

INTEGRATION OF CLIMATE CHANGE, BIODIVERSITY AND DISASTER RISK REDUCTION IN TO NATIONAL ESIA GUIDELINE



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ENVIRONMENT, FOREST AND CLIMATE CHANGE COMMISSION
INTEGRATION OF CLIMATE CHANGE, BIODIVERSITY AND
DISASTER RISK REDUCTION INTO NATIONAL ESIA
GUIDELINE

PREPARED FOR:

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The EFDR EFCCC has developed an interest to incorporate integration of climate change, biodiversity and disaster risk reduction into national ESIA guideline to guide the preparation of an Environmental and Social Impact Assessment (ESIA), replacing the earlier guidelines published in 2003. The guidelines have been prepared to reflect international standard ESIA guidance as part of the process required to secure governmental permissions for the implementation of new investments and expansions to existing operations globally.

The Ethiopian Red Cross Society working in collaboration with The Netherlands Red cross to support the Government of Ethiopia by providing the necessary support for a comprehensive review of the existing Environmental policies, proclamations, ESIA guidelines with the view to revising them as the foundation for improving the integration of and mitigation of health, HIV and gender related impacts of development in Ethiopia.

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Lists of Federal Minister, Corporations, Regional Environmental Organizations and different stockholders Participants on this document preparation

S.NO	Name of stockholders' invited	Respond for and participate	Not respond
1	Ministry of Agriculture,		X
2	Ministry of Health	✓	
3	Ministry of Construction and Urban Development	✓	
4	Ministry of Water and Electricity		X
5	Ministry of Mining	✓	
6	Ministry of Transport	✓	
7	Ministry of Social affair		X
8	FDRE Industry park Deployment corporation	✓	
9	HIV AIDS secretariat		X
10	Amhara Region Environmental and wild life development	✓	
11	Oromia Region EFCC office		X
12	Addis Ababa Environmental Authority		X

Acronomy

CSI	Corporate Social Investment
EU	European Union
EHSs	Environmental, Health and Safety Guidelines
ESIA	Environmental and Social Impact Assessment
ESS	Environmental and Social Standards
UNEP	United Nations Environment Programme
IAPs	Interested and Affected parties
IEM	Integrated Environmental Management
APs	Affected persons
MOLSA	Ministry of Labor and Social Affairs
BAP	Biodiversity Action Plan
ESIA	Environmental Impact Assessment
EMDP	Ethnic Minorities Development Plan
ESIA	Environmental and Social Impact Assessment
EMMP	Environmental Management and Monitoring Plan
HIA	Health Impact Assessment
IFC	International Finance Corporation
PWREOs	Provincial Water Resources and Environment Offices
RA	Responsible Agency
RAP	Resettlement Action Plan
SDP	Social Development Plan
SEM	Strengthening Environmental Management
SIA	Social Impact Assessment
SIDA	Swedish International Development Cooperation Agency
SMMP	Social Management and Monitoring Plan
STEa	Science Technology & Environment Agency
TORs	Terms of Reference
WBMP	Water Basin Management Plan
WREA	Water Resources and Environmental Administration

1. DEFINITIONS OF TERMS IN USE

Adaptation

Adaptation is anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause, or taking advantage of opportunities that may arise. It has been shown that well planned, early adaptation action saves money and lives later.

Alternative

A possible course of action that might be adopted in lieu of the proposal or activity or in terms of site, design, input, process, including the "no action" alternative.

Audit

The process through which how well compliance with policy objectives and regulatory requirements is met and the fidelity of the implementation of conditions attached to an approved environmental impact assessment report is examined.

Baseline data

Data gathered during the social and environmental assessment used to describe the relevant existing conditions of the development project, such as physical, biological, socio-economic, and labor conditions, including any changes before the development project commences.

Climate change

Changes in the climate, including changes in the frequency and intensity of extreme events, increased occurrence of unusual events, as well as changes in weather patterns and seasonality that exceed natural variability and which can be attributed to increased greenhouse gas levels in the global atmosphere as a direct or indirect result of human activity.

Disaster Risks management:

Disaster Risks management: is the process of planning, implement, evaluating and adapting strategies, procedures and measures relating to the analyzing, reducing and transfer of disaster risks with the aim of reducing hazard vulnerability and strengthen the coping and adaptation capacities of individual household community and state structure.

Ecosystem

A community of living organisms (plants, animals and microbes) in conjunction with the non-living components of their environment (like air, water and mineral soil), interacting as a system.

Ecosystem services

The services that support life and benefits that people obtain from ecosystems, including: provisioning services, regulating services; cultural services and supporting services (products such as food and water, regulation of floods, soil erosion and disease outbreaks, and non-material benefits such as recreational and spiritual benefits in natural areas.)

Endangered species

Species that are under threat of extinction as listed on the IUCN Red List of Threatened Species.

Environment

The physical, biological, social, economic, cultural, historical and political systems that surround, support (and include) human beings. It includes both the natural and built environments. It also includes human health and welfare.

Environmental and Social Impact Assessment

The methodology of identifying and evaluating in advance, any impact positive or negative on the socially as well as environmentally, which can be expected to result from the implementation of a proposed action, including assessing measures to avoid or minimize identified risks and optimize benefits, to inform decision making on whether to carry it out.

Environmental Management Framework:

the overall approach to address potential environmental and social risks associated with interventions through the environmental assessment (EA) process.

Environmental Management Plan

An action plan that addresses the how, when, who, where and what of the environmental mitigation measure aimed at optimizing benefits and avoiding or mitigating adverse potential impacts of proposed operation or activity. It encompasses mitigation, monitoring, rehabilitation and contingency plans.

Environmental policy of an organization

A statement by the organisation of its intentions and principles in relation to its overall

environmental performance that provides a framework for action and for the setting of its environmental objectives and targets

Environmental Protection Organs

Refers to The Authority, the Council, the Sectoral and Regional environmental agencies.

Exposure

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Impact

Any change to the environment or its components or functioning to provide ecosystem services that may affect human health or safety, biophysical conditions, or cultural heritage, other physical structure with positive or negative consequences

Interested and Affected Parties

Individuals or groups concerned with or affected by an activity and its consequences. These include local communities, work force, customers, or consumers, environmental interested groups and the general public.

Licensing agency

Any organ of government empowered by law to issue an investment permit, trade or operating license or work permit or register business organization as a case may be.

Mitigation

Mitigation measures are those actions that are taken to reduce and curb greenhouse gas emissions, It involves reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by reducing sources of these gases or enhancing the “sinks” that accumulate and store these gases (such as the oceans, forests and soil)

Monitoring

The repetitive and continuing observations, measurements and evaluation of changes that relate to the proposed activity. It can help to follow changes over a period of time to assess the efficiency of control measures.

Project affected person (PAP)

Any person who, as a result of the implementation of a development project, loses the right to own, use or otherwise benefit from a built structure, land (residential, agricultural or pasture), annual or perennial crops and trees, or any other fixed or moveable asset, either in full or in part, permanently or temporarily.

Proponent / Developer

Any organ of government, if in the public sector or any person if in the private sector that initiate a development project or a public instrument.

Rehabilitation

Restoration of an environmental component, social service or system that has been affected by an activity to more or less its former states.

Regional Environmental agency

Any regional government organ entrusted by that Region, with a responsibility of the protection or regulation of the environment and natural resources.

Reviewing

The determination of whether or not the environmental impact study report meets the approved Terms of Reference and provides satisfactory information and analysis that is required for decision-making.

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

2. INTRODUCTION

2.1. Overview on Environmental and Social Impact Assessment

An Environmental and Social Impact Assessment (ESIA) is high relevance for delivering the 2030 Agenda for Sustainable Development and related policy frameworks such as the Strategic Plan for Biodiversity at United Nation Environmental Program. The ability of countries and communities to achieve sustainable development depends in no small measure on robust and effective ESIA legislation and implementation as a major catalyst for overcoming current implementation gaps and achieving for better environmental outcomes.

An ESIA is a legal requirement in most, if not all, countries of the world. Compliance with national legislation and local planning regulations is mandatory in all circumstances. In certain situations, however, the proponent may also be required to comply with certain international standards. ESIA should be seen as a process that starts at the conceptual design stage of a development project and continues throughout development project construction, operation and decommissioning. During the process, several deliverables are prepared to guide the activities of the specific stage.

ESIA is one of the environmental management tools of development at project level. It ensures that the development options under consideration are environmentally sound and sustainable, and that any environmental consequences are recognized early in the project cycle and taken into account in project design. ESIA identify ways of improving projects environmentally, and minimizing, mitigating, or compensating for adverse impacts.

Climate change and biodiversity loss are among the most important environmental challenges we face today. Both are complex and cross-cutting issues, which affect nearly all human activity. The Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment aims to help project implementers to improve the way in which disaster risk reduction, climate change and biodiversity issues are integrated in ESIAs carried out across the country.

For this reason, past development practices fell short of anticipating, eliminating or mitigating potential environmental problems early in the planning process. This state of play resulted, among others, in situation where the country is plagued with seriously degraded and polluted environment. Further development along this line has to be cut short, as efforts in reversing the damage to the environment at a later time is usually costly or even irreversible.

The guidance addresses the specific issues and challenges that disaster risk, climate change and biodiversity bring to ESIA process. It is designed to encourage users to think about how important climate change and biodiversity issues are likely to be for their specific project and ESIA process. It also includes issues related to disaster risk management, mainly in the context of climate change adaptation.

2.2. Structure of the Document

This document report is organized in Eight chapters. Chapter one ‘Definitions of Terms’ in use in this guideline. Chapter two is the introduction part introduce purpose of the reviewing this guideline and purpose of ESIA guideline. ESIA principles, the importance of integrating disaster risk reduction, climate change and biodiversity in to ESIA are presented in this chapter.

Chapter three provides an overview of the legal framework, proclamations to legislation that ha relevance to ESIA process is presented. The national as well as International legal frame works, proclamation of sectoral offices as well as environmental issues are presented in this chapter. In this chapter environmental policy, climate change policy, gender policy, health policy, HIV/ AIDS policy are also found. The international environmental organ policy and principles such as UNEP and World bank environment and social policy for investment development project financing are presented in this chapter.

Chapter four provides an Environmental and social Impact Assessment process in respect of determining the need to apply from pre screaming to monitoring and evolution process. In this section the impact analysis, alternative of impact analysis, EMP, EMP reporting reviewing etc are part of this chapter. Chapter five is the role and responsibility of ESIA concerned body such as the proponent,

competent agency, the consulting firms, regional and zonal environmental concerned body are presented in this chapter.

Chapter six is presents the integration of climate change, biodiversity and disaster risk reduction, in to ESIA review process.. The reference used to review this guide line is in chapter six. The lists of annex are presented in chapter seven and nine respectively.

2.3.Purpose of the Guideline

The main purpose of this guideline is to ensure the integration of disaster risk management, climate change and biodiversity issues in to Environmental and Social Impact Assessment process of project proposal. Moreover it ensures that the environmental effects of proposed activities are adequately and appropriately considered before decisions are taken. This should serve as a key aid in the decision making process for relevant authorities by providing comprehensive information on the environmental consequences of development. Evaluated information and supporting arguments enable decision makers to evaluate the overall impacts of a proposal and alternatives to that proposal. This will be through ESIA study which foresee and address potential environmental problems or concerns at an early stage of project planning and design. Consequently this guideline assist planners and government authorities in the decision-making process by identifying the key potential environmental and social impacts and formulating mitigation measures.

2.4. Core Values and Principles

2.4.1. Core Values

Core values of ESIA are:

- **Sustainability:** the ESIA process should result in sustainable development by establishing long-term environmental safe guards.
- **Integrity:** the ESIA process will confirm to agreed and established requirements.
- **Utility:** the ESIA process will provide balanced, credible information for decision making.
- **Equity:** that ESIA ensures fairness in the distribution costs or benefits.

2.4.2. Guiding Principles of ESIA

The basic principles that underlie the objective are: -

- **Early application:** proactive consideration and integration of environmental concerns at the earliest stages of the conceptualization of the development projects, programs or policies.
- **Participation :** appropriate and timely access and opportunity to the process for all interested and affected parties.
- **Issues based** - the focus of an EA is on the resolution of major issues of significant impacts.
- **Consider alternatives** - all feasible options to a development project, policies, programs or its components like site, processes, products, raw materials etc. including the “no go” option should be considered.
- **Accountability** - refers to answerability of a proponent, consultant and environmental agencies for their respective roles and responsibilities.
- **Flexibility:** the assessment process should be able to adapt to deal efficiently with changing circumstances and decision making situation.
- **Credibility:** assessments and reviews are undertaken with professionalism and objectivity.
- **Time and Cost-effectiveness-** the assessment process, its outcomes and decision taking will ensure environmental protection at the least cost and within reasonable time to society and developer alike.
- **Transparency-** all assessment decisions, and their basis, should be open and accessible to the public.
- **Supportive-** the review and decision making process should enhance and support sustainable development and environmentally friendly investment efforts.
- **Conservation based-** the EA process should strive to promote conservation based development. Integrating conservation elements in the development planning that extend beyond conventional impact fixation approach can do this.
- **Practicality---** the information and outputs provided by the assessment process are readily usable in the decision -making and planning,

2.4.3. Operating Principles ESIA

ESIA is undertaken to:

- modify and improve design,
- ensure efficient resource use,
- enhance social aspects,
- identify measures for monitoring and managing impacts,
- promote sustainable productivity within the natural and social system capacity,
 - meet environmental requirements and make continuing improvement in environmental performance, and
- provide accurate and appropriate information for sound decision.

2.5. The Importance of Integrating Climate Change, Disaster Risk Management and Bio Diversity in to ESIA

For many types of project, ESIA is one of the management tools for including environment issues at an early stage, when alternatives are still open and opportunities exist. The major benefits of integrating disaster risk reduction, climate change and biodiversity in ESIA process helps to:

- Achieve climate and biodiversity objectives;
- Comply with national and regional legislation and policies;
- Improve project reputation;
- Assess adaptive capacity;
- Increase a project's resilience to climate change and hazards;
- Identify exposure and analyze the sensitivity of a project to the negative effects resulting from predicted climate change, natural hazards, or disasters
- Manage conflicts and potential synergies between climate change, biodiversity and other environmental issues; and
- Support the ecosystem services used by the project.

Jurisdictions in most countries around the world require an ESIA to be undertaken before authorization (for example, permitting, licensing, planning consent) for certain types of development projects is granted. National legislation often varies between countries, so it is vital to establish the local requirements prior to embarking upon the ESIA process.

- ❖ The core principles that underlie the ESIA process remain fundamentally the same throughout the world:
- ❖ Establishment of a robust understanding of the existing environment and social setting;
- ❖ Identification of the potential impacts upon the environment and local communities (both positive and negative) as a result of the proposed changes; and
- ❖ Ensuring that the design, implementation, operation and subsequent decommissioning of the development is carried out in such a way as to minimize adverse impacts on, and maximize potential benefits to, the environment and affected communities.

3. POLICY AND LEGAL FRAMEWORK ON ENVIRONMENT AND SOCIAL ISSUES

3.1. The Environmental Policy of Ethiopia (EPE, 1997)

provides a number of guiding principles that indicate and require a strong adherence to sustainable development. In particular EA policies of EPE includes, among other things, the need to ensure that EA:

- Considers impacts on human and natural environments,
- provides for an early consideration of environmental impacts in development projects and programs design,
- recognizes public consultation,
- includes mitigation plans and contingency plans,
- provides for auditing and monitoring,
- is a legally binding requirement,
- is institutionalize, etc

the Federal Democratic Republic of Ethiopia (**FDRE**) consists of the federal State. Proclamations 33/1992, 41/1993 and defined the duties and responsibilities of the Regional States which include planning, directing and developing social and economic development programs as well as protection of natural resources.

the policy provides sectoral and cross sectoral environmental policies. ESIA policies has to included in the cross sectoral environmental policies. The ESIA policies emphasize the early recognition of environmental issues in development project planning, public participation, mitigation and environmental management, and capacity building at all levels of administration.

The concept of sustainable development and environmental rights are articulated in the Federal Democratic Republic of Ethiopia constitution proclamation 1/1995 enshrined in article 43,44 and 92 of the Constitution of FDRE.

In Article 43: The Right To Development

The peoples of Ethiopia as a whole and each Nation, Nationality and people in Ethiopia in particular have the right to improved living standards and to sustainable development.

- Nations have the right to participate in national development and, in particular, to be consulted with respect to policies and development projects affecting their community.
- All international Agreements and relations concluded, established or conducted by the state shall protect and ensure Ethiopia's right to sustainable development.
- The basic aim of development activities shall be to enhance the capacity of citizens for development and to meet basic needs.

Article, 44: Environment Rights

- All persons have the right to live in a clean and healthy environment.
- All persons who have been displaced or whose livelihoods have been adversely affected because of state programs have the right to commensurate monetary or alternative means of compensation, including relocation with adequate state assistance.

Article, 92: Environmental Objective

- Government shall endeavor to ensure that all Ethiopians live in a clean and healthy environment.
- The design and implementation of programs and development projects of development shall not damage or destroy the Environment.
- People have the right to full consultation and the expression of views in planning and implementation of environmental policies and development projects that affect them directly.
- Government and citizens shall have the due to protect the environment.

3.2. Environmental Framework Legislations

Among the Proclamations that have been issued by the Government of Ethiopia, the Constitution of Ethiopia and the legislations that are aimed at advancing environmental protection and sustainable use of the Country's natural as well as man-made resources include the following.

"Environmental Protection Organs Establishment proclamation (proc.no.295/2002)"

Article 15 of the Proclamation calls for each of the 11 national regional states to establish an independent regional environmental agency, or designate an existing agency to lead environmental management. The proclamation also stipulates that all government ministries or agencies establish an environmental unit to ensure that their activities comply with the environmental standards and

laws of the country.

It has stipulated the need to establish a system that enables to foster coordinated but differentiated responsibilities among environmental protection agencies at federal and regional levels. The proclamation has also required the establishment of Sectoral and Regional Environmental, Units and Agencies, respectively. This shows that institutionalizing and mainstreaming environmental concerns has a legal foundation.

Environmental Impact Assessment (Proclamation No. 299/2002)

This Proclamation (No 299/2002) aims primarily at making the EIA mandatory for categories Of projects specified under a directive issued by the EPA. The law specifies the projects and activities that will require an environmental impact assessment (EIA). The proponent of the project must prepare the EIA following the format specified in the legislation. The EPA will then review the EIA and either approve the project (with or without conditions) or reject it.

The Proclamation requires, among other things:

- Specified categories of projects to be subjected to an EIA and receive an authorization from the EPA or the relevant regional environmental agency prior to commencing implementation of the project.
- Licensing agencies to ensure that the requisite authorization has been duly received prior to issuing an investment permit, a trade or operating license or a work permit to a business organization.
- The EPA or the relevant regional environmental agencies may issue an exemption from carrying out an EIA in projects supposed to have an insignificant environmental impact.
- A licensing agency may suspend or cancel a license that has already been issued where the EPA or the relevant regional environmental agency suspends or cancels environmental authorization.

