• Agro-processing</li> <li>• Road programmes for improved accessibility.</li> <li>• Biotechnology.</li> <li>• Breeding programmes</li> </ul>
<p><b>1.2 PROJECT INPUTS</b></p> <ul style="list-style-type: none"> <li>• Labour (skilled and unskilled)</li> <li>• Machinery (e.g. excavators, dredger, and earth-moving equipments)</li> <li>• Construction materials (e.g. gravel, stones), steel and cement</li> <li>• Fuels and lubricants</li> <li>• Land</li> <li>• Air space</li> <li>• Passengers and cargo</li> <li>• Capital</li> </ul>	<p><b>2.2 PROJECT INPUTS</b></p> <ul style="list-style-type: none"> <li>• Land</li> <li>• Construction material</li> <li>• Labour (skilled and unskilled)</li> <li>• Surface and ground water</li> <li>• Water treatment chemicals</li> <li>• Energy</li> <li>• Capital</li> <li>• Plant and equipment</li> </ul>	<p><b>3.2 PROJECT INPUTS</b></p> <ul style="list-style-type: none"> <li>• Land (land tenure, land suitability)</li> <li>• Capital (machinery, equipment)</li> <li>• Labour</li> <li>• Farm inputs (fertilizers, fumigants, pesticides, herbicides, seeds and livestock)</li> <li>• Inputs to agro-processing</li> <li>• Genetic materials</li> </ul>

<ul style="list-style-type: none"> <li>• Water resources</li> </ul>		
<p><b>1.3 PROJECT ACTIVITIES</b></p> <p>a. Route/Site Selection</p> <ul style="list-style-type: none"> <li>• Surveying project route/site</li> <li>• Seismic and ground stability testing</li> <li>• Land acquisition</li> <li>• Resettlement</li> </ul> <p>b. Project Construction</p> <ul style="list-style-type: none"> <li>• Establishing related works and supporting infrastructure (e.g. construction camps, clearing of vegetation, impounding, river regulation and/or diversion, creation of dikes, access roads)</li> <li>• Raw materials acquisition (e.g. dredging, mining, quarrying, water abstraction)</li> <li>• Excavation works and land filling</li> <li>• Transportation of raw materials, machinery and labour to site</li> <li>• Transportation of waste materials from site</li> <li>• Rehabilitation of affected surfaces including areas from which some raw materials have been obtained (e.g. quarries and mines)</li> <li>• Construction supervision</li> <li>• Levelling and landscaping</li> </ul> <p>c. Project Operations</p> <ul style="list-style-type: none"> <li>• Route/site maintenance including rehabilitation</li> <li>• Passengers and cargo handling and transportation</li> <li>• Docking and parking</li> <li>• Storage and warehousing of goods including oil products</li> <li>• Servicing of machinery and equipments</li> <li>• Pumping and conveyance of liquid and gaseous products</li> <li>• Removal of wastes (e.g. domestic sewage, spillages, bilge, ballast, antifouling materials and dredging spoils)</li> <li>• Planned and unplanned activities (e.g. local</li> </ul>	<p><b>3.3 PROJECT ACTIVITIES</b></p> <p>a. Selection of project site</p> <ul style="list-style-type: none"> <li>• Identifying of sites for water supply sources, storage, waste treatment and disposal</li> <li>• Estimating water supply and consumption demands</li> <li>• Determining the quantity and quality of water</li> <li>• Determining the reliability of water source(s)</li> <li>• Determining the existing water and sewerage facilities</li> </ul> <p>b. Construction</p> <p><b>Surveying project site/routes</b></p> <ul style="list-style-type: none"> <li>• Seismic and ground stability testing</li> <li>• Land acquisition</li> <li>• Resettlement</li> <li>• Site and route preparation</li> </ul> <p><b>Establishing related works and supporting infrastructure</b></p> <ul style="list-style-type: none"> <li>• Excavation works and land filling</li> <li>• Acquisition and transportation of raw materials to site</li> <li>• Construction and supervision</li> <li>• Transportation of waste materials from site</li> <li>• Landscaping</li> <li>• Collection system involving a dam or reservoir, with intake, a catchment basin for a river, or a well field</li> <li>• Conveyance system consisting of a pipeline or an open channel, constructed to distribute water</li> <li>• By gravity or pumping</li> <li>• Treatment system, e.g. slow sand infiltration of disinfection</li> <li>• Distribution system embracing public standpipes or fountains</li> <li>• Metering system to determine total consumption and to monitor demand variations</li> </ul>	<p><b>3.3 PROJECT ACTIVITIES</b></p> <ul style="list-style-type: none"> <li>• Land clearing and preparation (harrowing by hand, mechanical, chemical, levelling, terracing, draining) for settlement, resettlement and pest control</li> <li>• Farming Operations e.g.</li> <li>• Methods of weeding (mechanical, manual, chemical)</li> <li>• Use of fertilisers, pesticides and herbicides (types, storage, methods-including aerial spraying, and rate of application)</li> <li>• Mechanical farming practices (for instance, tillage, harvesting)</li> <li>• Crop and soil management practices</li> <li>• Livestock management practices</li> <li>• Crop storage</li> <li>• Collection and preservation of germplasm and genetic engineering</li> <li>• Agro-processing</li> <li>• Conversion of crops and livestock to marketable products</li> <li>• Use of wood fuel</li> </ul>