To put this Proclamation into effect the EPA issued guideline Documents, which provide details of the EIA process and its requirements. According to this EIA guideline projects are categorized into three schedules:

Schedule 1: Projects which may have adverse and significant environmental impacts thus requiring

a full Environmental Impact Assessment

Schedule 2: Projects whose type, scale or other relevant characteristics have potential to cause some significant environmental impacts but are not likely to warrant a full EIA study

Schedule 3: Projects which would have no impact and do not require an EIA

However, projects situated in an environmentally sensitive areas such as land prone to erosion; desertification; areas of historic or archaeological interest; important landscape; religiously important area, etc. will fall under category 1 irrespective of the nature of the project.

According to this guideline all project proponents and executing bodies (agencies) in the country should operate in close cooperation with the EPA to ensure that proper mitigating measures are designed and implemented, especially for projects with an adverse effect on the environment. This in effect means that an Environmental Impact Statement (EIS) should be prepared by project proponents and be examined, commented and approved by the EPA.

The "**Environmental Pollution Control Proclamation (Proc. no. 300/2002)**" is promulgated with a view to eliminate or, when not possible to mitigate pollution as an undesirable consequence of social and economic development activities. This proclamation is one of the basic legal documents, which need to be observed as corresponding to effective EA administration.

The "Prevention of Industrial Pollution council of Ministers Regulation No. 159/2008" This Regulation is issued by the Council of Ministers pursuant to Article 5 of the Definition of Powers and Duties of the Executive Organs of the Federal Democratic Republic of Ethiopia Proclamation NO. 471/2005 and Article 20 of the Environmental Pollution Control Proclamation No. 300/2002. This regulation specify ad clearly put the obligation of the factory or industries that has to be prevent the generation of every pollutant or if not possible shall minimize it and other important issues to be considered were specified in this regulation

Solid-Waste Management Proclamation No.513/2007: The solid waste management Proclamation stipulates, among other that, Each Region or administration unit shall set its own schedule and based on that, prepare its solid waste management plan and report implementation. It further spells out that each administration unit shall ensure that measures are taken to prevent pollution from mishandling

of solid wastes. Similarly, existing institutional arrangements overseeing the environmental performance of the industry were summarized. A waste management plan will be prepared during the detailed design stage of the development project to mitigate the impacts through reduction in use of consumable item, recycling of materials, and disposal of hazardous wastes at certified locations.

Ethiopia Water Resources Management Proclamation (proclamation No.197/2000)

This proclamation is formulated and intended to promote integrated (appropriate) water resources management and optimal utilization of available water resources for sustainable socio-economic development. Article 11 of this proclamation states that prejudice to the exception specified under Article 12 of this proclamation, no person shall perform the following activities without having obtained a permit from a water resource unless otherwise provided for in the regulation to be issued for the implementation of this proclamation. Any person shall be required to discuss his/her proposal with the supervising body prior to applying for a permit for the purposes specified in Sub-Article (I) of this Article. Article 12 states any person shall utilize water resources for the following purposes without holding a permit issued by the Supervising body: dig water wells by hand or use water from hand-dug wells: use water for traditional irrigation, artisanal and traditional animal rearing, as well as for water mills.

Labor and Social Affairs Proclamation No. 4/1995

Under Proclamation No. 4/1995, Ministry of Labor and Social Affairs (MOLSA) is given the power to determine standards and measures for the safety and health of workers and to follow up on their implementation. In addition, MOLSA is responsible for collecting, compiling and disseminating information on the safety and health of workers. There is, however, no national policy that outlines how occupational safety and health should be handled nationally or at lower governing levels as required by the International Occupation Safety and Health and Working Environment Convention No. 155/1981.

Ethiopian Labor proclamation No.377/2003:The proclamation aims to ensure that workers-employers relationship are governed by the basic principles of rights and obligations with view to maintain industrial peace and work in harmony and cooperation; to guarantee the rights of workers and employers to form their respective associations and to engage through lawful elected

representatives in collective bargaining as well as to lay down the procedure for settlement of labor disputes and to strengthen and define by law the power and duties of the organ charged with the responsibility of inspecting, in accordance with the law, labor administration, particularly labor condition, occupational safety, health and work environment. The proclamation has provisions on employment relationships, duration of contract of employment, obligations of parties, termination of employment relationships, severance pay & compensation, hours of work, overtime payment, working conditions and occupational safety, health and working environment among others.

In section 7 of Article 92 on occupational safety, health and working environment states about obligations of employer to:

- ✚ Safeguard adequately the health and safety of workers;
- ✚ comply with the occupational health and safety requirements provided for in this proclamation;
- ✚ take appropriate steps to ensure that workers are properly instructed and notified concerning hazards;
- ✚ provide workers with protective equipment's, clothing and other materials and instruct them of its use
- ✚ Insure that work places and premises don't cause damage to the health and safety of workers.

Article 93 is about obligations of workers to:

- Cooperate in the formulation of work rules to safeguard workers health and safety;
- Make proper use of all safety guards, safety devices for protecting his health/safety;
- Obey all health and safety instructions issued by employer or competent authority and
- Inform to the employer any defect related to appliances used and injuries to health and safety of workers that he discovers in the undertakings.

Therefore, the contractors of the proposed development project should be aware of these laws and work in accordance to the laws. They should understand that violation of these legal instruments would lead to degradation of environment and health of the society and eventually leads to legal punishment of the doer.

3.3. National, Sectoral and Cross Sectoral Policies

3.3.1. Water Resource Policy

The Ministry of Water Resources and Energy formulated the Federal Water Resource Policy in 1998 for comprehensive and integrated water resource management. The overall goal of the water resources policy is to enhance and promote all national efforts towards the efficient and optimum utilization of the available water resources for socio-economic development on sustainable bases. The document includes policies to establish and institutionalize environment conservation and protection requirements as integral parts of water resources planning and development project development.

The Nile Basin Development Forum of 2020 and is party to several transboundary water agreements including the Nile Basin Sustainability Framework, the NBI Gender Mainstreaming Policy and Strategy, and Climate Change Strategy Approved by Nile Council of Ministers (Nile-COM) in 2011,

The Nile Basin Sustainability Framework (NBSF) lays down NBI's approach to developing guiding principles for water resource management and development across the Nile Basin countries. While it is not a legal framework, the NBSF which is a suite of policies, strategies, and guidance documents functions as a guide to national policy and planning process development and seeks to build consensus. By supporting the enabling environment for trans-boundary investment projects, it promotes integration of shared benefits, participation, and environmental concerns that ensure investment projects have long-term benefits.

The Gender Mainstreaming Policy and Strategy are intended to establish an enabling environment that will foster specific strategies for changing the gender patterns in the NBI activities that are aimed at tackling poverty reduction issues and promoting the wellbeing of everyone in the NBI. The Policy and Strategy is a practical journey towards attaining sustainability of NBI programs and projects. It is useful not only to NBI as an institution, but also to its key stakeholders concerned with gender and water aspects.

The Climate Change Strategy identifies present gaps and future threats, determines inherent weaknesses and vulnerability impacts and analyzes trends and risks. It also defines requirements and

constituents of climate change resilience basin-wide, sets out proper strategic objectives and outputs, introduces effective mitigation and adaptation measures and describes appropriate institutional set-ups.

3.3.2. National Population Policy

This Policy was issued in April 1993 and aims at closing the gap between high population growth and low economic productivity through a planned reduction in population growth combined with an increase in economic returns. With specific reference to natural resources, the main objectives of National Population Policy are:

- ✓ Making population and economic growth compatible and the overexploitation of natural resources unnecessary;
- ✓ Ensuring spatially balanced population distribution patterns, with a view to maintaining environmental security and extending the scope of development activities;
- ✓ Improving productivity of agriculture and introducing off-farm/ nonagricultural activities for the purpose of employment diversification; and
- ✓ Maintaining and improving the accommodating capacity of the environment by taking appropriate environmental protection and conservation measure. In one way or other the proposed development project strongly support the national policy regarding population.

3.4. Gender Issues and the National Policy on Women in Ethiopia

The National Policy on Women (Women's Policy) formulated in 1993, aimed to create appropriate structures within government offices and institutions to establish equitable and gender-sensitive public policies. The Government of Ethiopia in 1995, under its new constitution, renewed its commitment towards this policy. The government initiated an ambitious and extensive process of regionalization, whereby new regional boundaries were demarcated and administrative powers devolved to regional governments which were authorized to implement all development policies. This represented a departure from the earlier practice of centralized development project management by ministries. This more participatory and decentralized form of governance made the implementation of the national policy a more challenging endeavor. There was correspondingly a great need to build the delivery capacity of the regional governments. While the central level of

government promoted gender-sensitive policies and development interventions, very little was known about the constraints and issues at the regional levels.

3.4.1. The Ethiopian Health Policy

Ethiopia's health policy was issued in 1993, with the aim of giving special attention to women and children, to neglected regions and segments of the population, and to victims of man-made disasters. The priority areas of the policy are in the fields of Information, Education and Communication (IEC) of health to create awareness and behavioral change of the society towards health issues.

Therefore, emphasis is placed on

- ✚ The control of communicable diseases, epidemics, and of diseases that are related to malnutrition and poor living conditions,
- ✚ Promotion of occupational health and safety,
- ✚ The development of environmental health,
- ✚ Rehabilitation of health infrastructures,
- ✚ Appropriate health service management systems,
- ✚ Attention to traditional medicines,
- ✚ Carrying out applied health research,
- ✚ Provision of essential medicines, and
- ✚ Expansion of frontline and middle level health professionals.

In addition to that the occupational safety and health policy was under consideration for approval by the House of People's Representatives. In addition to the environmental rights granted by the FDRE Constitution noted on, Article 42/2 guarantees workers the right to a healthy and safe work environment

3.4.2. National HIV/AIDS Policy and ERA's HIV/AIDS Policy at Work Places

Ethiopia is one of the countries in the world that is facing HIV/AIDS pandemics. Having understood the magnitude of the HIV/AIDS pandemic and its paramount impacts on the socio-economic development of the country, the FDRE issued a Policy on HIV/AIDS in 1998, which calls for an integrated effort of multi-sectoral response to control the epidemic. The National HIV/AIDS Policy urges communities at large, including government ministries, local governments and the civil society

to assume responsibility for carrying out HIV/AIDS awareness and prevention campaigns. The general objective of the policy is to provide an enabling environment for the prevention and control of HIV/AIDS in the country.

In order to address the problem and coordinate the prevention and control activities at national level, in 2000 National AIDS Council was established under the Chairmanship of the country's President, and in 2002 HIV/AIDS Prevention and Control Office was established. The transport and construction sector, to which Minister of Urban Construction and Ethiopian Roads Authority belongs are among the most susceptible sectors for the spread of HIV/AIDS. The policy acknowledges that HIV/AIDS is a reality in the work places, which may have detrimental effects on its work force. The policy is prepared with the objectives of developing and implementing an effective workplace programme. Therefore, to prevent, reduced the HIV/AIDS in work place regarding during every activity phase is amendatory as stated in national policy.

3.5. Policy of new Proposed Sectors in to ESIA Process

3.5.1. Climate change and Climate-Resilient Green Economy Policy

The Government of the FDRE has initiated the Climate-Resilient Green Economy (CRGE) as a strategy to protect the country from the adverse effects of climate change, and to build a green economy that will help the country realize its ambition of achieving the status of middle-income country.

The Government also outlined its commitment to climate change adaptation in its “Intended Nationally Determined Contribution” (INDC) submitted to the UNFCCC in June 2015. Unlike the other documents, Ethiopia's INDC summarized short to long-term programmatic efforts to address and reduce vulnerability of livelihoods and landscapes to climate impacts, focusing on three key areas: droughts, floods and cross-cutting interventions

Ethiopia's National Adaptation Plan (NAP-ETH), adopted in 2019 builds on the CRGE. The NAP-ETH sets out to address the limitations of fragmented policies through a programmatic, multi-sectoral and long-term planning approach. In addition, NAP-ETH aligns climate change centered adaptation initiatives with ongoing development endeavors, to obtain synergies and achieve the outcomes of enhancing adaptive capacity of

government, local institutions and individual women and men who are directly affected by climate change impacts on their livelihoods and the landscapes in which they liveⁱⁱ.

Ethiopia's environmental policy addresses climate change through regulations and institutional and strategic mechanisms. The policy emphasizes the need for a climate monitoring program, as the country is highly sensitive to climatic variability. It recognizes Ethiopia's environmental, long-term economic and energy interests. In fact, it is important to mention that a promising development trend is emerging in the country in terms of minimizing atmospheric inputs of greenhouse gases. For example, the energy sector is committed to harnessing hydro, geothermal, and solar energy. None of these produces significant amounts of pollutant gases.

The policy also emphasizes the need to actively protect the ozone layer. It recognizes the vulnerability of the Ethiopian highlands which already have a thin protective atmosphere. The country has often had unbearably prolonged drought seasons mainly due to the country's thin protective atmosphere.

Also the Government of Ethiopia has planned a climate-resilient green economy as a development strategy. This development direction promotes environmental protection, reducing fossil fuel consumption which releases greenhouse gases into the atmosphere. With demand for energy growing with the increasing population, industrialization and urbanization, the Government realized that harnessing clean and renewable energy sources such as wind, solar, hydro and geothermal energy sources was critical. It has indicated that these natural resources would deliver electricity at virtually zero GHG emissions.

The generated electricity is a fundamental enabler of modern economic development, from powering cities and fuelling industrial activity to pumping water for irrigation purposes in agriculture. The Government also decided to increase its income through exporting electric power generated from clean sources to neighbouring countries.

3.5.2. Biodiversity Policy of Ethiopia

The national policy on Biodiversity Conservation and Development is formulated based on the rationale that the conservation of biodiversity is one of the conditions of the overall socio economic development and sustainable environmental management goals. Hence, because of its vital importance in the socio economic well being of the Ethiopia people, the conservation, proper management and the use of biodiversity need to be supported by policy, legislation and national capacity building.

For the first the Ethiopian Plant Genetic Resources Center (PGRC/E) was founded in 1976 based on a bilateral technical cooperation agreement between the Governments of Ethiopia and Germany. Its main objective was to rescue the country's plant genetic resources from adverse impacts of human activities and natural calamities and by this support crop improvement programs. In 1998, it was reorganized to the Institute of Biodiversity Conservation & Research (IBCR) to widen its mandate in order to be able to implement Ethiopia's obligations under the Convention on Biological Diversity (CBD). In 2004 it was renamed to the Institute of Biodiversity Conservation (IBC). Nowadays, the institute is named Ethiopian Biodiversity Institute (EBI) which has an autonomous body of the Federal government and has responsibility to conserve, research and utilization of biodiversity and, upon approval, enforce as well as ensure their implementation.

Moreover; Ethiopia has prepared National Biodiversity Strategy and Action Plan as of December 2005. The current Ethiopian Biodiversity Strategy and Action Plan (EBSAP) will address interlinked issues comprising biodiversity protection and management for food security (poverty reduction), health and livelihood improvement of the Ethiopian population especially the rural communities (farmers and pastoralists) whose survival depends on the use of natural resources. In parallel it is the first attempt to meet the planning requirements of the Convention as well as the national biodiversity conservation needs. It tries to roll into one of the three sequential processes called for under the Convention (the country study, national strategy, and action plan). As such it provides a brief assessment of the status and trend of the nation's biodiversity, outlines strategic goals and objectives, and identifies a plan of action that outlines co-ordination arrangements and implementation measures.

3.5.3. Disaster Risk Management (DRM) Policy

The Government of Ethiopia has endorsed a comprehensive DRM policy, based on lessons learned from previous experience. These include the necessity of a multi-hazard approach grounded in a deep understanding of specific disaster risk, and its link to development and vulnerability; emphasis on prevention, mitigation, preparedness, and post-disaster modalities and capacities; de-centralization of resources and structures; a precise determination of DRM responsibilities, supported by the ability for legal enforcement and a high degree of accountability. The new DRM policy provides direction for the kind of DRM system envisaged

for Ethiopia in the future. Such a system is based on an enabling policy environment and strategy. It relies on organizational structures with appropriate and harmonized roles and responsibilities at federal, regional, and woreda levels. Horizontal and vertical coordination among decision-making bodies and effective DRM systems, processes, and procedures is ensured. Furthermore, the system is based on an understanding of disaster risks; on practical and targeted information flows for decision making and community DRM; on resources preparedness, ensuring appropriate and timely availability of key resources; on adequate implementation capacity, including resource delivery; and on mechanisms for learning lessons and feeding into planning and decision-making

Moreover; the Establishment of The National Disaster Risk Management Commission Council of Ministers Regulation Regulation No. 363/2015. has become necessary to provide appropriate and timely responses to disaster before, during and after the disaster period at all levels through establishing a coordinated, accountable and decentralized system in scalable manner; it is found essential to back with legal frame-work the implementation of disaster risk management approach by engaging all concerned bodies with the aim of reducing disaster risks.

This Regulation is issued by the Council of Ministers Pursuant to Article 5 and 39 of the Definitions of Power and Duties of the Executive Organs of the Federal Democratic Republic of Ethiopia Proclamation No. 916/2015. The objectives of the Commission shall be: 1/ conducting appropriate activities for the comprehensive implementation and realization of the objectives of the National Disaster Risk Management Policy and Strategy and 2/ coordinating, monitoring, and providing appropriate support with respect to activities carried out by the lead sector institution.

3.6. International Environmental Organ Policy and Principles

3.6.1. World Bank Environmental and Social Policy for Investment Development project Financing

This Environmental and Social Policy for Investment Development project Financing sets out the mandatory requirements of the Bank in relation to the development projects it supports through Investment Development project Financing.

Objectives and Principles

The Bank is committed to supporting Borrowers⁴ in the development and implementation of development projects that are environmentally and socially sustainable, and to enhancing the capacity of Borrowers' environmental and social frameworks to assess and manage the environmental and social risks⁵ and impacts⁶ of development projects. To this end, the Bank has defined specific Environmental and Social Standards (ESSs), which are designed to avoid, minimize, reduce or mitigate the adverse environmental and social risks and impacts of development projects. The Bank will assist Borrowers in their application of the ESSs to development projects supported through Investment Development project Financing in accordance with this Environmental and Social Policy for Investment Development project Financing (Policy).

The Ten Environmental and Social Standards (ESS) establish the standards that the Borrower and the development project will meet through the development project life-cycle, from (ESS 1-ESS 10) as follows:

- Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts;
- Environmental and Social Standard 2: Labor and Working Conditions;
- Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management;
- Environmental and Social Standard 4: Community Health and Safety;
- Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- Environmental and Social Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;
- Environmental and Social Standard 8: Cultural Heritage;
- Environmental and Social Standard 9: Financial Intermediaries; and
- Environmental and Social Standard 10: Stakeholder Engagement and Information Disclosure.

Borrowers and development projects are also required to apply the relevant requirements of the **World Bank Group Environmental, Health and Safety Guidelines (EHSs)**. These are technical reference documents, with general and industry specific examples of Good International Industry Practice (GIIP)

3.6.2. United Nations Environment Programme

The United Nations Environment Programme (UNEP) is the leading environmental authority in the United Nations system. UNEP's mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.

UNEP re-organized its work programme into six strategic areas as part of its move to results based management. The selection of six areas of concentration was guided by scientific evidence, the UNEP mandate and priorities emerging from global and regional forums.

1. Climate Change: UNEP strengthens the ability of countries to integrate climate change responses by providing leadership in adaptation, mitigation, technology and finance. UNEP is focusing on facilitating the transition to low-carbon societies, improving the understanding of climate science, facilitating the development of renewable energy and raising public awareness.

2. Post-Conflict and Disaster Management: UNEP conducts environmental assessments in crisis-affected countries and provides guidance for implementing legislative and institutional frameworks for improved environmental management. Activities undertaken by UNEP's Post-Conflict & Disaster Management Branch (PCDMB) include post-conflict environmental assessment in Afghanistan, Côte d'Ivoire, Lebanon, Nigeria and Sudan.

3. Ecosystem Management: Facilitates management and restoration of ecosystems in a manner consistent with sustainable development, and promotes use of ecosystem services. Examples include the Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-Based Activities.

4. Environmental Governance: UNEP supports governments in establishing, implementing and strengthening the necessary processes, institutions, laws, policies and programs to achieve

sustainable development at the country, regional and global levels, and mainstreaming environment in development planning.

5. Harmful Substances: UNEP strives to minimize the impact of harmful substances and hazardous waste on the environment and human beings. UNEP has launched negotiations for a global agreement on mercury, and implements development projects on mercury and the Strategic Approach to International Chemicals Management (SAICM) to reduce risks to human health and the environment.

6. Resource Efficiency/Sustainable Consumption And Production : UNEP focuses on regional and global efforts to ensure natural resources are produced, processed and consumed in a more environmentally friendly way. For example, the Marrakesh Process is a global strategy to support the elaboration of a 10-Year Framework of Programs on sustainable consumption and production.

4. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PROCESS

4.1. Introduction

The ESIA process is a systematic approach to identifying, describing and evaluating the potential environmental and social impacts for the Proposed Development project, and formulating measures that will be implemented to manage these impacts, for instance the adverse impacts can be avoided or reduced to an acceptable level and beneficial impacts can be enhanced.

Accordingly; the establishment of the Development project has to have significant positive socio-economic impacts both on the local and national level in terms of skill development, employment opportunities, improve infrastructure, increase spending for purchasing of raw materials and commodities the local market will boost the economy in the region. Moreover, the development of investment development project could expected to have significant positive impacts on the national level.

With respect to potential adverse impacts, to avoid or minimize impacts has to be identified and incorporated in to the proposed investment development project design. These are referred to as “design controls” and include both physical design features (such as location of structures/activities) and management measures (such as timing of activities).

Where the outcome of the ESIA indicates that design controls are insufficient to manage certain impacts to acceptable levels, further mitigation measures will need to be identified. Before presenting the impact assessment methodology it is important to understand ESIA process within which the methodology is applied, particularly the work done prior to impact assessment.

4.2. Comprehensive Description of the ESIA Process

Before presenting the impact assessment methodology it is important to understand ESIA process within which the methodology is applied, particularly the work done prior to impact assessment. These ESIA steps are Pre-Screening, Screening, Scoping and Impact Analysis, Review of the ESIA report, Decision-making, Follow-up and Adaptive Management (figure 1).

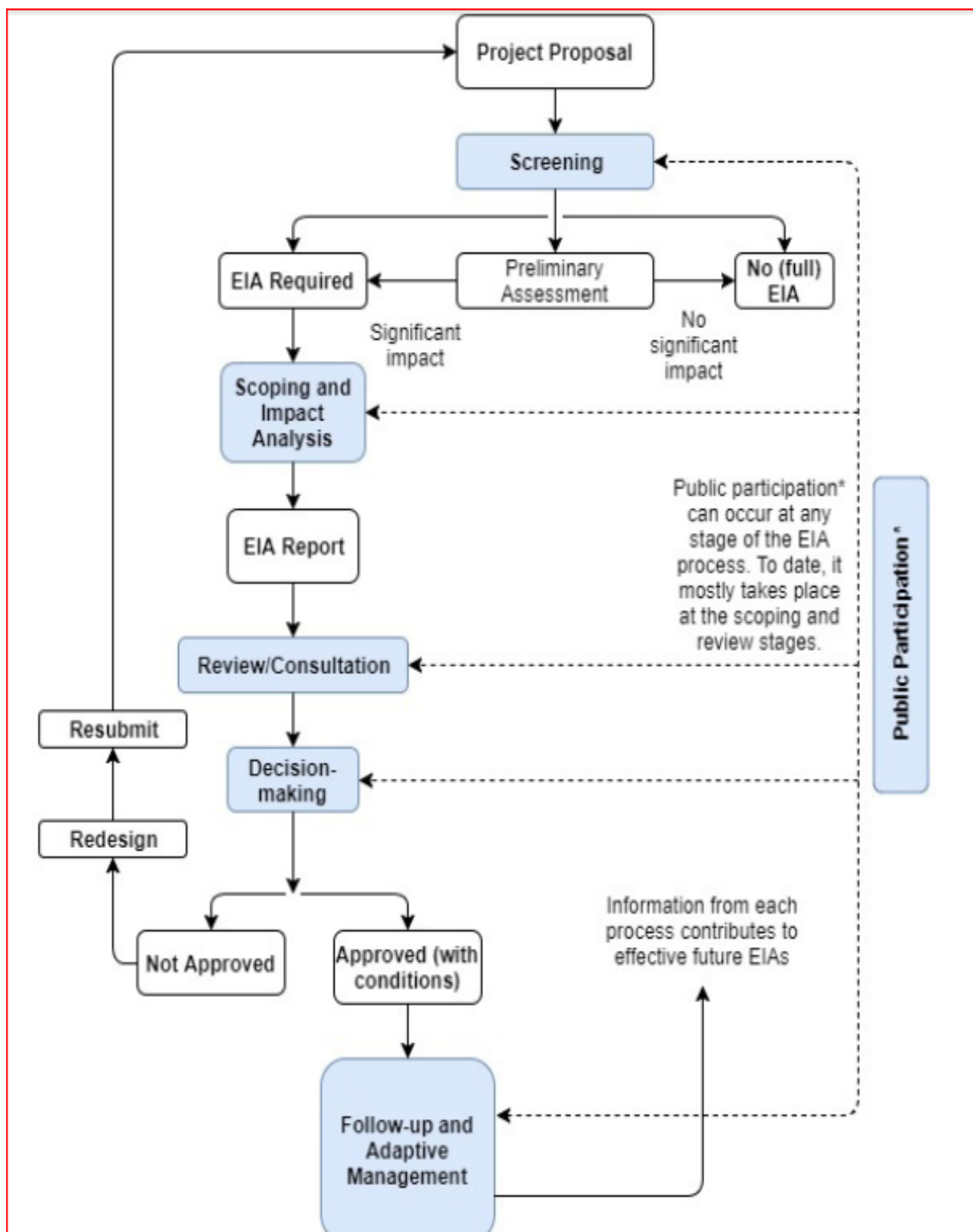


Figure 1. ESIA process flowchart, adapted from UNEP, ESIA Training Resource Manual.

4.2.1. Pre-screening

Pre-screening is not normally taken as a part of a stage in the ESIA process. However, its application is recommended in recognition of its importance to enhance the overall effectiveness of the ESIA System. Pre-screening is a stage where the proponent and the respective environmental or sectoral agencies establish contact and hold consultation on how best to proceed with the EA.

The consultation could be as a formal meeting, a telephone conversation or correspondence by means of electronic mail. Consultation at this stage should avoid delays caused by requests from the authority requiring additional information occurring at a later stage or for a mutual understanding about the requirement for both the proponent as well as for the authority.

4.2.2. Screening

Screening is the processes of determining whether or not a proposal requires ESIA and the level at which the assessment should occur. Prior to entering into the screening phase of the ESIA, it is recommended that the proponent shall appoint an independent consultant to assist in the process. At this stage a proponent initiates the process by submitting the development project profile or an initial environmental examination report after undertaking an initial environmental assessment, to the relevant environmental agency.

This screening report or Initial Environmental Examination report, shall contain, the title of the proposed development project, the name and address of the proponent and the consultant. Also this report has to describe

- Characteristics of the location (sensitivity of the area),
- Size of the proposed development project (small, medium and large scale),
- Degree of public interest,
- Proposed potential impacts,
- Institutional requirement,
- Environmental enhancement,
- Monitoring considerations and
- The proposed activities to be done.

The outcome of screening could be one of the following:

- No EA required
- Preliminary Assessment (PA) : Preliminary assessment is applied to:
 - Development projects with limited impacts,
 - Development projects in which the need of EA is unclear, and
 - Proposals with inadequate information
- ✓ Full scale EA : When there is sufficient ground for detail assessment.

4.2.3. Scoping

Once a decision has been made that a (full) ESIA needs to be undertaken, determining the scope of the ESIA including which specific impacts need to be considered is generally referred to as scoping. The legal process, which needs to be followed, is generally already determined by the screening decision.

It is important to maintain the scope throughout the assessment process. Public consultation and participation aims to assure that the views and concerns of all IAPs are taken into consideration. Various techniques may be employed through the participation exercise, including public meetings; telephone surveys; exhibits/displays; newspaper advertisements; written information; surveys, interview and questionnaires; discussion with established groups (e.g. NGO's, community organizations etc) and workshops and seminars. The scoping exercise should be documented in the form of a scoping report, which is submitted to the authority for review and approval.

The purposes of scoping are to involve potentially affected groups, consider reasonable alternatives, evaluate concerns expressed, understand local values, determine appropriate methodologies, establish the terms of reference. The outcome of scoping is a scoping report or Terms of Reference for undertaking full scale EA. Both of them require passing through reviewing process.

As a minimum, the Scoping report should include:

- ✓ Brief description of the development project,
- ✓ All alternatives for project locations, project designs, has to be included
- ✓ Should consider climate change and disaster risk considerations

- ✓ Issues raised by Interested and Affected parties (IAPs), and
- ✓ Description of the public participation,

Also the outline of a Term of Reference is:

- Background to the proposal,
- Setting the context of the problem,
- Consideration for project locations, project designs, etc
- Institutional and public involvement,
- Analysis of impacts,
- Mitigation and monitoring, and
- Conclusions and recommendations,
- Required information regarding development project and location, etc.,

The scoping report has to be submitted to the Competent Agency for review. The Competent Agency should review the document to determine whether the process followed in preparing the report has been adequate and that there has been sufficient consultation with IAPs.

4.2.4. Impact Analysis

4.2.4.1. Purpose of Environmental and Social Impact Analysis

The purpose of undertaking Environmental and Social Impact Study is to generate sufficient information on significant impacts that enable the preparation of an Environmental and Social Impact Study report, which will be used to determine whether or under what conditions a development project should proceed.

Impact analysis is a tool for decision-makers to identify potential environmental impacts of proposed development projects, to evaluate alternative approaches, and to design and incorporate appropriate prevention, mitigation, management and monitoring measures. An impact is change in an environmental parameter, which results from a particular activity or intervention. The change is the difference between the environmental parameter with the development project compared to that without the development project. It is predicted or measured over a specified period and within a defined area.

Environmental and social impact study involves Impact identification, Impact Prediction, consideration of alternatives, preparation of management plan (mitigation, monitoring activities), and preparation of contingency plan. Once all the important impacts have been identified, their potential size and characteristics can be predicted and analyzed. Impact prediction or forecasting is a technical exercise. It utilizes physical, biological, socio-economic and cultural data to estimate the likely characteristics and parameters of impacts. Impact predictions are made next to a baseline established by the existing environment (or by its future state).

Baseline data

The primary objective of the ESIA process is to assess the baseline data that the proposed development project may have change upon the existing environment and society and how this can be avoided (ideally) or mitigated. To inform the appraisal of any possible changes that may occur, it is necessary to first establish an understanding of the existing environment before any clearing of the site to make way for development.

The baseline appraisal should consider all aspects of the environment that may be altered by the proposed development project. These can be categorized as;

- Physical: Surface water and sediments, groundwater, air quality, noise, soils and land use ,air quality, Nose and vibration, Landscape and visual amenity, Soils and land use
- Biological: Terrestrial ecology, Aquatic ecology, Subterranean ecology, Marine ecology, Ecosystem services and
- Socio economic attributes : Local and regional economic situation, Existing infrastructure, Demographic information, Employment status, Health, security and safety, resettlement and land acquisition, Traffic and transport, Cultural heritage etc are important.

The baseline should be based upon the findings of the screening and scoping studies. The scope of the baseline study, including attributes that will be appraised, and the geographical extent of the analysis, will typically have been agreed with the relevant decision makers as an outcome of the scoping phase. It is important to re-emphasize that the scope (and detail) of the baseline study should be commensurate with the size and scale of the development project and hence the potential changes

that the development project may have upon the environment and society. The baseline study will typically be developed in three stages:

- **Desktop study:** Office-based exercise during which readily available existing information (i.e. that can be used to describe the existing environment) is collected and reviewed to ensure its appropriateness for use within the ESIA;
- **Field study:** The stage within which additional data is captured in the field, with the intent of addressing any gaps that have been identified in the existing knowledge base; and
- **Reporting stage:** Collation of the captured information into the baseline report

4.2.4.2. Content requirements for Impact analysis

The Content requirements for the assessment itself are regularly defined in national legislation, but with varying levels of detail. Whereas in some countries the ESIA laws contain rather brief ESIA content requirements, and thus require these to be defined in each individual case regarding the determination of the environmental impact in general, and as already pointed out in Screening, a common legislative approach is to include a list of factors to be considered in order to guide the identification of likely effects of a development project based on a number of issues.

With regard to specific factors or environmental issues that can be considered in an ESIA, the following criteria are highlighted the most in the (recent) literature, in part due to their relevance in the international policy are:

- ❖ Biodiversity and ecosystem services;
- ❖ Climate change (mitigation and adaptation);
- ❖ Risks of accidents and disasters;
- ❖ Social impacts, including indigenous and local communities;
- ❖ Community and traditional knowledge;
- ❖ Population and human health;
- ❖ Transboundary effects; and
- ❖ The marine environment.

It is common practice to briefly describe or list the different factors in legislation, and then to issue complementary nonbinding guidelines on how to carry out the assessments. with respect to some of them. The European Union, for example, issued guidance on integrating climate change and biodiversity into ESIA's.

4.2.4.3. *Characteristics of Environmental Impacts*

The characteristics of environmental impacts vary depending on the nature of the development project and the sensitivity of the environment. Typical parameters to be taken into account in impact prediction and decision-making include:

- Nature (positive, negative, direct, indirect, cumulative);
- Magnitude (severe, moderate, low);
- Extent/location (area/volume covered, distribution);
- Timing (during construction, operation, decommissioning, immediate, delayed, rate of change);
- Duration (short term, long term, intermittent, continuous);
- Reversibility/irreversibility;
- Likelihood (probability, uncertainty or confidence in the prediction); and
- Significance (local, regional, global).

Cumulative environmental impacts

A cumulative environmental effect is an impact that is likely to result from the development project in combination with impacts due to other development projects or activities that have been or will be carried out. The purpose of analyzing cumulative impacts is to identify and avoid situations where the impacts of discrete development projects or activities act together to create significant adverse impacts.

4.2.4.4. *Evaluation of impact significance*

A systematic process should be followed in evaluating significance, distinguishing between as “predicted” and “residual” impacts. It is determined by the joint consideration of its characteristics (magnitude, extent, duration, etc.) and the importance (or value) that is attached to the resource

losses, environmental deterioration or alternative uses which are foregone. Impact evaluation is a difficult and contestable exercise, which cuts across the fluid boundary between “facts” and values and between ESIA and decision-making. The attribution of significance usually will influence final approval and condition setting; for example by indicating whether or not the impact of a proposal is acceptable or not.

Principles for evaluating significance

Key reference points for evaluating significance include:

- environmental standards, guidelines and objectives;
- level of public concern socio-economic and cultural values;
- scientific and professional evidence for:
 - Loss/disruption of valued resource stocks and ecological functions;
 - Negative impact on social values, quality of life and livelihood; and
 - Foreclosure of land and resource use opportunities.

Guiding principles for determining significance include:

- ✓ Use procedure and guidance established by the jurisdiction;
- ✓ Adapt other relevant criteria or identify points of reference from Comparable cases;
- ✓ Assign significance in a rational, defensible way;
- ✓ Be consistent in the comparison of alternatives; and
- ✓ Document the reasons for the judgments made.

Significance Criteria Evaluation whether adverse impacts are significant or not

Criteria to evaluate whether or not adverse impacts are significant include:

- Environmental loss and deterioration;
- Impacts resulting directly or indirectly from environmental change;
- Non-conformity with environmental standards, objectives and guidelines; and
- Likelihood and acceptability of risk.

I. Criteria to evaluate adverse impacts on natural resources, ecological functions or designated areas include:

- Reductions in species diversity;
- Repletion or fragmentation on plant and animal habitat;

- Loss of threatened, rare or endangered species;
- Impairment of ecological integrity, resilience or health e.g.
 - disruption of food chains;
 - decline in species population;
 - alterations in predator prey relationships.

II. Criteria to evaluate the significance of adverse social impacts that result from biophysical changes include:

- ✚ Threats to human health and safety e.g. from release of persistent and/or toxic chemicals;
- ✚ Decline in commercially valuable or locally important species or resources e.g. fish, forests and farmland;
- ✚ Loss of areas or environmental components that have cultural, recreational or aesthetic value;
- ✚ Displacement of people e.g. by dams and reservoirs;
- ✚ Disruption of communities by influx of a workforce e.g. during development project construction; and
- ✚ Pressures on services, transportation and infrastructure.

4.2.4.5. Environmental standards, objectives and targets to evaluate significance

- Prescribed limits on waste/emission discharges and/or concentrations;
- Ambient air and water quality standards established by law or regulations environmental objectives and targets contained in policy and strategy; and
- Approved or statutory plans that protect areas or allocate, zone or regulate the use of land and natural resources.

Generally speaking Impacts are likely to be significant if they:

- ❖ are extensive over space or time
- ❖ are intensive in concentration or in relation to assimilative capacity
- ❖ exceed environmental standards or thresholds
- ❖ do not comply with environmental policies/ land use plans
- ❖ affect ecological sensitive areas and heritage resources
- ❖ affect community lifestyle, traditional land uses and values

4.2.5. Analysis of Alternatives

The sustainability goal of the development project can be addressed if and only if the development project is environmentally, socially and economically viable. To achieve this, the development project consulting company has to considered different development project alternatives and analyzed them from these sustainability dimensions. The purpose of the alternatives analysis is to improve decisions on development project design, construction, and operation based on feasible alternatives to the proposed development project. This analysis may facilitate the consideration of environmental and social criteria for development and decision-making based on the differences between real choices.

The alternatives analysis should be conducted as early as possible in the process and examine feasible alternatives; those alternatives could be ;

- ✚ Alternative development project locations,
- ✚ Alternative Designs,
- ✚ Alternative Mode,
- ✚ Alternative Operational processes;
- ✚ No action alternative etc

4.2.6. Environmental and Social Management Plan

Environmental and social management plan (ESMP) must be produced, describing the proposed mitigation measures and preventive actions to be taken during the various phases of the development project life and to ensure that risks are effectively mitigated and/or reduced to acceptable levels. ESIA should document how the environment will be managed during the implementation of the development project all phases construction, operational and decommissioning phases. The training programme for employees of the facility should be outlined. This section should identify any institutional needs for implementing the recommendations of the ESIA.