<p>transportation, hotels, tourism, mining, other formal and informal commercial activities)</p>	<ul style="list-style-type: none"> <li>• Sewage collection treatment and disposal system</li> <li>• Sludge management</li> </ul> <p>c.Operations and Maintenance</p> <ul style="list-style-type: none"> <li>• Reservoir and flow control</li> <li>• Treatment of water and sewage</li> <li>• Waste recycling, reuse and/or disposal</li> <li>• Maintenance of system integrity</li> <li>• User education on health, sanitation and conservation</li> <li>• Vegetation clearing</li> <li>• Decommissioning</li> </ul>	
<p><b>1.4 AREAS OF PROJECT IMPACTS</b>  Although the development of transport/transmission lines infrastructure enhances communication and economic activities, projects have the potential to impact on the following:</p> <p>a. The Natural Environment</p> <ul style="list-style-type: none"> <li>• Areas supporting critical and fragile habitats (e.g. wetlands, forests, coral reefs)</li> <li>• Protected areas</li> <li>• Areas supporting significant biodiversity</li> <li>• Air</li> <li>• Areas of scenic beauty</li> <li>• Degraded environments</li> <li>• Cultural and historical sites</li> <li>• Lakes, rivers and other surface water bodies</li> <li>• Terrestrial and aquatic flora and fauna</li> <li>• Rocks and soils</li> <li>• Groundwater aquifers</li> <li>• Wildlife habitats and migration routes</li> </ul> <p>b. The Human Environment</p> <ul style="list-style-type: none"> <li>• Human settlements in proximity to the project</li> <li>• Human population</li> <li>• Land tenure system</li> <li>• Existing land-use to be displaced/converted (e.g. settlements, farms, pastoral land, recreational areas, forest reserves)</li> </ul>	<p><b>2.4 AREAS OF IMPACTS</b>  The natural and human environments likely to be affected by water resources projects and programmes include the following:</p> <p>a. The Natural Environment</p> <ul style="list-style-type: none"> <li>• Protected areas</li> <li>• Aquatic flora and fauna (rare endangered, and threatened species)</li> <li>• Land (soil and vegetation)</li> <li>• Air</li> <li>• Mineral resources</li> <li>• Geological formations</li> <li>• Wetlands</li> <li>• Critical habitats</li> <li>• Surface and ground water</li> </ul> <p>b. The Human Environment</p> <ul style="list-style-type: none"> <li>• Human Settlements in proximity to the project</li> <li>• Land use</li> <li>• Existing infrastructure facilities and services</li> <li>• Water use rights</li> <li>• Public health and safety</li> <li>• Cultural, historical and archaeological sites</li> <li>• Traditional livelihoods and food security</li> <li>• Human population</li> </ul>	<p><b>3.4 AREAS OF IMPACT</b>  The natural and human environments likely to be affected by agricultural programmes and projects include the following:</p> <p>a. The Natural Environment</p> <ul style="list-style-type: none"> <li>• Air</li> <li>• Soil</li> <li>• Protected areas</li> <li>• Areas supporting significant biodiversity</li> <li>• Areas supporting critical habitat e.g. wetlands and mountain ecosystems</li> <li>• Hill tops, hill sides and mountain areas</li> <li>• Environments already significantly degraded</li> <li>• Sites of significant cultural or historical importance.</li> <li>• Terrestrial and aquatic flora and fauna</li> <li>• Surface and ground water (quantity, quality, flow regimes)</li> <li>• Fragile ecosystems (e.g. arid and semi-arid lands and wetlands)</li> </ul> <p>b. The Human Environment</p> <ul style="list-style-type: none"> <li>• Human settlements in proximity to the project</li> <li>• Human population</li> <li>• Existing land-use to be displaced/converted (e.g. forestry</li> </ul>