Table 1: the Environmental and Social Management Plan Formate:

Develop ment project Stage	Developm ent project activities	Adverse impacts	Mitigation measures	Implem entation period	Institutional responsibilit y	Respons ibility	cost estimation (Birr)

4.3.Environmental and Social Monitoring

Environmental monitoring is the systematic observation of the state of the environment and of the factors influencing it. It refers to collection of relevant data on previously identified (in the EMP) environmental parameters through repetitive and systematic sampling (measurement) or observation. The main purposes of environmental monitoring are to forecast changes to the state of the environment and to provide initial data for planning documents, programs and development projects through systematic collection of environmental data to meet the specific environmental needs and objectives.

The main goal of environmental monitoring is to demonstrate to the community at large and the government authorities that the development project development complies with the environmental requirements and the desired environmental performance of the development project as is stipulated in the ESIA report, specifically, the mitigation measures identified in the EMP.

The main objectives of environmental monitoring are:

- Identify short, medium, and long term trends in change of the environmental characteristics of the development project and surrounding areas;
- Distinguish the environmental changes as a result of the development project development and analyzing the causes of the changes;
- Measure the identified environmental impacts and make a comparative study with the predicted impacts in the EIA report; and
- Improve the effectiveness of the EMP by incorporating the findings of the monitoring activities in modification of the EIA report.

Environmental monitoring can be used by both the development project proponents and the regulatory agencies to ensure that the activities and mitigation plans proposed in the EIA report in general, and the issues stipulated in the environmental management plan (EMP) in particular, are implemented and have the perceived impact on improving the environmental conditions and preventing the deterioration of natural and social environment.

Environmental monitoring is generally performed to:

- Document the baseline environmental and social conditions before commencement of the development project;
- Assess the environmental performance of the development project and to monitor whether the development project complies and perform the activities and conditions that are specified in the EMP, construction permit, and/or operating licenses. It can also be used to determine whether there is a need to modify, change approved mitigation measures to ensure that development project impact on natural and social environmental is minimized, especially if unforeseen and harmful environmental effects of the development projects are identified;
- Determine the general trends on development project's effect on the environment and whether the proposed activities in the EMP and licensing permit are adequately complying with the development project's environmental needs; and
- Verify the accuracy of environmental and social predictions of development project effects and the effectiveness of the proposed mitigation measures. Such information can be used as lessons learned for the future similar development projects to ensure that negative environmental effects of such development projects are minimized and positive effects are enhanced.

The specific requirements of the environmental monitoring program that should be included in the EMP include where, what, when, and how to measure the monitoring items, the methods to be used in evaluation and whether any additional information will be required. Environmental monitoring is used by practitioners to identify trends and to determine causes of environmental impacts of the development project and assess the environmental performance of the development project and whether it complies with the environmental performance indicators identified in the EIA and EMP. The monitoring activities should assist the development project proponent and the CA to determine the potential environmental effects of development projects during different development project phases from construction to dismantling.

Table 2: the Environmental and Social Monitoring Plan format

Development project Stage	Mitigation measures	Parameters to be monitored	Location of monitoring	Measurements/required results	Frequency of Monitoring	Responsibility	Budget (ETB))

4.4.Environmental and social Auditing

Environmental auditing is part of the overall environmental management and monitoring system. It is a term generally used in accounting profession and is borrowed by the environmental professionals to describe a systematic process of examining, documenting and validating that the development project's impact on environment, the ESIA procedures adopted, and outcomes of the development project do not significantly differ from the original objectives and requirements of the ESIA and ESMP.

The scope of an environmental audit can range from an assessment of all environmental and social aspects of a complex development project, such as large industrial premises, to a focused assessment of a small component of an activity. It is used for assessment of the compliance of environmental effects and performance of an operating business with environmental protection requirements. Environmental audit should follow the sound environmental practices in general, and the principles of sustainable development, in particular.

Environmental audits are being used as a tool and an aid to test the effectiveness of environmental efforts and to check whether development project/business is following the legal requirements, standards, best practices, and professional judgment.

To be more precise the work of an environmental audit is a study of documents and reports to see whether there are any deviations between targets and results. This is done by interviewing key people in the organization, and visit to the development project site. Therefore, an environmental audit of development projects include audit of development projects to:

- ✓ Assess the risk to air quality from industrial complexes;
- ✓ Assess the risk to surface waters and groundwater from a wastewater treatment plan;
- ✓ Assess whether a dam constructed for the purpose of irrigation, flood control, or hydropower development has been constructed in accordance with nominated requirements, thereby minimizing the risks to land, groundwater, and other natural resources;
- ✓ Assess compliance of a cattle feedlot or compliance of timber harvesting operations to environmental guidelines and approved EMP for the development project; and
- ✓ Identify risks to catchments condition from one or a number of development projects.

Environmental audit can be done internally, by the development project proponents, externally, by independent auditors, hired by the development project proponent, or by the competent authority on its discretion to determine whether the facility/development project is in compliance with the approved environmental protocols, mitigation measures defined in the development project EMP, and the environmental standards. Facilities and development project proponents are encouraged to conduct internal environmental audits and disclose the environmental problems to the authority.

To have an incentive for self-policing by the development project proponents, competent authority will negate the possibility of fines and penalties for the facilities who voluntarily report the violations of environmental norms, standards, or mitigation measures agreed upon in EMP, as long as the facility is not deemed as a repeated violator (offender). However, if the facility does not report the violation, and authority, through independent audit of the facility/development project, identifies that the development project/facility has committed major violations of environmental protocols, major fines and penalties may be levied on the development project proponents. Environmental audit protocols, especially internal audit by the development project proponent, should also be used as a basis to implement, upgrade, or improve environmental management activities identified in the EMP. Conducting an internal environmental audit should be considered as a management tool by the development project proponent for measuring and improving environmental performance of the development project/facility by correcting potential deficiencies uncovered by the audit.

In general, each audit should cover the site evaluation. If a potential environmental violation is suspected at a development project site or a facility, the first requirement will be site evaluation. The goal of site evaluation is to collect data, evaluate potential environmental impacts and their significance, say the release of pollutants, contaminant, or hazardous substances into water bodies or the air to determine the extent of release and its impact on public health and natural resources such as flora, fauna, and natural habitats.

A site evaluation might include

- (i) a preliminary assessment to determine if further investigation is necessary,
- (ii) A site inspection that can include on-site investigation to determine whether a release has occurred and to identify the preliminary public health and potential environmental threat

associated with the release. This might also include on-site and off-site field sampling and analysis, and

- (iii) A review to determine if the release requires the issuance of fines or penalties to the development project proponents or whether further environmental remediation is required.

If the environmental impact is found significant, the competent authority might decide to request the development project proponents to conduct a remedial investigation. The remedial investigation must be conducted immediately upon request by the competent authority. The intent of the study is to assess site conditions and evaluate remedial alternatives to the extent necessary. Upon completion of the study and determination of alternative methods to remedy the environmental effect, the development project proponent, in conjunction with the competent authority should identify the preferred proposed alternative for remediation that can be presented to the affected public for their review and comment. Upon receiving comments from the public or other regulatory agencies, if appropriate, the competent authority should make the final decision on the selection of preferred remedial method so that the remedial design or remedial action can commence. The development project proponent will be responsible to bear the cost of the study and implementation of the proposed remedial measures and the cleanup activities, if issues are found significant

4.5.Environmental and Social Standards

Environmental and social standards are documents that set the rules, guidelines and numeric values defined by the scientific bodies and regulatory bodies in order to regulate activities or results of activities that either have or are likely to have impact on the state of the environmental as well as socially. Environmental and social standards are basically from known international body set as standard. However nations have their own standards for regulatory purpose. Therefore during ESIA there must be either internationally or nationally recognized or certified by certifying body. Some of the international and nationally known standards are annexed at the annex part.

4.6. Stakeholder Engagement

The stakeholder's engagement in an ESIA aims to provide a mechanism through which people from a diversity of perspectives who are likely to be impacted by a given development project are provided with an opportunity to raise issues and to have these issues considered during and after the environmental and social assessment process.

National legislation which includes a requirement for public participation on Constitution of the FDRE, at **Article, 92: Environmental Objective sub article 3: states that**. “People have the right to full consultation and the expression of views in the planning and implementation of environmental policies and development projects that affect them directly.”

Accordingly the stakeholder’s engagement or consultation is mandatory for ESIA study. This could be conducted at the screening or scoping stage. At the review and decision-making stage, there are a range of different mechanisms to adopt for public participation. It is a systematic approach to planning a public involvement programme typically involves addressing the following key issues:

I. Why engage with stakeholders?

Stakeholder engagement is a critically important component of the ESIA. Effective stakeholder engagement during impact assessment creates a platform to build trust, credibility and stakeholder capacity and forms the beginning of a positive, long-term relationship between the proponent, its neighbors and other stakeholders. Importantly, the integration of public issues and technical environmental and social assessment gives comfort of mind that issues have been dealt with. The more active a facility is in involving stakeholders and understanding their concerns, the more time the development project has to consider this feedback in making critical decisions.

When communication and stakeholder involvement is non-existent or reactive, the results can include long court battles, protests at the gates, boycotts, and environmental damage and facility closures. An active approach leads to decision processes that generally proceed with less difficulty and greater benefit for everyone involved. In the experience of the investment development projects, neighbors and other stakeholders respond positively to citizen advisory or community liaison committees, clarity of information, honest environmental reporting on performance measures, pollution prevention initiatives, and well-designed environmental restoration development projects. Collaboration between the community, regulators and the proponent improves both facility performance and living conditions for all involved.

II. Who are the stakeholders in an ESIA process?

Stakeholder identification is a crucial step in managing the overall stakeholder engagement process. Accurate stakeholder identification reduces the risk of a narrow stakeholder group dominating the engagement process. Stakeholders might include:



- Government authorities at the national, regional and local levels, including traditional leadership groups;
- Non-commercial and non-governmental organizations at the international, national, regional and local levels, including organized community-based organizations or interest groups (labor, environment, youth, education, religious, business, health, etc.)
- Local communities within a defined distance from the development project site, including individual residents as well as non-organized groups with particular areas of interest or that may be at risk or disadvantaged (the elderly, different genders, people with disabilities, ethnic minorities, indigenous groups, etc.); depending on the nature (and hence influence) of a particular development project, the local community may extend well beyond the physical and biological study areas;
- Commercial organizations and business associations;
- Employees; and
- Media.





A number of development projects have successfully established community liaison committees to guide stakeholder engagement during an ESIA and to provide an ongoing mechanism to discuss issues of interest and concern with community groups after development project implementation.

The purpose of a community liaison committee is to:

- ✓ Assist with information dissemination to and obtaining feedback from community groups;
- ✓ Assist in resolving issues and conflicts, including between the cement plant operator, governmental bodies and community groups;
- ✓ Guide the developer on important issues that might affect the local community;
- ✓ Review incidents and resolve issues related to safety and security between the plant and community; and
- ✓ Monitor environmental performance against the Environmental and Social Management Plan (ESMP). When established at the outset of an ESIA, these committees provide valuable insights into how the ESIA should be conducted and guide the process. They do not, however, take the place of stakeholder engagement with wider community groups.

These objectives are underpinned by a number of key principles, which are outlined below

-  Techniques for stakeholder engagement
-  Public meetings and open houses

-  Workshops and seminars in focus-group discussions
-  Newspaper articles and publications in popular media
-  Internet
-  Brochures and information sheets

The principles and objectives of stakeholder engagement



The over-arching objectives of stakeholder engagement during an ESIA process are to:

- Provide sufficient and accessible information to enable stakeholders, including local communities, to become, at minimum, informed and educated about the proposed development project and its potential impacts and to build their capacity to participate;
- Identify and discuss issues of concern and suggestions for enhanced benefits; Comment on and contribute local knowledge and experience to the impact assessment;
- Receive feedback from the process on how their comments were addressed; and
- Achieve regulatory and statutory compliance.

4.7. The ESIA Reporting

Presents in an ESIA report for submission to the relevant authorities for approval. The ESIA report should provide a concise summary of the findings and recommendations of the technical studies that have been completed as part of the impact assessment. Each of the technical studies should be presented as a separate chapter in the ESIA report. It is recommended that the length, language and the structure of each chapter be presented consistently to provide a coherent description of the anticipated changes to the environment (positive and negative) and how these will be addressed.

The ESIA report should include, as a minimum, the following items:

-  A non-technical summary (NTS) written in a simple, non-technical language with an overview of the development project, the alternatives considered, the time schedule for construction, the potential environmental impacts and their effects, and proposed mitigation measures; it should conclude by setting out the residual effects of the development after mitigation and an overall conclusion on the environmental viability of the development project;
-  A description of the objectives of the proposed development project, the various development project components during construction, operation and decommissioning, the requirements for ancillary infrastructure, employment requirements, etc.;

- ✚ A description of development project alternatives comprising a description and evaluation of the impacts and cost-benefit assessment of the various alternatives considered, including a no-development project option; the rationale for selecting the presented alternative should be provided;
- ✚ A description of the institutional and legal environmental framework associated with the development project, including any development project-specific regulatory policies and guidelines that should be followed; this should include local regulatory requirements, international standards and sector-specific guidance where required;
- ✚ A description of the existing environmental and social baseline conditions of the development project area and their direct and indirect areas of influence;
- ✚ An analysis of the direct and indirect environmental and social/cultural impacts and risks, including cumulative impacts that represent the combined effects from multiple development projects or activities in the direct and indirect areas of influence;
- ✚ A record of the ESIA process and a summary of the results of consultation with affected groups,
- ✚ Options and recommendations for mitigation measures, such as preventing, avoiding, reducing, eliminating or compensating for the impacts of the selected alternative; and
- ✚ A description of the proposed environmental and social management and monitoring framework, including the schedule, assignment of responsibility and budget.






Where more detailed technical reports have been prepared to describe the analyses that have informed the impact assessment, it is recommended that these be presented as an appendix to the ESIA report.

4.7.1. Structure and Contents of the ESIA Report

The prepared ESIA report has contain the following contents in the document

➤ Executive Summary

- Overview of the proposal and its setting
- Terms of reference of the study
- Summary results of the public consultation(s)
- The development project alternatives considered
- Outline of the major impacts and their significance
- Outline of the mitigation measures

- Outline of the Expand EMP
- Introduction/Background
 - General International over view
 - General National overview
- Approach to the study
 - ✦ Technical approach
 - ✦ Methodological approach
- Policy, Legal and Administrative Framework
 - Overview of the legal, policy and institutional framework
 - Overview of relevant international agreements
- Baseline Information on Bio-Physical and Socio-Economic Situation
 - Spatial and temporal boundaries
 - Baseline conditions – biophysical, land use, socio-economic
 - Key trends and anticipated conditions
- Description of the Proposed Development project
 -  Details of the main elements of the development project and its phases (Construction and operation) supported by drawings and maps
 -  Overview of any other relevant proposals and the potential Interrelationships with these
 -  Details of the required materials, resources (e.g. water, energy) and equipment and where these will be sourced
 -  Details of operational processes and products
 -  Details of the technical, economic, social and environmental features of the development project
- Proposed Development project Alternatives
 - Details of any feasible alternatives to the development project – including the no-development project
 - Alternative their main elements and phases (construction and operation)
 - Supported by drawings and maps where useful
 - Comparison of alternatives against the development project in terms of risks and benefits
 - States basis for selecting a particular development project

- Significant Environmental Impacts
- Mitigation Measures
- Environmental Management Plan
 - Measures to mitigate impacts and build climate and disaster resilience
 - Monitoring program
 - Reporting, audit and review procedure
 - Institutional capacity building requirements
 - Schedule and budget for implementation
- Environmental Monitoring/Auditing Programme
- Nature of public Participation
 - ✦ Local community participation
 - ✦ Stakeholders participation
- Conclusions and Recommendations
- List of References
- Appendices

***NB:** Color mapping should be used wherever possible to provide clarity to the interpretation of the baseline report.*

4.7.2. Reviewing

The review of the ESIA report prior to the decision on whether a development project can go ahead taking environmental considerations into account is a key element of the ESIA process. The objective is to verify whether the information provided is sufficient and adequately presented so as to form a sound basis for decision-making. This does not only include information on the identified impacts on the environment, but also whether the development project proponent has the capacity and obligation to implement the suggested mitigation measures and avoid adverse impacts

The ESIA systems, review are a formal procedure and are either undertaken by:

- ❖ Environmental agencies
- ❖ Sectoral agencies that are in charge of issuing the final permit or license to start with implementation of the proposed development project
- ❖ An intergovernmental body or committee
- ❖ An independent body, generally established by environmental agencies

The Environmental internally reviews the final report prior to approval or disapproval. The Environmental body reviews the reports through a technical committee formed by the Department of Environmental. The technical committee member's profiles depend on the nature of the development project and would include representatives of concerned departments.

NB: Comments from the public on the ESIA report are an integral part of the review process

The committee members are also provided with guidelines for evaluation of the ESIA reports. The result of the review by the technical committee is communicated to the development project proponent by the Environmental body as a formal decision (ESIA approval or disapproval). The final decision of the report is communicated to the public via posting on a public board by the concerned body for 15 days, exempt of confidential information related to Intellectual Property Rights, Industrial Property Rights and budgeting.

The development project proponent has the opportunity to object to the decisions. In this case a second review is undertaken by the technical committee, regularly following the submission of additional information by the development project proponent. The competent Environmental body for the issuance of the development permit also has the option to object the decision of the Environmental body. In that case the development project is presented to the Council of Environmental body for re review and final decision on ESIA approval or disapproval.

Reviewing environmental report conducted at various stages in the ESIA processes. This include reviewing of screening report, scoping report, Terms of Reference (TOR), Environmental impact assessment report, and Performance (monitoring or audit) reports at different stages in the development project cycle. In cases where Terms of References (ToR) were developed at the scoping stage, ESIA reports are assessed against these, either complementary to the legal provisions or as the only point of reference.

Also it may include considerations of the adequacy of compliance with the "approved TOR", required information, the examination of alternatives, assessment of impacts, appropriateness of mitigation measures and monitoring schemes as well as implementation arrangements, the use of scientific and analytical techniques, the extent of public involvement and reflection of IAPs concerns, and presentation of the information to decision makers at Regional, Sectoral,

and Local levels. The detail of the review is presented in chapter six.

Five hard copies, and an electronic copy should be submitted to the relevant reviewing authority or agency as the case may be. Reviewing conducted at various stages in the EA processes.

4.7.3. Decision Making

ESIA is an on going process of review, negotiations and incremental decision-making at various levels of the development project cycle, about whether or not the proposal is to proceed, and under what conditions. Decision-making should be consultative, participatory and influence others to behave responsibly and sustainably. It should also acknowledge and implement mandates and responsibility.