<ul style="list-style-type: none"> <li>Existing provision of goods and services (e.g. market, health, education, commerce)</li> <li>Traditional livelihoods (e.g. fishing, farming, pastoralism)</li> <li>Cultural practices and values</li> <li>Public health and safety</li> <li>Gender characteristics</li> <li>Labour market and availability</li> <li>Existing infrastructure and services (e.g. housing, water supply, means of communications, sewerage, electricity)</li> <li>Increase foreign exchange earnings</li> </ul>	<ul style="list-style-type: none"> <li>Areas of scenic beauty</li> <li>Cultural practices and values</li> </ul>	<p>reserves, and recreational areas).</p> <ul style="list-style-type: none"> <li>Existing provision of goods and services (e.g. health, agricultural extension services, investment capital and education)</li> <li>Land tenure system</li> <li>Labour market, division of labour and labour availability for food production</li> <li>Security of livelihoods/cash income generation</li> <li>Traditional livelihoods (e.g. pastoralism, fishing and indigenous knowledge)</li> <li>Public health issues</li> <li>Gender issues</li> <li>Squatters</li> </ul>
<p><b>1.5 ENVIRONMENTAL IMPACTS</b> Transport/Power Interconnection projects may lead to a variety of environmental impacts that include the following:</p> <p>a. General Impacts on natural Environment</p> <ul style="list-style-type: none"> <li>Loss of vegetation</li> <li>Loss or degradation of wildlife habitats</li> <li>Loss of areas of scenic beauty</li> <li>Creation of an impervious surface</li> <li>Alteration of storm drainage patterns and recharge of groundwater aquifers</li> <li>Loss of biodiversity</li> <li>Water, air and land pollution</li> <li>Incidences in ground vibrations</li> <li>Loss of natural routes for migratory species</li> <li>Noise pollution</li> <li>Soil erosion</li> <li>Salt intrusion</li> <li>Invasion of alien species of flora and fauna</li> <li>Accumulation of inorganic and organic materials</li> <li>Eutrophication</li> <li>Loss/degradation of historical and cultural sites</li> </ul> <p>b. Specific Impacts on the Natural Environment</p>	<p><b>2.5 ENVIRONMENTAL IMPACTS</b> Adverse environmental impacts of projects and programmes in the water sector are associated primarily with project location, oversights in planning and design, construction works and deficiencies in project operations and decommissioning.</p> <p>a. Impacts on the Natural Environment</p> <ul style="list-style-type: none"> <li>Pollution (air, land and water)</li> <li>Changes in surface and ground water hydrology</li> <li>Inundation of mineral resources</li> <li>Decrease in downstream and delta fisheries</li> <li>Siltation of water bodies</li> <li>Soil erosion</li> <li>Invasion of water bodies by aquatic weeds</li> <li>Eutrophication</li> <li>Loss of biodiversity and vegetation cover</li> <li>Desiccation of vegetation and soils</li> <li>Loss of habitat</li> <li>Habitat modification</li> <li>Saline water intrusion</li> <li>Drying up of marginal wells</li> <li>Land subsidence</li> <li>Desertification (land degradation)</li> <li>Flood and bank control</li> </ul>	<p><b>3.5 ENVIRONMENTAL IMPACTS</b> The following are some of the potential environmental impacts from agricultural programmes and projects.</p> <p>a. Impacts on the Natural Environment</p> <ul style="list-style-type: none"> <li>Loss of vegetation cover</li> <li>Destruction of wildlife habitat</li> <li>Loss of biodiversity</li> <li>Soil erosion</li> <li>Desertification</li> <li>Increased climate variability/climate change</li> <li>Change and loss of aesthetic value</li> <li>Pollution (soil, water and air)</li> <li>Changes in hydrology</li> <li>Salinization</li> <li>Water logging</li> <li>Damage to historical artifacts and landforms</li> <li>Water use conflicts</li> <li>Accumulation of non-degradable materials</li> <li>Eutrophication of water bodies</li> </ul> <p>b. Specific impacts on the Natural Environment</p> <p><b>Impacts on wetlands</b></p>

<p>Impacts on air/climate</p> <ul style="list-style-type: none"> <li>• Increase in gaseous emissions</li> <li>• Increase in particulate matter</li> <li>• Increase in ambient temperature</li> <li>• Global climate change, modification of micro- and meso-climate</li> <li>• Increase of hydrocarbons</li> <li>• Increased frequency and intensity of photochemical smog (particularly in urban areas)</li> </ul> <p>Impacts on inland aquatic ecosystems</p> <ul style="list-style-type: none"> <li>• Surface water pollution</li> <li>• Change in hydrology</li> <li>• Change in groundwater recharge</li> <li>• Contamination of groundwater</li> <li>• Eutrophication</li> <li>• Degradation of estuarine and freshwater habitats</li> <li>• Obstruction of migratory fish</li> <li>• Increase in water salinity</li> <li>• Siltation of water bodies</li> <li>• Loss and degradation of wetlands</li> </ul> <p>Impacts on the Human Environment</p> <ul style="list-style-type: none"> <li>• Creation of employment and increased income</li> <li>• Enhancement of communication, handling, storage and transfer of cargo</li> </ul> <p>Additional unplanned impacts</p> <ul style="list-style-type: none"> <li>• Enrichment of social and cultural values</li> <li>• Enhancement of technology transfer</li> <li>• Loss of land and its uses</li> <li>• Improvement of goods and services</li> <li>• Enhanced capacity of the existing infrastructure facilities to support increased demands</li> <li>• Change in the land value/prices</li> <li>• Displacement and the need for resettlement</li> <li>• Increased noise and air pollution, in proximity to the project and/or along the route</li> <li>• Social and cultural disruption and/or erosion</li> </ul>	<ul style="list-style-type: none"> <li>• Alteration of drainage patterns</li> <li>• Water logging, salinization and alkalization</li> </ul> <p>b. Impacts on the Human Environment</p> <ul style="list-style-type: none"> <li>• Provision of water for multiple use</li> <li>• Creation of employment opportunities and increased income</li> <li>• Provision of clean safe water</li> <li>• Flood control or alleviation</li> <li>• Revenue generation</li> <li>• Promotion of secondary development</li> <li>• Enhanced multiplier effects</li> <li>• Increased risks of occupational hazards</li> <li>• Noise and dust pollution</li> <li>• Displacement of people</li> <li>• Loss of land use</li> <li>• Increased risks of water related diseases</li> <li>• Enhanced development of flood prone areas</li> <li>• Increased access to portable water (especially for women)</li> <li>• Reduced access for livestock due to dykes</li> <li>• Improved sanitation</li> <li>• Risks of poisoning from agro-chemicals</li> <li>• Increased risks of malnutrition (particularly in irrigation schemes)</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of habitat and biodiversity</li> <li>• Loss of goods and services produced by wetlands</li> <li>• Drainage of wetlands reduces fisheries production, ground water recharge, river base flows and water supplies</li> <li>• Mangrove clearing causes adverse impacts on estuarine fisheries, reduction in wildlife habitats, loss of a natural barrier against flooding and erosion, and salt intrusion</li> </ul> <p><b>Impacts on forests</b></p> <ul style="list-style-type: none"> <li>• Destruction of wildlife habitats and loss of biodiversity</li> <li>• Disturbance of the hydrological regimes</li> <li>• Logging operations and access roads cause increased run-off, soil erosion, siltation of water courses, water bodies and man-made reservoirs, reduction in water supply and quality</li> <li>• Physical damage to historical artifacts, landforms and cultural sites</li> <li>• Changes in micro- and meso-climates (e.g. temperature and precipitation)</li> </ul> <p>c. Impacts on the Human Environment</p> <ul style="list-style-type: none"> <li>• Generation of employment opportunities</li> <li>• Contribution towards the attainment of food security</li> <li>• Provision of raw materials for industry</li> <li>• Strengthening of local economy and linkages</li> <li>• Generation of cow dung for biogas production, making houses and farm manure</li> <li>• Safe disposal of crop residues through stall feeding of livestock</li> <li>• Provision of infrastructure</li> <li>• Loss of use of traditional forest products</li> <li>• Loss of farm labour to cash crop agriculture</li> <li>• Social conflicts of local population with new farmers</li> <li>• Social conflicts within local population due to increased wealth differentials</li> <li>• Increased land values and rents for vulnerable groups</li> <li>• Increased poverty due to change in land-use and land tenure</li> </ul>
---	---	--