The guiding principles of approval procedure are :

- Full scale assessment is required where the development project is known to have significant impacts,
- Preliminary EA is required where the development project may have environmental impacts,
- EA is not necessary where the development project is unlikely to cause significant environmental impacts,
- There is a need to adhere to precautionary principle. When determining the impacts of a development project if both beneficial and detrimental effects are on balance, only slightly or arguably beneficial, it should be decided as it is likely to entail a negative significant impact,
- all development projects contravening government policies or other legal obligations should be rejected from the outset.
- decisions are to be made in a step wise manner upon a successful implementation of environmental requirements based on stages in EA process and corresponding stages in the development project cycle,

Possible decisions include:

- Request for supplementary, or new ESIA report;
- Approval of the ESIA report or performance reports at various stages in the development project cycle;
- Approval of the implementation of the proposal with or without conditions;

- Approval subject to ongoing investigation;
- Rejection;

Important considerations of decision making :

- A summary of evaluation is made available to the public,
- Reasons for decision and conditions of approval are made public,
- There is the right of appeal against decision,
- Approval can be reversed or permit can be revoked on the advent of changing circumstances,
- Approval of a proposal can not immune the proponent from being accountable of the occurrence of adverse significant impacts in the course of the implementation of the development project, and approval of an ESIA report is only mark a simple agreement to the proposal. The culmination of the approval procedure will be the issuance of an Environmental Clearance Certificate upon the satisfactory trial operation phase. While the validity of the ESIA license is only of relevance until implementation has (substantively) commenced, many laws also include the requirement to submit a new ESIA after ESIA approval has been obtained under certain circumstances, or limit the time period in general under which a development project can be executed under a “one-off” ESIA approval.

It is mandatory to submit a new ESIA report after the ESIA license has been issued, in case

- (a) There is a substantial change or modification in the development project or in the manner in which the development project is being operated;
- (b) The development project poses environmental threat which could not be reasonably foreseen at the time of the study, evaluation or review; or
- (c) It is established that the information or data given by the proponent in support of his application for an ESIA license was false, inaccurate or intended to mislead.

4.7.4. Duration of the review and validity of the ESIA approval

In order to provide planning security for the developer and reduce unjustified delay in the implementation of the planned development project, several laws include provisions on the maximum duration of the review. Many laws also include provisions on the validity of an issued ESIA approval Environmental license, in order to take into account the fact that environmental circumstances are constantly changing.

Different countries have different determination on ESIA approval or disapproval. According to the new EU Directive, Member States shall ensure that the competent authority makes its determination on ESIA approval or disapproval as soon as possible and within a period of time not exceeding 90 days from the date of submission of the final ESIA report. It contains maximum review period in Panama is only 40 days, in India and Lebanon 60 days and in Peru 70 days.

Most countries provide the opportunity to appeal against the ESIA based decision, often as part of domestic administrative law. In our case; since we are developing country, the ESIA approval or disapproval as soon as possible and within a period of time not exceeding 60 days from the date of submission of the final ESIA report for mega development projects. Sometimes more time is required to revise depending on the nature of the development project.

In exceptional cases, for instance relating to the nature, complexity, location or size of the development project, the competent authority may extend that deadline. In that event, the competent authority shall inform the developer in writing of the reasons justifying the extension. This may need special consideration but for small development projects the relevant environmental organization has to finalize within 15 days from submission date of the document.

4.7.5. A Systematic ESIA Follow-Ups

The ESIA process does not stop with an ESIA approval decision or the development consent granted by the competent authority. Instead, the process can be divided into a pre- and post-decision phase whereas the pre-decision phase focuses on

Systemic follow-ups activities are needed:

- To ensure that the anticipated impacts are maintained within the levels predicted,
- To see that the unanticipated impacts are managed and or mitigated before they become problems,
- To realize and optimize the benefits expected, and
- To provide information for a periodic review and alteration of impact management plan and enhance environmental protection through good practice at all stages of the development project. It is therefore necessary that:

➤ Environmental Management System, including internal

- monitoring schemes established,
- External audit conducted,
- Mechanism for regular risk communication designed, etc.

4.8.ESIA and the Development project Cycle

The fundamental premise is that the stage in the ESIA process should be linked to the corresponding stages in the development project cycle. The schematic diagram below indicates the sequential events of ESIA in the development project cycle. The activities of ESIA process in the development project cycle Pre-feasibility, Feasibility, Development project Design, Development project concept are the main parts of development project cycle. At every stage of development project cycles starting from sit selection to monitoring and evaluation there are a numbers of impact could be raised. Therefore there must be mitigation measures for those impacts environmentally or socially. The diagram below shows simple illustration of ESIA and development project cycle.

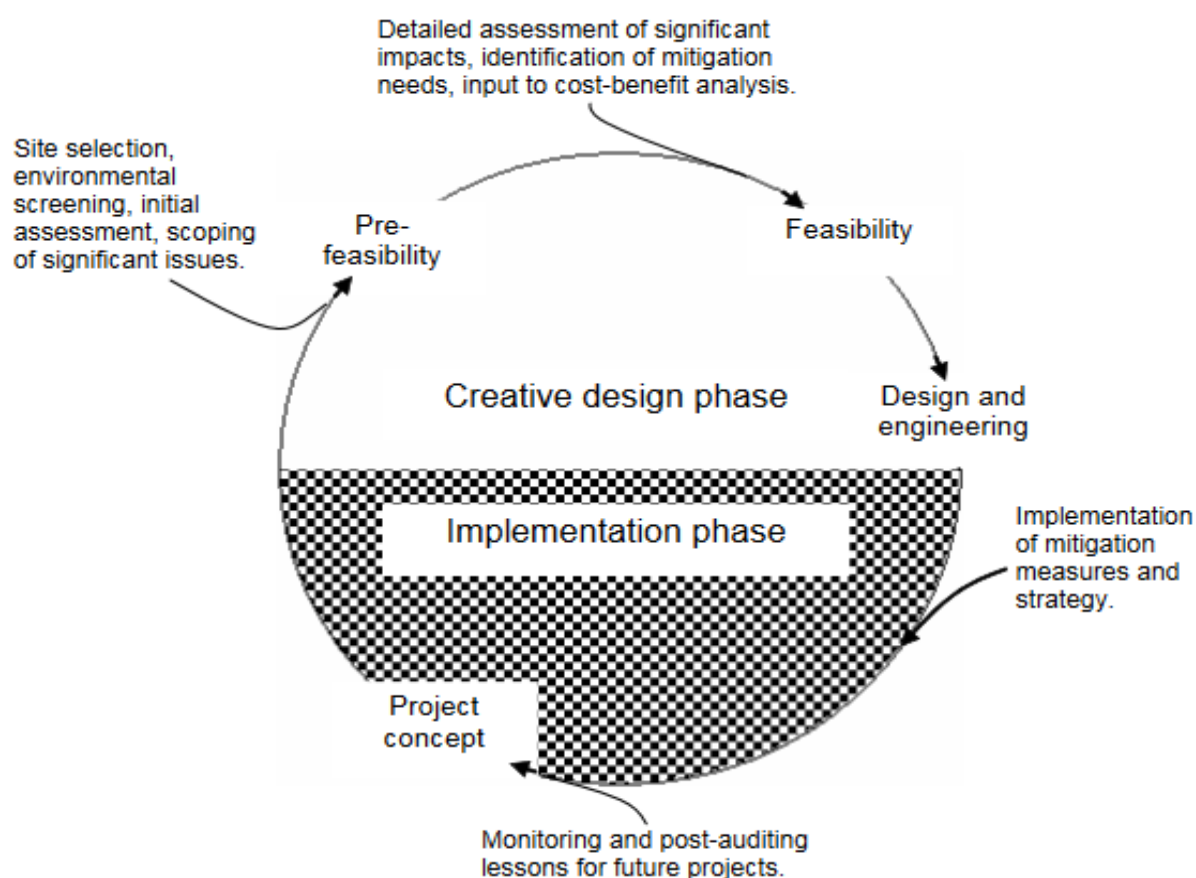


Figure 2: Interfacing ESIA and the development project lifecycles ; *Source: ESCAP (2003)*

5. ROLES AND RESPONSIBILITIES OF ESIA STAKEHOLDERS

5.1. Introduction

Institutional set-up Linked to the different legal approaches in triggering ESIA, the institutional arrangements for the implementation of ESIA are important to understand the systems. This includes the division of competencies in the ESIA process, in particular whether the same agency responsible for the issuance of a permit and implementation oversight is in charge of the ESIA process (regularly a sectoral body), potentially consulting environmental agencies for the review of the ESIA report, or whether an environmental agency is in charge of conducting or overseeing the whole ESIA process.


The multitude of division of functions and variability of responsibilities inherent in the EA process calls for the clear definition and spell out of roles and tasks of different stakeholders. Therefore, defining the roles and responsibilities of each party would enable to harmonize the various interests and foster cooperation in a manner that averts duplication of efforts and promote efficiency.

Potentially, EA involves all members of society. for convenience and, above all in recognition of the common but differentiated roles each may manifest, the different actors are categorized in to the following major groups:

5.2. Environmental Competent Organ

In many countries the ESIA approval, whether an integral part of an environmental permitting process or the result of an independent ESIA process, is governed by environmental agencies and departments. An environmental competent organ is Environmental Body that are mandated by a proclamation provided for the establishment of environmental protection organ (proclamation No 299/202) and other relevant laws to oversee and facilitate the implementation of environmental concern.

5.2.1. The Federal Environmental Commission is responsible for:

 The establishment of a required system for EA of public and private sector development projects, as well as social and economic development policies, strategies, laws, and programs of federal level functions;

 Reviewing and pass decisions and follow-up its implementations of Environmental

Impact Study Reports of development projects, as well as social and economic development programs or plans where they are,

- subjects to federal licensing, execution or supervision,
- Proposed activities subjects to execution by a federal agency,
- likely to entail inter or transregional, and international impacts

- ✚ Notifying its decision to the concerned licensing agency at or before the time specified in the appropriate law or directives,
- ✚ auditing and regulating the implementation of the conditions attached to the decision,
- ✚ provide advice and technical support to the regional environmental agencies, sectoral institutions and the proponents,
- ✚ making its decisions and the EA report available to the public,
- ✚ resolving all complaints and grievances in good faith and at the appropriate time, develop incentive or disincentive structures required for compliance of RA requirements,
- ✚ pave the way and involve in EA awareness creation, etc.

5.2.2. Regional Environmental Agencies

In the sphere of local government, guiding principles need to be developed for the type and level of skills required for effective decision making by Local Authorities when integrating environmental issues into strategic planning and land use decisions. The guiding principles should include knowledge of the processes involved in the ESIA processes.

In the ESIA Process the regional environmental agencies or their equivalent Competent Authority are responsible to:

- Adopt and interpret federal level EA policies and systems or requirements in line with their respective local realities,
- Establish a system for EA of public and private development projects, as well as social and economic development policies, strategies, laws, or programs of regional level functions;
- Inform EPA about malpractices that affect the sustainability of the environment regarding EA and cooperate with EPA in compliant investigations,
- Administer, oversee, and pass major decisions regarding impact assessment of:
 - project subjects to licensing by regional agency

- project subjects to execution by a regional agency
- project likely to have regional impacts

5.2.3. Proponent

A proponent is any legal person that initiates a development project, policy or program, that is, if in the public sector an organ of government, and the private sector an investor.

A proponent is required to:

- proactively integrate an environmental concerns into its social and economic development development project, program, policy, plan or strategic initiative as per the requirements of relevant environmental laws and directives,
- ensure that positive effects are optimized and strive to promote conservation based development and work with objectives of continuous improvement,
- initiate the EA process and create the necessary ground for undertaking EA,
- appoint an eligible independent consulting firm who shall seek to undertake EA ,
- cover all expense associated with the Environmental Impact Assessment.

This may include the costs of :

- ❖ Undertaking ESIA,
 - ❖ Public participation process,
 - ❖ Reviewing ESIA report as the need arise,
 - ❖ preparation and implementation of EMP, that include both mitigation and monitoring measures and the associated institutional and human resources,
 - ❖ Closure plan as the case may be,
 - ❖ Environmental Management System,
 - ❖ Contingency plan,
 - ❖ Reporting, environmental education, etc.
- Submit to EPA or the relevant regional environmental agency an ESIA report together with the necessary documents requested both in an electronic and hard copies,
 - Observe the terms and conditions of authorization and work in partnership and cooperation with all responsible and interested parties,

- Provide the necessary reports for stepwise decisions required for approval of the proposal,
- Involve all interested and affected parties, and to that effect take all reasonable and practical measures to notify the latter in good time, Establish environmental units to monitor the environmental performance of the development project in a proactive manner to ensure sustainable development,
- Consult relevant government institutions as the case may be,
- Report on a regular bases about its environmental performance,
- Establish database and network with all concerned parties, and respect local values and interests,
- Develop standardize environmental management system
- Be familiar with the pertinent EA related stipulations, etc.

5.2.4. Consulting firm

A consulting firm is an institution that can command the required qualified professional working group that has demonstrated the ability to undertake the EA, and meets the requirements specified under the relevant law. Environmental practitioners work in a multi-disciplinary workplace, and they are required to interpret and collate various datasets and information from a wide variety of sources into a report, and provide a reasoned opinion as to whether an activity should or should not be authorized and any conditions of approval that should be stipulated. The level of complexity, scope and scale of assessment should govern the level of expertise that is to be expected of a practitioner in all stages and functions.

The Competent Authority is mandated to consider the level of expertise of the practitioner. There should be no difference between the level of expertise of the practitioner compiling the report and making the recommendations; the practitioner reviewing the report, and the practitioner evaluating the report and making decisions. All practitioners need to demonstrate substantive knowledge (training), skills and competence (experience) and ethics (values) relevant to the level of complexity, scope and scale of an activity.

The firm that will be appointed to work on behalf of a proponent is expected to:

- ✚ have the expertise in environmental impact assessment and management commensurate with the nature of the proposed activity and legal requirements,
- ✚ make available an interdisciplinary team, having solid technical skills and legal Know-how, and local knowledge,
- ✚ Conduct the ESIA at specific development project site organizing the relevant the team of expert
- ✚ Collect real data by using tools (pictures , sounds Videos, etc..) and conduct Stakeholder's consultation at development project implementation site
- ✚ manage the participation of interested and affected parties in acceptable manner,
- ✚ have the facility to produce sensible reports that are through and informative,
- ✚ declare and ensure at all times that has no vested interest in the proposed activity and observe all ethical values of the calling,
- ✚ familiar itself with legal and technical requirements of all the concerned bodies, and be able to include :
 - ❖ statements from the regional environmental agencies,
 - ❖ certificates and recommendations from the sectoral agencies,
 - ❖ statements of local administration approval as the case maybe, and
 - ❖ an endorsed minutes of public consultation process by appropriate Local authority, as the verification of the truthfulness of all Information contained in the ESIA- report as well as fairness of the process,
- ✚ provide additional detailed information related to the environmental impact study report as may be requested,
- ✚ ensure that Interested and Affected Parties are provided with all means and facilities (e.g. notice, assembly holes, reasonable time, understandable language, fair representation, etc.) enabling them to adequately air their views and concerns,
- ✚ fulfill that they are legally registered and licensed to conduct the task,
- ✚ capable of presenting an authentic complete CV of experts to be employed for the task,
- ✚ Present a true, pragmatic, analytical, understandable, and impartial account of the proposed activity, etc.

6.4. Interested and Affected Parties (IAPs)

Interested and Affected Parties are individuals or groups concerned with or affected by the proposed activity or its consequences. These may include local communities, the work force, customers and consumers, environmental interested groups and the general public.

Interested and Affected Parties are expected to:

- ❖ Provide comments at various stages of EA with reasonable time frame,
- ❖ Work in partnership with Environmental Agencies and proponents,
- ❖ Act and lobby in good faith, knowledge, reason and in a cooperative manner
And use all means and facilities to ensure fairness in EA administration,
- ❖ Follow and monitor changes and inform the environmental and sectoral Agencies and local administration the occurrence of adverse incidence or any other grievance in the course of implementation of a development project or public instruments,
- ❖ Advocate and uphold the principle and values of environmentally Sustainable development, etc.

5.2.5. Licensing Agency

Licensing Agency is any organ of government empowered by law to issue an investment permit, trade or operating license or work permit or register business organization as a case may be.

Licensing agencies are required to:

- Ensure that prior to issuing their respective licenses and permits, have legal duty to require proponents to submit authorization, a letter of approval or Environmental Clearance Certificate awarded by the appropriate Environmental Agency,
- Ensure that environmental performance criteria are included in their respective sectoral incentive or disincentive structure,
- Ensure that renewal or additional permits issuance should also consider integration of environmental concerns,
- To seek advice or opinion from the appropriate environmental agency, etc.

5.2.6. Interested and Affected Parties (IAPs)

Interested and Affected Parties are individuals or groups concerned with or affected by the proposed activity or its consequences. These may include local communities, the work force, customers and consumers, environmental interested groups and the general public.

Interested and Affected Parties are expected to:

- ❖ Provide comments at various stages of ESIA with reasonable time frame,
- ❖ Work in partnership with Environmental Agencies and proponents,
- ❖ Act and lobby in good faith, knowledge, reason and in a cooperative manner and use all means and facilities to ensure fairness in ESIA administration,
- ❖ Follow and monitor changes and inform the environmental and sectoral agencies and local administration the occurrence of adverse incidence or any other grievance in the course of implementation of a project or public instruments,
- ❖ Advocate and uphold the principle and values of environmentally sustainable development, etc.

5.3. Delegation of decision making

One of the key reasons for delays in decision making is that the top management of most of the competent authorities is overloaded with the large number of applications that they have to consider. In many instances, especially where there are EMFs or other guidelines in place, it should be possible to delegate the authorization of smaller activities to middle management without much risk.

The policy was motivated by a push for greater decentralization, delegation of powers and Enhancing the ease of doing responsible. Consultant practitioners, government officials and stakeholders should have a clear understanding of the purpose of EA, its systems, processes and terminology. A good grasp of how the various EM tools relate to each other and the development planning process is also needed.

6. INTEGRATION OF DISASTER RISK REDUCTION, CLIMATE CHANGE AND BIODIVERSITY INTO ESIA PROCESS

6.1. Climate Change and Biodiversity

Biodiversity loss is one of the largest environmental concerns of the 21st century. In light of this, a primary goal of all EIAs should be to take on a broader mandate to conserve and protect biodiversity. The connection between biodiversity and climate change is clear. As flora and fauna adapt differently and provide different services to the surrounding environment, a more robust number of species helps the environment adapt better to changes in weather. This diversity also helps to reduce the impact of natural disasters in an area by helping to increase storm water absorption, control erosion and help an area recover more quickly in the event a natural disaster does occur. Considering that climate change and biodiversity are interconnected in a cause and effect feedback loop, a negative effect in one factor creates a continual downward trend in both.

While this downward trend can happen naturally, the influence of development projects can increase the speed at which this occurs. While all projects, through their environmental impacts, have potential negative effects on the environment, if implemented properly they can slow or stop this downward trend from occurring, helping to maintain balance in the ecosystem in the face of global climate change. In the end, identifying and integrating the relevant climate change issues and biodiversity factors into an ESIA will result in a more resilient project and save valuable financial, human and natural resources in the event of any extreme events caused by climate change.

Recognizing climate change and biodiversity issues early on in the ESIA are ensure the environmentally sound and socially acceptability of the any development.

Identifying climate change and biodiversity challenges during the screening and scoping phases of an ESIA will help to better inform the ESIA moving forward. Where information is available, historical data to help identify trends to compare to the most current baseline data collected will provide a better idea of the rate of biodiversity loss as well as any extreme changes in climate that may otherwise be regarded as normal. This data may be available from technical reports from earlier ESIAs or from government or scientific databases. Where quantitative data is unavailable, interviews and field observations with knowledgeable locals can help to provide a general idea of such trends.

Over-arching Principles:

- ✓ The GHG emissions from all projects will contribute to climate change; the largest inter-related cumulative environmental effect;
- ✓ The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directives;
- ✓ GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit, as such any GHG emissions or reductions from a project might be considered to be significant; and
- ✓ The EIA process should, at an early stage, influence the location and design of projects to optimise GHG performance and limit likely contribution to GHG emissions.

Assessment Principles:

- ❖ During scoping, climate change mitigation and adaptation issues and opportunities should be considered alongside each other to ensure integration in project design.
- ❖ The scope of GHG emissions must consider the relevant policy framework (local to global) and should also review the relevant findings in any associated SEA / SA.
- ❖ When assessing alternatives, consideration of the relative GHG emissions performance of each option should be considered alongside a range of other environmental criteria.
- ❖ Baseline considerations related to GHG emissions should refer to the policy framework and also

Baseline considerations related to GHG emissions should refer to the policy framework and also include the current situation and, where possible, take account of the likely future baseline situation.

Quantification of GHG emissions (e.g. carbon calculators) will not always be necessary within EIA; however, where qualitative assessment is used (e.g. emissions trends related to construction practices) it must be robust, transparent and justifiable.

- ❖ The assessment should aim to consider whole life effects including, but not limited to:
 - Embodied energy in the manufacture of materials

used for the development

- Emissions related to construction - from materials delivery to on-site machinery
 - Operational emissions related to the functioning of the development-including appropriate off-site emissions.
 - Decommissioning, where relevant.
- ❖ When evaluating significance, all new GHG emissions contribute to a significant negative environmental effect; however, some projects will replace existing development that have higher GHG profiles. The significance of a project's emissions should therefore be based on its net GHG impact, which may be positive or negative.
- ❖ Where GHG emissions cannot be avoided, the EIA should aim to reduce the residual significance of a project's emissions at all stages - design, construction, operation, etc.
- ❖ Where GHG emissions remain significant, but cannot be further reduced - having considered: financial, programme, operational, political and societal constraints - approaches to compensate the project's remaining emissions should be considered.

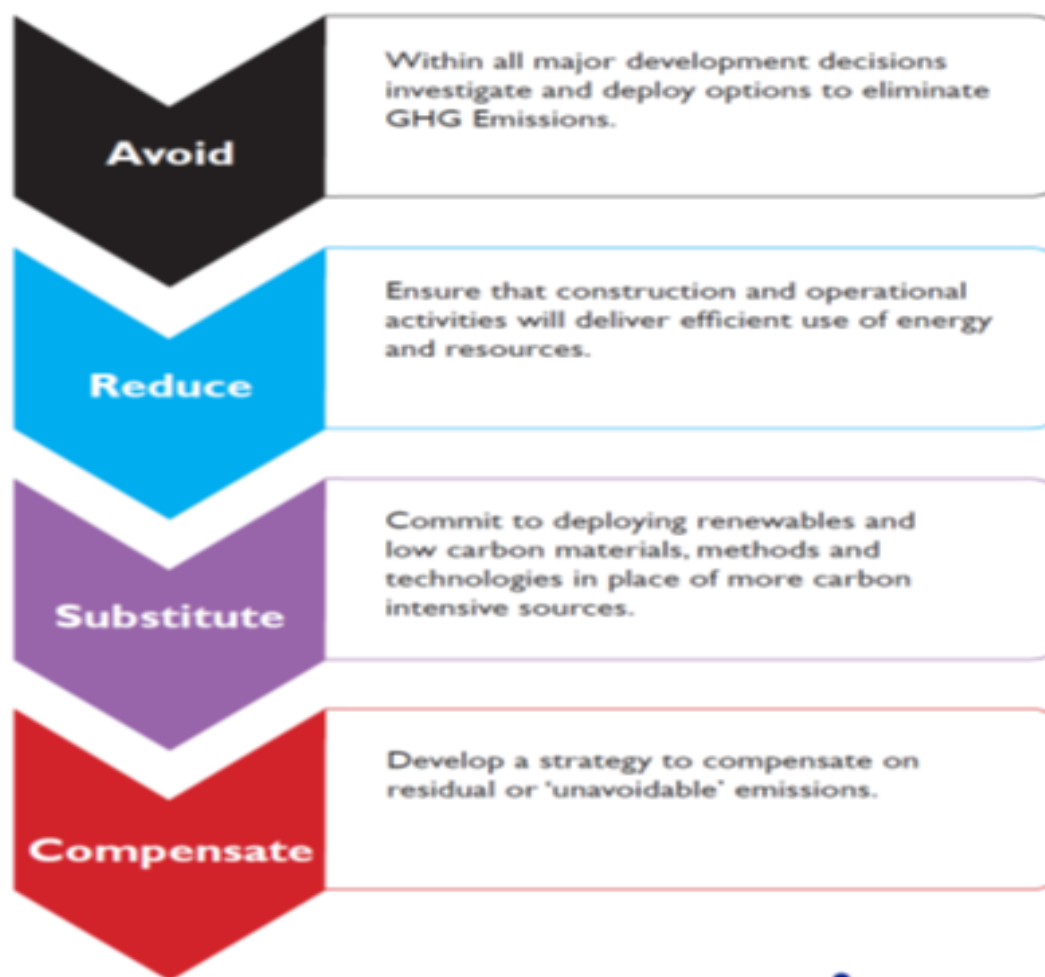
EIA hierarchy for managing project related GHG Emissions'

Figure 3: Hierarchy of GHG Reduction

6.1.1. Benefits of integrating Climate Change and Biodiversity in ESIA

For many types of project ESIA is the only legally-required tool for including environment issues at an early stage, when alternatives are still open and opportunities exist. Including climate change and biodiversity in ESIA helps to,

- ✚ Achieve climate and biodiversity objectives;
- ✚ Comply with national legislation and policies;
- ✚ Improve project reputation;
- ✚ Increase a project's resilience to climate change;

- ✚ Manage conflicts and potential synergies between climate change, biodiversity and other environmental issues; and
- ✚ Support the ecosystem services used by the project.

Achieving climate and biodiversity objectives

ESIA provides a way of assessing key issues effectively and transparently and highlights opportunities to achieve wider environmental objectives, in particular those related to climate change (including disaster risk management) and biodiversity. For climate change this might include, for example, exploring the possible synergies and conflicts between climate change mitigation and adaptation and therefore avoiding maladaptation. For biodiversity, it might include, for example, assessing how the objectives and measures of the *Biodiversity Strategy* can be integrated into the ESIA process.

Compliance with national legislation and policies

Addressing climate change and biodiversity in ESIA makes it easier to comply with the ESIA proclamation and relevant national laws. This is useful, since climate change and biodiversity are the subjects of many recent pieces of national legislation, policies and strategies, including national binding targets. Regional States are also likely to have a suite of legislative instruments relevant to climate change and biodiversity (e.g. building codes that promote energy efficiency, planning policies that avoid developing flood prone areas, species and site protection).

Project reputation

Aside from meeting public policy requirements, projects also have to address pressure from developers, local authorities and the general public and show that the project has a positive effect on the environment, or only a minimal negative effect. Environmental impact affects a project's and project developer's reputation. This is particularly true for greenhouse gas (GHG) emissions, in part due to climate change concerns, but also because reducing GHGs can improve energy efficiency and reduce costs.

Resilience of projects to a changing climate

A number of recent assessments on the vulnerability of sector specific to the changing climate have shown that most of infrastructure needs to be adapted to better cope with natural phenomena caused by climate change. This means considering that the design parameters identified at a project's inception may no longer be valid at the end of its potentially long lifespan. It represents a shift in thinking, from the traditional assessment of environmental impact to taking possible long-term risks into account.

Insurance firms, for instance, are already recognising the value of this way of thinking and including it in their risk assessments of natural hazards. ESIA can help projects to adapt to this shift through the concept of resilience. A project needs to be assessed against an evolving environmental baseline. ESIA should show an understanding of how the changing baseline can affect a project and how the project may respond over time. The ESIA process is particularly important since it can help set the context for projects; taking potential climate change impact (including disaster risks) into consideration in ESIA can make projects more resilient.

Managing conflicts and potential synergies between climate change, biodiversity and other environmental issues

Considering climate change mitigation and adaptation, biodiversity and other environmental issues together has many benefits and is cost-effective. For example, it creates win-win situations when ecosystem-based approaches are applied to climate mitigation and adaptation and helps avoid mitigation actions that either don't have any adaptive capacity or reduce the resilience of other factors. Managing these conflicts and potential synergies is one of the roles of ESIA.

Supporting ecosystem services

The ecosystem services provided by biodiversity also need to be considered as part of a project's development, as they can support its objectives and help in its implementation. For instance, a project could aim to reduce flood risk in a specific area and ensure the safety of and demand for local property; such a project may depend on a local wetland area to reduce flood risk or store water. Another example is a local green space that adds value to a residential development by

providing a recreation area and temperatures cooler than in the local urban environment.

Acknowledging a project's reliance on ecosystem services, and hence on biodiversity, can make it more effective, as well as supporting biodiversity and biodiversity policy objectives. However, the degree to which a project can use these services depends on the local and wider environmental limits affected by it and by other projects, as well as by wider drivers for change. ESIA can play an important role in helping to understand these relationships and the broader context.

6.1.2. Challenges of addressing Climate Change and Biodiversity in ESIA

It is the main characteristics of climate change and biodiversity that are most likely to pose significant challenges to addressing climate change and biodiversity in ESIA. They are:

- I. The long-term and cumulative nature of effects;
- II. Complexity of the issues and cause-effect relationships; and
- III. Uncertainty.

This section explains these aspects in more detail and tackles the question of how to deal with them more effectively throughout the EIA process. Table 2 (below) summarises ways of approaching them.

Table 1: Approach to challenges of integrating to climate change and biodiversity into ESIA

Key challenges	Tip how to approach them
Long-term and cumulative nature of effects	<ul style="list-style-type: none"> • Avoid 'snapshot' analyses (i.e. at a single point in time) and consider trends, <i>with</i> and <i>without</i> the proposed project; • Work with the notion of absorption capacity/environmental limits.
Complexity of the issues and cause-effect relationships	<ul style="list-style-type: none"> • Analyse the impact of proposed projects on key climate change and biodiversity trends and their drivers; • Work with worst-case and best-case scenarios.
Uncertainty	<ul style="list-style-type: none"> • Acknowledge assumptions and the limitations of current knowledge; • Base recommendations on the precautionary principle; • Prepare for adaptive management.

6.1.3. Climate Change and Biodiversity versus ESIA Process

This section provides guidance on integrating climate change and biodiversity throughout the ESIA process. It focuses on the ESIA areas where climate change and biodiversity have the most impact. It is divided into the following sub-sections:

- ✚ Identifying climate change and biodiversity concerns in ESIA (useful for screening and scoping);
- ✚ Analyzing evolving baseline trends;
- ✚ Identifying alternatives and mitigation measures;
- ✚ Assessing effects (cumulative effects and uncertainty);
- ✚ Monitoring and adaptive management.

Addressing climate change and biodiversity in the ESIA process brings new challenges for the ESIA practitioner. There will be situations in which the ESIA practitioner will have to make a judgment, preferably in consultation with stakeholders, to avoid unnecessarily extending the ESIA procedure or to leave enough time to properly assess complex information. Taking a practical, common sense approach to ESIA will sometimes be best.

Figure 6 (overleaf) shows the scope of this guidance and includes a set of questions related to specific topics addressed in it.

✚ Identifying Climate Change and Biodiversity concerns in ESIA Process

This section looks at how climate change and biodiversity issues could be better factored into ESIA. It can be useful in the screening and scoping stages of ESIA. Of course, the issues and impacts relevant to a particular ESIA will depend on the specific circumstances and context of each project (e.g. the sector concerned, location and scale, characteristics of the receiving environment, etc.).

The section is structured around four key recommendations:

- identifying **key issues early on**, with input from **relevant authorities and stakeholders**;
- determining whether the project may significantly change GHG emissions and defining the scope of any necessary GHG assessments (**climate mitigation concerns**);
- being clear about climate change scenarios used in the ESIA and identifying the key **climate change adaptation concerns** and how they interact with the other issues to be assessed in ESIA;

Identifying the key **biodiversity concerns** and how they interact with the other issues to be assessed in ESIA.

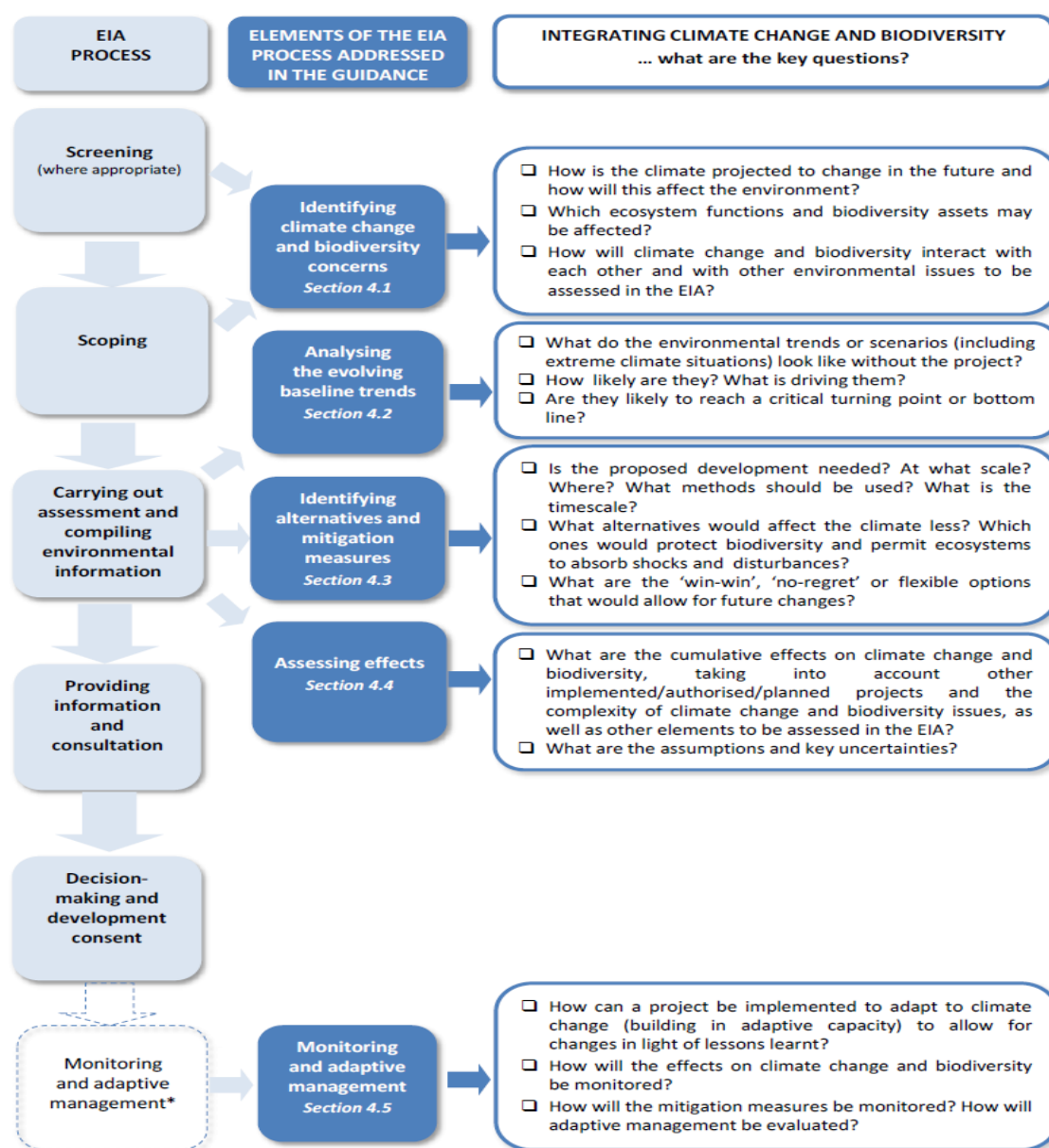


Figure 4: Integrating climate change and biodiversity into ESIA

Identifying key issues early on, with input from relevant authorities and Stakeholders

Identifying key climate change and biodiversity issues early on ensures that they are recognized by all involved and followed-up throughout the ESIA process. Involving relevant authorities and stakeholders at an early stage will improve compliance with the ESIA proclamation. It will also make it possible to capture the most important issues and establish a consistent approach to assessing impact and looking for solutions. Making use of the knowledge and opinions of environmental authorities and stakeholders can help to:

- highlight potential areas contention and areas of improvement in a timely and effective way;
- provide information on relevant forthcoming projects, policies and legislative or regulatory reforms, other types of assessments
- collect suggestions for building climate change mitigation and adaptation measures and/or biodiversity enhancement schemes into the proposed project from the very beginning.

The main climate change and biodiversity concerns are listed in Table 2, below. They can help you define a set of questions on climate change mitigation, adaptation and biodiversity. These could then be asked in the screening and/or scoping stages of ESIA process.

Table 2: Main climate change and biodiversity concerns to consider as part of ESIA process

Climate Change Mitigation	Climate Change Adaptation	Biodiversity
<ul style="list-style-type: none"> • direct GHG emissions caused by the construction, operation, and possible decommissioning of the proposed project, including from land use, land-use change and forestry; • indirect GHG emissions due to increased demand for energy; indirect GHG emissions caused by any supporting activities or infrastructure which is directly linked to the implementation of the proposed project (e.g. transport, waste management). 	<ul style="list-style-type: none"> • heat waves (including impact on human health, damage to crops, forest fires, etc.); • droughts (including decreased water availability and quality and increased water demand); • extreme rainfall, riverine flooding and flash floods; • storms and high winds (including damage to infrastructure, buildings, crops and forests); • landslides; • rising sea levels, storm surges, coastal erosion and saline intrusion; 	<ul style="list-style-type: none"> • degradation of ecosystem services; • loss of habitats, fragmentation (including the extent or quality of the habitat, protected areas, including habitat fragmentation or isolation, as impact on processes important for the creation and/or maintenance of ecosystems); • loss of species diversity (including species protected) • loss of genetic diversity.

For climate change in particular, both the impact of the project on climate and climate change (i.e. mitigation aspects) and the impact of climate change on the project and its implementation (i.e. adaptation aspects) should be considered early on in the ESIA process

Note that this list is not comprehensive and should be adapted. The issues and impacts relevant to a particular ESIA should be defined by the specific context of each project and by the concerns of the authorities and stakeholders involved.