<ul style="list-style-type: none"> <li>• Increase in disease transmission</li> <li>• Creation of habitats for disease vectors through stagnant water in borrow pits and quarries</li> <li>• Contamination of surface and groundwater</li> <li>• Increase in traffic accidents on land, at sea and in air</li> <li>• Increased risks of explosions and fires</li> <li>• Increased risks of spillages of oil and/or hazardous materials in transit</li> <li>• Accident risks during construction</li> <li>• Increased risks of hazardous chemicals and toxic substances</li> <li>• Occupational health risks to workers</li> </ul>		<ul style="list-style-type: none"> <li>• Dependence on cash crops to the exclusion of subsistence crops leading to malnutrition</li> <li>• Increased incidence of water borne diseases</li> <li>• Women and children’s livelihoods and status adversely affected (e.g. agricultural projects increasing burdens without providing additional assets or income)</li> <li>• Spread of pests and diseases</li> <li>• Loss of disease resistance to humans, crops and animals</li> <li>• Increased foreign exchange earnings</li> </ul>
<p><b>1.6 MITIGATION MEASURES</b>  The main objective of mitigation measures is to minimise the severity of negative impacts arising from development projects in the transportation sector. For programmes and projects in this sector, the following mitigation measures may be applied:</p> <p>a. Mitigation Measures Related to Routing and Site Selection</p> <p>Routing for roads, power lines should be done in accordance with physical plans that should be prepared, taking into account the uniqueness of various ecological zones.</p> <p>Activities in the transportation/power transmission sector should avoid:</p> <ul style="list-style-type: none"> <li>• environmentally sensitive and geologically unstable areas.</li> <li>• Migratory routes for animals including fish and birds should not be interfered with. Also migratory corridors and fish ladders should be provided, and activities that may attract birds close to airports avoided.</li> <li>• Avoid historical and cultural sites</li> <li>• Provide alternative routing and project sites in the project designs</li> <li>• Establish buffer zones along transport</li> </ul>	<p><b>2.6 MITIGATION MEASURES</b></p> <ul style="list-style-type: none"> <li>• Soil conservation</li> <li>• Noise (sound screens, dumpers, silencers)</li> <li>• Restrict access to waste water and sludge disposal sites</li> <li>• Plan siting of shallow wells taking into account the location of pit latrines</li> <li>• Protect springs and shallow wells from contamination through service runoff</li> <li>• Clear and remove vegetation prior to inundation of reservoirs</li> <li>• Provide for multi-level intake to avoid anoxic water</li> <li>• Limit retention time in reservoirs</li> <li>• Regulate abstraction of water from wells (especially in coastal areas) to avoid over pumping Maintain compensation flow in water courses</li> <li>• Provide fish ladders and bypasses</li> <li>• Line waste disposal site to prevent ground water contamination</li> <li>• Treat recycle/reuse waste water</li> <li>• Promote water use efficiency and conservation</li> <li>• Compensate displaced people taking into account various options such as land for land, monitoring compensation, commensurate the level of</li> </ul>	<p><b>3.7 MITIGATION MEASURES</b>  In order to minimize environmental degradation and to promote sustainable development, there are a number of mitigation measures and management options that may be used. These include the following:</p> <p>a. Mitigation Measures Related to the Natural Environment</p> <ul style="list-style-type: none"> <li>• Avoid clearing of vegetation on hills, steep slopes, mountain areas and near water courses and water bodies</li> <li>• Promote agro-forestry practices in appropriate areas using suitable tree species and management options</li> <li>• Use good quality water and appropriate irrigation technology</li> <li>• Promote appropriate soil and water conservation methods on lands under threat of soil erosion</li> <li>• Promote appropriate use of agrochemicals and integrated pest management</li> <li>• Use materials capable of being recycled for packaging agricultural inputs and outputs</li> <li>• Use appropriate equipment in farming operations</li> <li>• Promote measures to prevent land degradation</li> <li>• Minimize loss of species diversity by avoiding areas with high species concentrations</li> <li>• Ensure proper processing and storage of grains and other</li> </ul>