- **Understanding key climate mitigation concerns :** When it comes to mitigation, the main concerns focus on GHG emissions. Implementing a project may lead to, for example:
- Direct increase in GHG emissions;
 - Increase in energy demand leading to an indirect increase in GHG emissions;
 - Embedded GHG emissions, e.g. due to energy use in material production, transport, etc.;
 - Loss of habitats that provide carbon sequestration, (e.g. through land-use change).

This guidance does not include any specific methodologies for calculating GHG emissions as part of the ESIA procedure. Table 3. (below) provides examples of basic questions that could be asked by ESIA practitioners when identifying major climate change mitigation concerns.

Table 3: Key questions asked when identifying key climate change mitigation concerns

Main concerns	Key questions that could be asked at screening and/or scoping stage of ESIA
Direct GHG emissions	<ul style="list-style-type: none"> • Will the proposed project emit carbon dioxide (CO₂), nitrous oxide (N₂O) or methane (CH₄) or any other greenhouse gases part of the UNFCCC? • Does the proposed project entail any land use, land-use change or forestry activities (e.g. deforestation) that may lead to increased emissions? Does it entail other activities (e.g. afforestation) that may act as emission sinks?
Indirect GHG emissions due to an increased demand for energy	<ul style="list-style-type: none"> • Will the proposed project significantly influence demand for energy? • Is it possible to use renewable energy sources?
Indirect GHG caused by any supporting activities or infrastructure that is directly linked to the implementation of the proposed project	<ul style="list-style-type: none"> • Will the proposed project significantly increase or decrease personal travel? Will the proposed project significantly increase or decrease freight transport?

Understanding key climate change adaptation concerns

Both a project's impact on climate change (i.e. mitigation aspects) and the impact of climate change on the project and its implementation (i.e. adaptation aspects) should be considered early on in the ESIA process. *How might implementing the project be affected by climate change? How might the project need to adapt to a changing climate and possible extreme events?*

When addressing climate change adaptation concerns as part of ESIA, you should not only consider the historical data on climate, but also clearly identify and present the climate change scenario that should be considered in the assessment process. A clear description of the climate change scenario facilitates discussion on whether the expected climatic factors should be considered in the project design and how they may affect the project's environmental context. ESIA practitioners, in particular, should outline extreme climate situations to be considered as part of the environmental baseline analysis.

You should also review any existing adaptation strategies, risk management plans and other national or sub-regional studies on the effects of climate variability and climate change, as well as proposed responses and available information on climate-related effects relevant to the project. expected key questions as indicated on table 4 below.

Table 4: key questions asked when identifying climate change adaptation concerns

Main concerns	Key questions that could be asked at screening and/or scoping stage of ESIA
Heat waves (take into account that heat waves are usually associated with water scarcity — see also the suggestions for droughts)	<ul style="list-style-type: none"> • Will the proposed project restrain air circulation or reduce open spaces? • Will it absorb or generate heat? • Will it emit volatile organic compounds (VOCs) and nitrogen oxides (NOx) and contribute to tropospheric ozone formation during sunny and warm days? • Can it be affected by heat waves? • Will it increase energy and water demand for cooling? • Can the materials used during construction withstand higher temperatures (or will they experience, for example, material fatigue or surface degradation)?
Droughts due to	<ul style="list-style-type: none"> • Will the proposed project increase water demand?

<p>long-term changes in precipitation patterns (also consider possible synergistic effects with flood management actions that enhance water retention capacity in the watershed)</p>	<ul style="list-style-type: none"> • Will it adversely affect the aquifers? • Is the proposed project vulnerable to low river flows or higher water temperatures? • Will it worsen water pollution — especially during periods of drought with reduced dilution rates, increased temperatures and turbidity? • Will it change the vulnerability of landscapes or woodlands to wild fires? Is the proposed project located in an area vulnerable to wildfires? • Can the materials used during construction withstand higher temperatures?
<p>Extreme rainfall, riverine flooding and flash floods</p>	<ul style="list-style-type: none"> • Will the proposed project be at risk because it is located in a riverine flooding zone? • Will it change the capacity of existing flood plains for natural flood management? • Will it alter the water retention capacity in the watershed? • Are embankments stable enough to withstand flooding?
<p>Storms and winds</p>	<ul style="list-style-type: none"> • Will the proposed project be at risk because of storms and strong winds? • Can the project and its operation be affected by falling objects (e.g. trees) close to its location? • Is the project's connectivity to energy, water, transport and ICT networks ensured during high storms?
<p>Landslides</p>	<p>Is the project located in an area that could be affected by extreme precipitation or landslides?</p>
<p>Rising sea levels</p>	<ul style="list-style-type: none"> • Is the proposed project located in areas that may be affected by rising sea levels? • Can seawater surges caused by storms affect the project? • Is the proposed project located in an area at risk of coastal erosion? Will it reduce or enhance the risk of coastal erosion? • Is it located in areas that may be affected by saline intrusion? • Can seawater intrusion lead to leakage of polluting substances (e.g. waste)?

❖ Understanding key biodiversity concerns

For biodiversity, key concerns should focus on ensuring ‘no-net-loss’ and should outline how ESIA can support this goal. The project may result in, for example:

- Changes in the provision of ecosystem services as a result of loss of species and habitats;
- Habitat loss and degradation, e.g. the destruction of wetlands, grasslands and forests for housing, etc.;
- Habitat fragmentation — ecosystems and their species need a certain amount of interconnectivity for processes to continue; breaking a natural area into smaller pieces, means that eventually species disappear and certain functions are lost;
- Loss of species, e.g. the plants and animals endemic to a particular habitat will not be able to survive if that habitat is destroyed or altered by development;
- Changes in natural environmental processes, such as continued river flow, water purification, coastal sediment transport, and erosion control, which can have long-term impact on habitats and species;
- direct impacts, for example birds colliding with power lines or wind turbines;
- The spread of invasive alien species that can transform natural habitats and disrupt native species;
- Effects of pollution on ecosystems and species.

Table 5: below provides examples of basic questions you could ask when identifying major biodiversity concerns.

Table 5: key questions that could be asked when identifying biodiversity concerns.

Main concerns	Key questions that could be asked at screening and/or scoping stage of ESIA
Degradation of ecosystem Services (including impact on processes)	<ul style="list-style-type: none"> • Will the proposed project directly or indirectly lead to serious damage or total loss of ecosystem or land-use type, thus leading to a loss of ecosystem services? Will it affect the exploitation of ecosystems or land-use type so that the exploitation becomes destructive or unsustainable? • Will the proposed project damage ecosystem processes and

important for creating and/or maintaining ecosystems)	<p>services, particularly those on which local communities rely?</p> <ul style="list-style-type: none"> • Is the project in any way dependent on ecosystem services? • Can increased supply of ecosystem services contribute to the project's objective(s)? • Will the proposed project result in emissions, effluents, and/or other means of chemical, radiation, thermal or noise emissions in areas providing key ecosystem services? As regards processes important for creating and/or maintaining ecosystems: • Will the proposed project change the food chain and interactions that shape the flow of energy and the distribution of biomass within the ecosystem? • Will the proposed project result in significant changes to water level, quantity or quality? • Will the proposed project result in significant changes to air quantity or pollution?
<p>Loss and degradation of Habitats (habitat fragmentation and isolation)</p>	<ul style="list-style-type: none"> • If habitats are lost or altered, are there alternatives available to support the species populations concerned? • Will the proposed project adversely affect any of the following: protected areas; threatened ecosystems outside protected areas; migration corridors identified as being important for ecological or evolutionary processes; areas known to provide important ecosystem services; or areas known to be habitats for threatened species? • Will the proposed project involve creating linear infrastructure and lead to habitat fragmentation in areas providing key and other relevant ecosystem services? • How seriously will this affect habitats and corridors, considering that they can also be adversely affected by climate change? • Are there opportunities to establish or further develop green

	infrastructure as a part of the project to support the project's non-environmental and environmental goals (e.g. adaptation to climate change or increasing connectivity of protected sites)?
Loss of species diversity	<ul style="list-style-type: none"> • Will the proposed project have direct or indirect negative impact on the species of Community? • Will the proposed project cause a direct or indirect loss of a population of a species identified as priority in National Biodiversity Strategies? • Will the proposed project alter the species-richness or species-composition of habitats in the study area? • Will the proposed project affect sustainable use of a population of a species? • Will the proposed project surpass the maximum sustainable yield, the carrying capacity of a habitat/ecosystem or the maximum allowable disturbance level of populations, or ecosystem? • Will the proposed project increase the risk of invasion by alien species?
Loss of genetic diversity	<ul style="list-style-type: none"> • Will the proposed project result in the extinction of a population of a particularly rare species, declining species or a species identified as one of Community interest, in particular of priority species? • Will the proposed project result in the extinction of a population of a particularly rare species, declining species or those identified as priorities in national biodiversity plans? • Will the proposed project result in the fragmentation of an existing population leading to (genetic) isolation?

Analyzing the evolving baseline trends

The evolution of the baseline, how the current state of the environment is expected to change in the future, is critical to understanding how the proposed project might impact that changing environment.

The baseline environment is a moving baseline. This is especially true for large-scale projects, which might only become fully operational after many years. During this time, the biodiversity in the project's area may change and the area may be subject to different climatic conditions, such as storms, increased flooding, etc. For long-term projects or those with long-lasting effects (timescales exceeding 20 years), you should ideally use climate scenarios based on climate model results. Such projects may need to be designed to withstand very different environmental conditions from current ones. For short-term projects, scenarios need to represent only near future' or present-day' climates.

When looking at the evolving baseline, you should consider:

- o **Trends in key indicators over time**, for example GHG emissions, indices of vulnerability, frequency of extreme weather events, disaster risk, key species such as farmland birds and the status of habitats or protected areas. Are these trends continuing, changing, or levelling out? Are there environmental outlooks or scenario studies available

that have looked at their likely future direction? If data are unavailable for certain indicators, can you use proxy indicators?

- o **Drivers of change** (both direct and indirect), which may cause a particular trend. Identifying drivers facilitates future projections, especially if some existing drivers are expected to change or new drivers are about to come into play and will significantly affect a given trend (e.g. already approved developments that have not been implemented yet; changes in economic incentives and market forces; changes in the regulatory or policy frameworks; etc.). Identifying drivers should not become a complex academic exercise it is only important to recognize drivers that will significantly change the trend and take them into account when outlining the expected future state of the environment.

- o **Thresholds/limits**, e.g. have thresholds already been breached or are limits expected to be reached? The ESIA may determine whether the given trend is already approaching an established threshold or if it is coming close to certain tipping points that can trigger significant changes in the state or stability of the local ecosystem.

- o **Key areas that may be particularly adversely affected by the worsening environmental trends** including, in particular, protected areas, such as areas designated pursuant to the Birds Directive and the Habitats Directive.
- o **Critical interdependencies**, for example water supply and sewage treatment systems, flood defences, energy/electricity supply, communication networks, etc.
- o **Benefits and losses brought by these trends and their distribution** may determine who benefits and who doesn't. Beneficial and adverse impacts are often not proportionally distributed within society changes in ecosystems affect some population groups and economic sectors more seriously than others.
- o **Climate change vulnerability** assessment needs to be built into any effective assessment of the evolution of the baseline environment, as well as of alternatives.

Major infrastructure projects, in particular, are likely to be vulnerable. When developing the baseline against which the project is to be evaluated it is also important to acknowledge uncertainty depending on the timescale and spatial scale some uncertainty is inevitable and will increase for large scale projects.

Identifying Alternatives and Mitigation Measures

In the early stages of the process, alternatives are essentially different ways in which the developer can feasibly meet the project's objectives, for example by carrying out a different type of action, choosing a different location or adopting a different technology or design for the project. The zero option should also be considered, either as a specific alternative or to define the baseline. At the more detailed level of the process, alternatives may also merge into mitigating measures, where specific changes are made to the project design or to methods of construction or operation to prevent, reduce and where possible offset any significant adverse effects on the environment.

Note that many alternatives and mitigation measures important from the point of view of biodiversity and climate change should be addressed at strategic level, in a Strategic Environmental Assessment (SEA). For example, to avoid problems associated with flood risk, planners should prevent projects from being developed on flood plains or areas of flood risk, or promote land management to increase water retention capacity.

Climate Change Mitigation

For **climate change mitigation**, it is important to investigate and use options to eliminate GHG emissions as a precautionary approach in the first place, rather than having to deal with mitigating their effects after they have been released. Mitigation measures identified as indicated on table 6: and introduced as a result of an ESIA, e.g. construction and operational activities that use energy and resources more efficiently, may contribute to climate change mitigation as well. However, this does not always mean that the project will have overall positive impacts as regards GHG emissions. Impact may be less negative in terms of quantity of emissions, but still have overall negative impact, unless the carbon used in development and transport is unequivocally equal to zero.

Bear in mind that some ESIA mitigation measures that address climate change can themselves have significant environmental impact and may need to be taken into account (e.g. renewable energy generation or tree planting may have adverse impacts on biodiversity).

Table 6: Alternatives and mitigation measures related to climate change mitigation concern

Main Concern	Example of alternatives and mitigation measures
Direct GHG emissions	<ul style="list-style-type: none"> • Consider different technologies, materials, supply modes, etc. to avoid or reduce emissions; • Protect natural carbon sinks that could be endangered by the project, such as peat soils, woodlands, wetland areas, forests; • Plan possible carbon off-set measures, available through existing off-set schemes or incorporated into the project (e.g. planting trees).
GHG emissions related to Energy	<ul style="list-style-type: none"> • Use recycled/reclaimed and low-carbon construction materials; • Build energy efficiency into the design of a project (e.g. include warmcel insulation, south facing windows for solar energy, passive ventilation and low-energy light bulbs); • Use energy-efficient machinery;

	<ul style="list-style-type: none"> • Make use of renewable energy sources.
GHG emissions related to transport	<ul style="list-style-type: none"> • Choose a site that is linked to a public transport system or put in place transport arrangements; • Provide low-emission infrastructure for transport (e.g. electric charging bays, cycling facilities).

Climate Change Adaptation

In terms of **climate change adaptation**, different types of ESIA alternatives and mitigation measures (see box overleaf) are available for decision-makers to use in planning the adaptation of projects to climate change. The most appropriate mix of alternatives and/or mitigation measures will depend on the nature of the decision being made and the sensitivity of that decision to specific climate impacts and the level of tolerated risk. Key considerations include:

- no-regret‘ or ‘low regret’ options that yield benefits under different scenarios;
- win-win-win` options that have the desired impacts on climate change, biodiversity and ecosystem services, but also have other social, environmental or economic benefits;
- favouring reversible and flexible options that can be modified if significant impacts start to occur;
- adding safety margins‘ to new investments to ensure responses are resilient to a range of future climate impacts;

promoting soft adaptation strategies, which could include building adaptive capacity to ensure a project is better able to cope with a range of possible impacts (e.g. through more effective forward planning);

- shortening project times;
- delaying projects that are risky or likely to cause significant effects.

If, based on an assessment of specific risks and constraints, alternatives and mitigation measures are considered as presented on table 7: below and impossible or too expensive, the project may have to be abandoned.

Table 7: Examples of alternatives and mitigation measures related to climate change adaptation concerns

Main concerns	Example of alternatives and mitigation measures
Heat waves	<ul style="list-style-type: none"> • Ensure that the proposed project is protected from heat exhaustion; • Encourage design optimal for environmental performance and reduce the need for cooling; • Reduce thermal storage in a proposed project (e.g. by using different materials and colouring).
Droughts	<ul style="list-style-type: none"> • Ensure that the proposed project is protected from the effects of droughts (e.g. use water-efficient processes and materials that can withstand high temperatures); • Install livestock watering ponds within animal-rearing systems; • Introduce technologies and methods for capturing storm water; • Put in place state-of-the-art wastewater treatment systems that make reusing water possible.
Wildlife fires	<ul style="list-style-type: none"> • Use fire-resistant construction materials; • Create a fire-adapted space around the project (e.g. use fire-resistant plants).
Extreme rainfall, riverine flooding and flash floods	<ul style="list-style-type: none"> • Consider changes in construction design that allow for rising water levels and ground water levels (e.g. build on pillars, surround any flood-vulnerable or flood-critical infrastructure with flood barriers that use the lifting power of approaching floodwater to automatically rise, set up backwater valves in drainage-related systems to protect interiors from flooding caused by backflow of wastewater, etc.); • Improve the project's drainage.
Storms and winds	<ul style="list-style-type: none"> • Ensure a design that can withstand increased high winds and storms.
Landslides	<ul style="list-style-type: none"> • Protect surfaces and control surface erosion (e.g. by quickly

	establishing vegetation hydro-seeding, turfing, trees); • Put in place designs that control erosion (e.g. appropriate drainage channels and culverts).
Rising sea levels	• Consider changes in construction design to allow for rising sea levels (e.g. building on pillars, etc.).

Biodiversity

For **biodiversity**, ESIA should focus on ensuring ‘no-net-loss’ and avoiding effects from the start, before considering mitigation, with compensation being used as a last resort. ESIA mitigation measures for biodiversity can also help to mitigate and adapt to climate change. For example, creating new habitats, green spaces, green corridors, green and brown roofs (enhancement) can help maintain and enhance biodiversity, aid species in adapting to long term climate change, and provide essential ecosystem services such as flood storage capacity, rainfall interception, shade and heat regulation and air quality regulation as part of adaptation to climate change.

As a last resort, biodiversity offsets can be used to compensate for significant negative impacts arising from a project, after appropriate prevention and mitigation measures have been taken. However, compensation will not always be possible: there are cases where a development proposal can be rejected on grounds of irreversible damage to, or irreplaceable loss of, biodiversity. You should apply the precautionary principle when considering risks and adjust your proposal, rather than try to defend it against significant biodiversity effects as presented on table 8: below..

Table 8: Alternatives and mitigation measures related to biodiversity concerns

Main concerns	Example of alternatives and mitigation measures
Degradation of ecosystem Services	• Restore degraded ecosystems on the site to enhance ecosystem services.
Habitats , (habitat fragmentation and isolation)	Use an ecosystem services approach, ecosystem-based approaches and green infrastructure: • Green bridges and eco-ducts (elements of green infrastructure) re-connect natural areas divided by linear developments (e.g. roads or

	railway lines). They reduce accidents involving wild animals and cars, allow animals to move easily and safely from one area to another, and help plant species to spread. This gives animals more space to find food and shelter, and allows populations of the same species to interact, improving the overall resilience of the species.
Species diversity	<ul style="list-style-type: none"> • Introduce design alternatives to avoid adverse effects on bird species (e.g. size, height, spacing, lighting and visibility of wind turbines); • Consider timing of construction, maintenance and decommissioning; • Deliver ‘smart conservation’, e.g. by promoting well-designed parks, walking paths, green roofs and walls that can contribute to species diversity and to tackling climate change related to urban infrastructure projects.

Assessing Significant Effects

Many assessment approaches used in the ESIA process have the capacity to address biodiversity and climate change. There are, however, three fundamental issues that you should consider when addressing climate change and biodiversity: *the long-term and cumulative nature of effects, complexity of the issues and cause-effect relationships and uncertainty of projections.*

- **Long-term and cumulative nature of effects**

Climate change and biodiversity are generally complex issues with long-term impacts and consequences. ESIAAs that aim to properly address biodiversity and climate should take this into account and assess the combined impact of any number of different effects. This requires an understanding of evolving baseline trends and an assessment of the cumulative effects of the project on the changing baseline.