<p>corridors</p> <ul style="list-style-type: none"> <li>• Provide for the needs of the affected communities including health, socio-economic and transport</li> <li>• Promote public awareness on the project and its implications</li> </ul> <p>b. Mitigation Measures Related to Route/Site Preparations and Construction</p> <ul style="list-style-type: none"> <li>• Limit earth movement to dry season</li> <li>• Dispose dredged material in areas meant for rehabilitation</li> <li>• Balance cut and fill to avoid deposition</li> <li>• Provide for adequate drainage</li> <li>• Borrow pits should be rehabilitated</li> <li>• Exposed slope should be re-vegetated to minimize soil erosion and landslides</li> <li>• Storm drainage and stream crossings should be well planned to reduce frequency of flooding and to enhance surface flow and groundwater recharges</li> <li>• Spillages should be contained and safely disposed</li> <li>• Provide bund walls, oil interceptors and windsocks at oil terminals</li> <li>• Provide anti-pollution measures at service points (e.g. oil interceptors and other facilities for pollution abatement)</li> <li>• Highway designs should provide for cut and fill that blends with the surrounding landscape.</li> <li>• After construction, all unwanted structures, wastes, and unused materials should be removed to facilitate the recovery of the affected area to its original status</li> <li>• Control dust and noise</li> <li>• Compensate communities for land and other resources taken from them at project sites</li> </ul> <p>c. Mitigation Measures Related to Project Operation</p>	<p>negative social economic impact</p> <ul style="list-style-type: none"> <li>• Assist the communities in adjusting to the new condition</li> <li>• Select project site taking into account mineral deposits</li> <li>• Control disease vectors (e.g. through periodical flushing, reservoir level control and clearing of weeds)</li> <li>• Comply with water regulations on siting of boreholes</li> <li>• Encourage rain water and stormy water harvesting</li> <li>• Regulate inter-basin water transfer taking into account the water needs of the basin of origin and the assimilative capacity of the receiving basin</li> <li>• Incinerate/bury screenings from sewage filters</li> <li>• Provide on site health facility and undertake periodic clinical checkup for the staff</li> <li>• Provide sluices, dykes-toes and drain canals to avoid drainage</li> <li>• Problems in flood control schemes</li> <li>• Design dykes with flatter</li> <li>• Embankment slopes and provide access paths for livestock</li> <li>• Use lined water delivery canals and channels or pipes</li> <li>• Plan irrigation schemes taking into account water quality, soil</li> <li>• Characteristics and climatic conditions</li> <li>• Maintain system integrity</li> <li>• Ensure efficient process control to avoid odour nuisance from sewage systems</li> <li>• Involve communities in the planning, operation and maintenance of water supply</li> <li>• Provide contingency plans for disaster management (e.g. in case of dam overtopping, gross pollution, gas leak)</li> <li>• Provide for strategic water storage and protect all water supply installation</li> </ul>	<p>foodstuffs</p> <ul style="list-style-type: none"> <li>• Control grazing by maintaining sustainable stocking levels.</li> <li>• Reduce water velocity in canals to reduce carrying capacity</li> <li>• Minimize production of methane gas</li> <li>• Promote Research and Development</li> </ul> <p>b. Mitigation Measures Related to the Human Environment</p> <ul style="list-style-type: none"> <li>• Integrate local communities in project planning and implementation</li> <li>• Compensate for losses due to agricultural projects</li> <li>• Minimize water resources conflicts through comprehensive water needs assessment</li> <li>• Introduce health and safety measures including medical health monitoring</li> <li>• Train farmers and other people involved in the project in safe use of equipment and agrochemicals</li> <li>• Cultural promotion and education programmes, and information dissemination services</li> <li>• Strengthen law enforcement mechanism.</li> </ul>
--	---	--

<ul style="list-style-type: none"> <li>• Plan for contingency</li> <li>• Provide a maintenance plan for the infrastructure, machinery and equipments</li> <li>• Strict compliance with the relevant environmental regulations in this sector</li> <li>• Provide for efficient traffic management particularly in the urban centres</li> <li>• Provide for collection, recycling, treatment and safe disposal of wastes</li> <li>• Provide shoreline receptors to receive wastes from ships</li> <li>• Training on handling and maintenance of machinery and equipment should be provided</li> <li>• Provide adequate services including water supply, sewerage, health services</li> <li>• Promote Research and Development</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate health, safety and sanitation and education programmes: <ul style="list-style-type: none"> <li>○ Operation of facilities</li> <li>○ Hygiene</li> </ul> </li> </ul>	
<p>1.7 ENVIRONMENTAL MONITORING AND AUDITING</p> <p>Environmental Monitoring and Auditing in the transportation sector, like in many other sectors, is an important tool in determining compliance with the mitigation measures recommended for projects and programmes in this sector. It will be necessary also in the improvement of the mitigation measures undertaken or proposed for existing and future projects and programmes in transportation.</p> <p>The monitoring and auditing in the sector may involve:</p> <ul style="list-style-type: none"> <li>• Gaseous discharges from various machines and equipment used in the project and/or programme</li> <li>• Gaseous compositions at designated points, to determine air quality trends</li> <li>• Monitoring indicators of micro-climatic changes.</li> <li>• Water quality trends.</li> <li>• Monitoring biological indicators.</li> <li>• Monitoring health problems they may be associated with the project implementation.</li> </ul>	<p>2.7 ENVIRONMENTAL MONITORING AND AUDITING</p> <p>Environmental monitoring and auditing will be conducted to ensure that potential project impacts are minimized through adequate implementation of mitigation measures and also to provide early warning on unforeseen impacts. Monitoring and auditing in this sector may involve:</p> <ul style="list-style-type: none"> <li>• Noise level</li> <li>• Dust level</li> <li>• Plant and animal species composition and numbers</li> <li>• Water depth, current velocity, river flow</li> <li>• Ground water flow rate, water table and hydraulic gradient</li> <li>• Fish species composition, diversity and fish yield</li> <li>• Changes in ground level and slopes</li> <li>• Soil texture, bulk density and pore size</li> <li>• Soil chemical characteristics</li> <li>• Type and characteristics of aquatic weeds</li> <li>• Phosphorus loading, other nutrient levels, chlorophyll and dissolved oxygen level</li> <li>• Incidence and prevalence of vector-borne</li> </ul>	<p>3.7 MONITORING AND AUDITING</p> <p>Environmental monitoring is required to:</p> <ul style="list-style-type: none"> <li>• Check that planned mitigation measures are implemented</li> <li>• To ensure that guidelines/standards for pollutants are not exceeded and</li> <li>• To provide early warning of environmental damage</li> </ul> <p>Environmental auditing should be carried out after a project has been in operation for some time. The auditing should assist to assess actual impacts, accuracy of prediction, effectiveness of environmental impact mitigation and enhancement measures and the performance of monitoring mechanisms. The monitoring and auditing may involve:</p> <ul style="list-style-type: none"> <li>• Gaseous discharges at designated points and time</li> <li>• Micro-climatic changes</li> <li>• Effluent and solid waste discharges</li> <li>• Seasonal monitoring of water quality</li> <li>• Monitoring ground water</li> <li>• Monitoring biological indicators</li> <li>• Monitoring health problems that may be associated with project implementation</li> </ul>

<ul style="list-style-type: none"> <li>Monitoring soil, vegetation and animal changes in proximity to the project.</li> </ul>	<p>diseases</p> <ul style="list-style-type: none"> <li>Ground water recharge rates and yields</li> <li>Soil moisture contents</li> <li>Electrical conductivity</li> <li>Water quality parameters</li> <li>Area under stagnant water</li> <li>Nutritional status of the community</li> <li>Sewage generation vis-à-vis the design capacity of sewerage system</li> </ul>	<ul style="list-style-type: none"> <li>Radioactivity</li> <li>Socio-economic indicators</li> </ul>
---	---	--

## **APPENDIX 9: ENVIRONMENTAL GUIDELINES FOR CONTRACTORS**

### General Environmental Management Conditions

In addition to these general conditions, the Contractor shall comply with any specific Environmental and Social Management Plan (ESMP) for the works he is responsible for. The Contractor shall inform himself

About Such an ESMP, and prepare his work strategy and plan to fully take into account relevant provisions of that EMP. If the Contractor fails to implement the approved ESMP after written instruction by the PMU to fulfill his obligation within the requested time, the Owner reserves the Right to arrange through the SE for execution of the missing action by a third party on account of the Contractor.

Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever Possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an EMP. In general these measures shall include but not be limited to:

- (a) Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, vibrating equipment, temporary access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities.
- (b) Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.
- (c) Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.
- (d) Prevent bitumen, oils, lubricants and waste water used or produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs, and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.
- (e) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards.
- (f) Upon discovery of ancient heritage, relics or anything that might or believed to be of archeological or historical importance during the execution of works, immediately report such findings to the PMU so that the appropriate authorities may be expeditiously contacted for fulfillment of the measures aimed at protecting such historical or archaeological resources.
- (g) Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.
- (h) Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.
- (i) Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.
- (j) Ensure that, in as much as possible, local materials are used to avoid importation of foreign material and long distance transportation.
- (k) Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.



The Contractor shall indicate the period within which he/she shall maintain status on site after completions of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.

The Contractor shall adhere to the proposed activity implementation schedule and the monitoring plan/ Strategy to ensure effective feedback of monitoring information to project management so that Impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions.

Besides the regular inspection of the sites by the Supervising Energy expert for adherence to the Contract conditions and specifications, the owner may appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. Country environmental agencies may carry out similar inspection duties. In all cases, as directed by the PMU, the Contractor shall comply with directives from such inspectors to implement measures Required to ensure the adequacy rehabilitation measures carried out on the bio-physical environment and compensation for socio-economic disruption resulting from implementation of any works.

#### Work site/Campsite Waste Management

All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be bonded in order to contain spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed off at designated disposal sites in line with applicable government waste management regulations.

All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.

Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re-used or sold for re-use locally.

Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures: such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution.

Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis.

If disposal sites for clean spoil are necessary, they shall be located in areas, approved by the PMU, of low land use value and where they will not result in material being easily washed into drainage channels. Whenever possible, spoil materials should be placed in low-lying areas and should be compacted and planted with species indigenous to the locality.

#### Material Excavation and Deposit

The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.

The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.

New extraction sites:

- a) Shall not be located in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value, and shall not be located less than 1km from such areas.
- b) Shall not be located adjacent to stream channels wherever possible to avoid siltation of river channels. Where they are located near water sources, borrow pits and perimeter drains shall surround quarry sites
- c) Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection.
- d) Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.
- e) Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.
- f) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.

Vegetation clearing shall be restricted to the area required for safe operation of construction work.

Vegetation clearing shall not be done more than two months in advance of operations.

Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits from workings.

The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and any applicable ESMP, in areas approved by local authorities and/or the PMU.

Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the Supervising Energy expert and appropriate local and/or national authorities before the commencement of work. Use of existing, approved sites shall be preferred over the establishment of new sites.

#### Rehabilitation and Soil Erosion Prevention

To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.

Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.

Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.

Re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.

Locate stockpiles where they will not be disturbed by future construction activities.

To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.

Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.

Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.

Ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation.

Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.

Minimize erosion by wind and water both during and after the process of reinstatement.

Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.

Re-vegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contributes to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

#### Water Resources Management

The Contractor shall at all costs avoid conflicting with water demands of local communities. Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority.

Abstraction of water from wetlands shall be avoided. Where necessary, authority has to be obtained from relevant authorities.

Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities down stream, and maintains the ecological balance of the river system.

No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.

Wash water from washing out of equipment shall not be discharged into watercourses or road drains.

Site spoils and temporary stockpiles shall be located away from the drainage system and surface run off shall be directed away from stockpiles to prevent erosion.

#### Cost of Compliance

It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item "Compliance with Environmental Management Conditions" in the Bill of Quantities covers these costs.



Photo: Shutterstock

# ONE RIVER ONE PEOPLE ONE VISION



#### Nile Basin Initiative Secretariat

P.O. Box 192  
Entebbe - Uganda  
Tel: +256 417 705 000  
+256 417 705 117  
Email: [nbisec@nilebasin.org](mailto:nbisec@nilebasin.org)  
Website: <http://www.nilebasin.org>  
Facebook: /Nile Basin Initiative  
Twitter: @nbiweb

#### Eastern Nile Technical Regional Office

Dessie Road  
P.O. Box 27173-1000  
Addis Ababa - Ethiopia  
Tel: +251 116 461 130/32  
Fax: +251 116 459 407  
Email: [entro@nilebasin.org](mailto:entro@nilebasin.org)  
Website: <http://ensap.nilebasin.org>

#### Nile Equatorial Lakes Subsidiary Action

**Programme Coordination Unit**  
Kigali City Tower  
KCT, KN 2 St, Kigali  
P.O. Box 6759, Kigali Rwanda  
Tel: +250 788 307 334  
Fax: +250 252 580 100  
Email: [nelsapcu@nilebasin.org](mailto:nelsapcu@nilebasin.org)  
Website: <http://nelsap.nilebasin.org>

#### NBI MEMBER STATES



Burundi



DR Congo



Egypt



Ethiopia



Kenya



Rwanda



South Sudan



The Sudan



Tanzania



Uganda



[/Nile Basin Initiative](#) [@nbiweb](#)

[#NileCooperation](#); [#NileBasin](#); [#OneNile](#)