There are a number of tips and approaches to be considered when assessing the cumulative effects of climate change and biodiversity in ESIA:

- I. **Recognize cumulative effects early on in the ESIA process**, in the scoping stage if possible. Talking to the right stakeholders as early as possible can give the wide overview needed to better understand how seemingly insignificant individual effects can have greater consequences when considered together.

- II. **Pay attention to the evolving baseline** when assessing the cumulative effects of climate change and biodiversity impacts. The current state of the environment will not necessarily be the future state of the environment, even if the proposed project does not go ahead. Moreover, both the climate and the species that make up the natural world are in a constant state of flux. A changing climate may mean that the design and operational management of a project meant for a certain climate scenario will no longer be relevant in 20 years' time. For instance, warmer summers may increase the susceptibility of materials to heat deformation or increase the risk of wildfires to a project. Considering potential impacts such as these is a unique challenge of climate change within ESIA.
- III. **Distinguish between magnitude and significance and use significance criteria** a large magnitude impact may not be significant if the species affected is common, widely distributed and readily able to recover, but a small magnitude impact may be very significant to a highly sensitive or rare species or habitat. Significance criteria can be developed from existing policy and guidance documents, such as: biodiversity strategies; biodiversity action plans for habitats and species; international, national and local designations: legislation; and/or using an ecosystem-based approach by identifying the valued ecosystem services and how these will be affected by drivers of change over time.
- IV. **Where possible, use causal chains or network analysis** to understand the interactions and associated cumulative effects between specific elements of the project and aspects of the environment. The point is not to be comprehensive, but to understand which cumulative effects might be most significant. These can often be identified with stakeholders who can help work through potential pathways in causal chains.

✓ **Complexity of the issues and cause-effect relationships**

Many of the recommendations regarding assessing a project's long-term and cumulative effects addressed on the above will also help address the complexity of climate change and biodiversity and understand the cause-effect relationship they have with each other, as well as with other issues assessed within an ESIA.

The complexity of climate change and biodiversity should not deter you from analysing direct and indirect impacts the proposed project could have on trends in key issues. At times, this will require

simplified models that give best estimates of emissions and impacts, e.g. using best-case and worst case scenarios to illustrate different future states under various assumptions. Judging an impact's magnitude and significance must be context-specific. For an individual project the contribution to GHGs may be insignificant on the global scale, but may well be significant on the local/regional scale, in terms of its contribution to set GHG-reduction targets.

Biodiversity impacts will also depend on geographical and temporal scales of impact and the sensitivity of the habitat or species concerned. For instance, a project's implementation could have possible negative effects on a species that is relatively common at global level, but is the only viable population of that species at local level. Accordingly using casual chains or network analysis should help to understand the complexity of the issues and cause-effect relationships.

✓ **Uncertainty**

One of the tasks of describing expected impacts is to help audiences understand what is known with a high degree of confidence and what is relatively poorly understood. Decision-makers and stakeholders are used to dealing with uncertainty all the time (e.g. economic growth, technological change) and they will be able to use such information. It will be important to reassure them that considering a range of possible uncertain futures and understanding the uncertainties is part of good EIA practice and permits better and more flexible decisions.

The key principle in communicating uncertainty is avoiding complex or obscure language. Those undertaking ESIA should describe the sources of uncertainty, characterise its nature and explain the meaning of phrases used. Using everyday language to describe uncertainty can make the concept more accessible, but there is a risk of misunderstanding, as people may have personal and differing interpretations of terms like 'high confidence'.

Monitoring and Adaptive Management

Although monitoring is not required by the ESIA Directive, it can be identified and implemented as a mitigation measure. For example, such monitoring measures could be linked to the environmental conditions set in development consent as a result of the ESIA procedure (e.g. adherence to agreed flight schedules in order to avoid increasing noise or GHG emissions levels for airports). Moreover, generating recommendations for monitoring the impact of implementing a project, in order to identify any unforeseen adverse effects and take appropriate remedial action, is good ESIA practice.

This guidance emphasises the importance of analysing long-term trends related to climate change and biodiversity, assessing direct and indirect impacts of proposed projects on these trends, acknowledging assumptions and uncertainty in the assessment process and ideally choosing a project design and implementation that allows for changes in light of lessons learnt. If project implementation does allow for changes to be made, ESIA practitioners may find it useful to consider the principles of adaptive management.

A key feature of adaptive management is that decision-makers seek development strategies that can be modified once new insights are gained from experience and research. Learning, experimenting and evaluation are key elements of this approach. Adaptive management requires the flexibility to change decisions as new information becomes available. While this may not always be possible, project development designs and permits should increasingly allow for changes in project structure and operation, if changes in the environmental context make them necessary (e.g. increasing severity of flooding, droughts, heat waves, changes in habitats and migration corridors, need for changes in buffers of areas important for protection of biodiversity, etc.). ESIA may facilitate adaptive management by clearly acknowledging assumptions and uncertainty and proposing practical monitoring arrangements to verify the correctness of the predictions made and bring any new information to the attention of decision-makers. When designing such systems, ESIA practitioners will need to expand project owners' and stakeholders' knowledge and awareness, ensure their commitment and propose approaches to project implementation that provide for flexibility.

6.2. Disaster Risk Reduction (DRR)

Ethiopia is one of the most disaster-affected nations in Africa. The risk profile of the country includes susceptibility to drought, floods, human epidemics, livestock diseases, crop pests and forest and bush fires. Alarmingly this risk profile and the pressures they place on communities, their livelihoods and the environment is expected to increase with changes in climate. As a pro-active measure, the Ethiopia government has recently (2013) developed a new policy to guide disaster risk management activities within the country. This policy covers a wide range of issues including (but not limited to) the development of comprehensive disaster risk management systems, early warning and disaster assessment information informed response, disaster declaration systems and processes, decentralised disaster risk management, mainstreaming of disaster risk management into sectoral

institutions and the importance of cross-cutting issues. This policy emphasises the commitment to change the country's approach to disaster risk management from a narrow response orientation to a more holistic risk reduction approach. To this end, the incorporation of cross-cutting issues as a strategic part of the policy recognises that if risk is to be reduced activities must be implemented in such a way that they can contribute to environmental protection, sustainable development and climate change adaptation.

To realise the effort of integrating and addressing cross-cutting issues through DRR, Ethiopia's disaster management policy has identified lead sector agencies such as the Ministry of Agriculture, Ministry of Environment and Forestry and the Ministry of Water, Irrigation and Energy and given these departments the responsibility to not only take responsibility for leading hazard specific risk reduction efforts, but also to integrate their everyday activities within the broader scope of disaster management. Ethiopia has also established an Environmental Policy of Ethiopia to manage the country's environment and natural resources. The overall policy goal is —to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs. Key to achieving this goal is integrated and cross-sectoral management of environmental resources. Specifically the policy identifies that natural resource and environmental management should be integrated laterally across all sectors and vertically among all levels of organisation. This implies that related fields of work such as sustainable development, disaster management and climate change adaptation should also integrate concepts and policies that promote environment and resource management. Crucially, the policy also recognises the need for integrating cross-sectoral and sectoral federal, regional and local policies and strategies to achieve the outcomes of the policy. This therefore recognises the need for the integration of sustainable development, disaster management and climate change adaptation into the day-to-day function of the Environmental Protection Authority of Ethiopia, as this type of integration will allow the organisation to holistically address socio-ecological problems.

6.2.1. ESIA and Disaster Risk Assessment

The increasing incidence and intensity of natural hazards and climate change have a distinct impact on the environment and vice versa and must therefore be seen as an integrated whole. In this context environment refers to all of the external factors, conditions, and influences that affect an organism or a community. This includes everything that surrounds an organism or organisms, including both natural and human-built elements. Environmental concerns are essential components of human well-being and contribute positively to human security, providing basic materials for good life, health and social relations. If these are being compromised and overexploited it will ultimately lead to increase of natural hazards.

When natural hazards becomes a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources it is referred to as a disaster. In other words we can say that *disaster risk = (hazard x vulnerability) / capacities*.

Disasters are often portrayed as acts of nature, or of a natural order. Yet this is not an accurate reflection of reality. The major factors influencing disaster risks are human and social vulnerability, matched with the overall capacity to respond to, or reduce the impact of natural hazards. An integrated approach including environmental conservation is often enough adopted in the field of disaster risk reduction. At the same time relief organizations tend to focus on damage to life and property, ecological services and their indirect economic values are often omitted completely from disaster assessments. Mainstreaming ecosystem concerns- both ecological and economical- into the development agenda and integrating them into disaster risk reduction, becomes essential. An ecosystem is a functional unit consisting of all the living organisms (plants, animals and microbes) in a given area, as well as the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow.

Risk assessment is a common first step in a community based disaster risk reduction process and there is a variety of tools available. Among the tools Strength, weakness, opportunity and threat (SWOT) analysis is the best. SWOT analysis can be a useful tool in the initial phase of a risk assessment as guidance for the community to capture and identify the community's overall areas of development including geographic and programmatic scope of action, perceived effectiveness and

level of acceptance and support by community members and local institutions. Identification of the SWOT is essential because subsequent steps in the process of planning for achievement of the selected objective for the community might come as a result from the SWOT analysis. The benefits of the technique are the identification of the links between each of the perceived threats which relates to the community's weaknesses, the weaknesses to related opportunities, and the opportunities to related strengths. The items at which the most lines (links) converge indicate the priority threats to be mitigated, weaknesses to be corrected, opportunities to be seized, and strengths to be reinforced. An example of results from a SWOT analysis is presented in the table 9: table.

Table 9: Fictive Results of a SWOT analysis

Strengths	Weakness	Opportuniti	Threats
Local knowledge of water resources and seasonal floods	Lack of people centered early warning systems	Well established flood management systems	Information about floods are not reaching the population in timely or comprehensible manner
Autonomy for the local governmental administration	Lack of integration of environmental conservation in local development plans and policies	Ability to carry out development plans and policies without macro management from national level	Local government show little interest in investing in environment and disaster risk reduction

The SWOT analysis can be complemented by an Environmental and Social Impact Assessment (ESIA) which is one of the Environmental Management tools that provides information on the environmental impacts of activities. The ESIA encourage the private sector and individuals to consider the impacts of their actions on vulnerability factors. As part of a detailed risk assessment ESIA can provide alternative solutions for how to include environmental considerations in disaster risk reduction measures. The focus on environmental change as a parameter of risk also reminds us that risk is not always systematic but rather it changes with time, social, political and economic conditions, and reflects vulnerability and capacities for a specific community at any given time.

6.2.2. The role of ESIA in Disaster Risk Reduction (DRR)

No part of the world is immune from some forms of natural disasters, and it is a well-known fact that some regions are more exposed to hazards like earthquakes, typhoons or crop failures (through drought, flooding and insect attack) than others. If they survive the immediate impacts of a disaster,

people living under conditions of hardship and poverty are more likely to succumb to illness than well off communities. The poor also have few, if any resources, with which to rebuild their lives.

The international community has been increasingly seeking ways to reduce risk and strengthen vulnerable communities in disaster-prone areas. In January 2005, agreement was reached at the World Conference on Disaster Reduction, named the Hyogo Framework for Action 2005-2015. This framework defines reducing the underlying risk factors as its Priority for Action.

Human societies cannot be dissociated from the environment that they shape and which in turn influence their development and livelihoods. Together they form a comprehensive system with intrinsic levels of vulnerability and inherent coping mechanisms. The less degraded the environmental component of this system, the lower its overall vulnerability and the higher its coping capacity.'

Principles set out in the Hyogo Framework are acknowledged by the UNISDR, which defines ten Opportunities for Environment in the context of disaster prevention or reduction:

- i. Engage environmental managers fully in national disaster risk management mechanisms;
- ii. Include risk reduction criteria in environmental regulatory frameworks;
- iii. Assess environmental change as a parameter of risk;
- iv. Utilise local knowledge in community-based disaster risk management;
- v. Engage the scientific community to promote environmental research and innovation;
- vi. Protect and value ecosystem services;
- vii. Consider environmental technologies and designs for structural defences;
- viii. Integrate environmental and disaster risk considerations in spatial planning;
- ix. Prepare for environmental emergencies; and,
- x. Strengthen capacities for environmental recovery.

All of these principles are directly relevant to the role of ESIA in DRR, in particular Principles 2 and 8. ESIA is one of the most comprehensive tools for integrating risk assessments into regulatory frameworks and spatial plans.

The main functions of ESIA in relation to DRR may include:

- Assessing vulnerability of different ecosystems, habitats, land uses and livelihoods to given types of natural disasters, and preparing spatial plans and maps to show vulnerability zones ;
- Helping to quantify the rates and magnitude of environmental changes that are taking place from various causes (*i.e.* human induced or natural processes) and interpreting the effects of

these changes on disaster risk; Assessing how development activities may be threatened or optimised by particular types of disaster risk;

- Mainstreaming specific disaster reduction measures in project prepared at national and regional levels;
- Identifying ways of strengthening mitigation measures and improving disaster preparedness plans and early warning systems.

Consideration of disaster risk as an integral part of the environment requires assessment of the potential environmental impact on the proposed project. Natural hazards are significant features of the environment in the Ethiopia and therefore a well conducted ESIA ought to consider the interaction of the project with environmental variables. This means that the project's effect on the environment will be as critical in the analysis as the impact of the environmental variables on the project. Consideration of risk forms part of project evaluation through the project cycle, and vulnerability to specific hazards are essential to risk analysis in the context of project viability and sustainability. Mechanisms for improving project selection, siting, planning, design, and implementation in vulnerable areas will be facilitated through the Disaster Risk Assessment process. In addressing anticipated adverse impacts from natural hazards, the implementation of appropriate mitigation and adaptation planning and management mechanisms must be considered.

A key factor affecting public acceptability of and support for any proposed development is the level and nature of public consultation that has been undertaken and the amount of public input obtained in the project design. It is well understood that, to be effective, the ESIA process should ensure transparency in all decision-making; provide timely, adequate and accurate information to the public; and provide access to the public to all relevant documents that are not confidential.

The key steps in the ESIA process are presented in Figure 5: shows the ESIA process when natural hazard considerations are fully integrated. It can be seen that the consideration of natural hazards creates few additional requirements when undertaking any ESIA, and does not require any structural change to the overall ESIA process.

In the following sections a step-by-step description of the ESIA process is provided. The objective, information needs and process is presented for each step in the generic ESIA process, followed by a discussion of the natural hazard considerations and analyses to be addressed in that step.

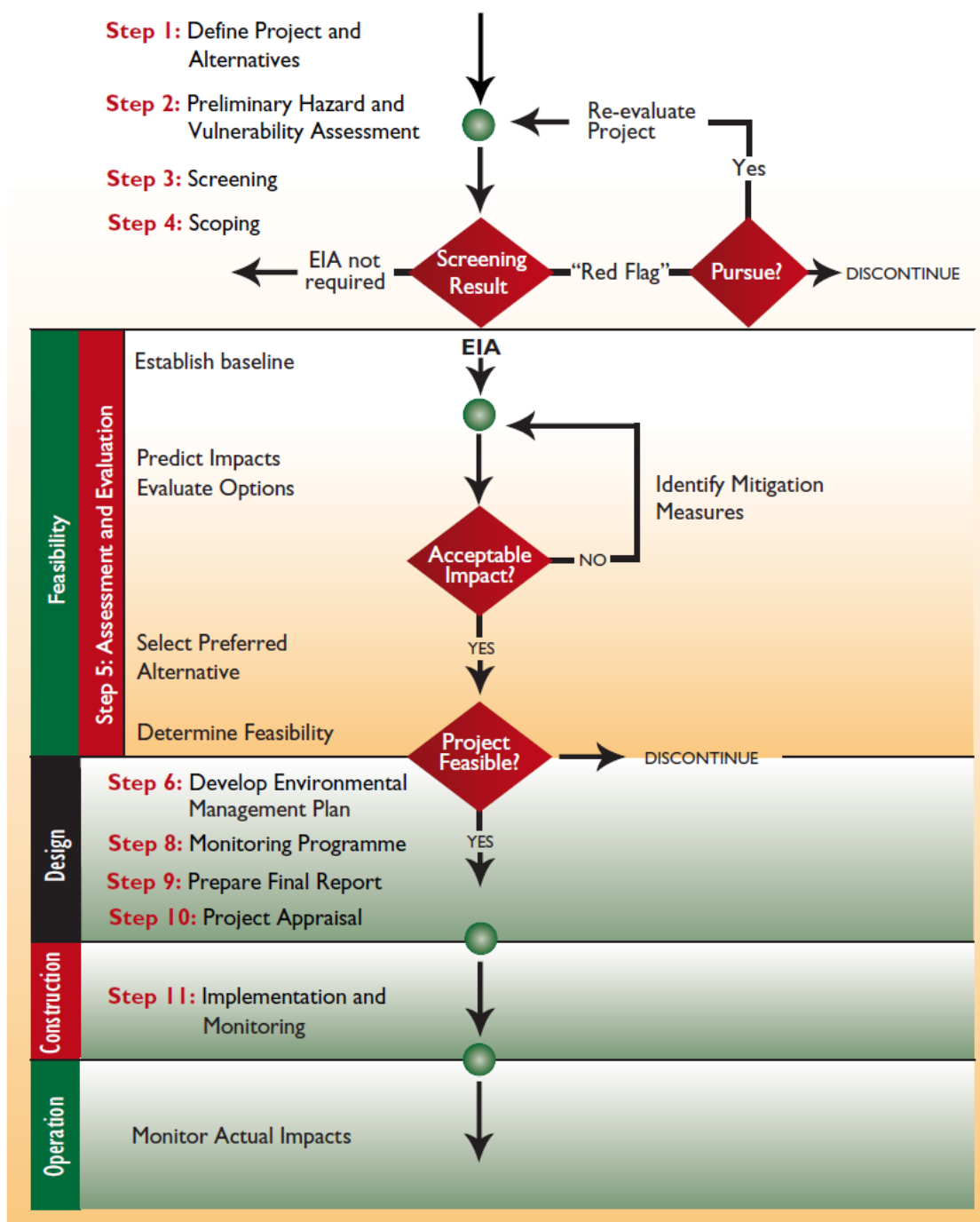


Figure 5: Generic Natural Hazard Vs EIA flowchart

6.2.3. Women and Disaster Risk Reduction (DRR) Measures

Disaster risk has become shorthand for the risk of a disaster occurring. It refers to the potential disaster losses – in lives, assets, livelihoods, etc. – which could occur to a particular community or society over some specified future time period. The term disaster risk is used to distinguish from

other types of risk, such as financial risk. Risk refers to the probability of future losses. Risk is often expressed in terms of three factors (Hazard, Vulnerability and Exposure), which are sometimes represented as an equation:

$$\text{Risk} = \text{Hazard} * \text{Vulnerability} * \text{Exposure}$$

It is important to distinguish between these three factors as they require different sets of actions and policies in order to reduce disaster risk. This risk formula (and its numerous variations) is used differently depending on the context, whether political or for measuring risk, i.e., developing risk maps for determining dangerous areas for human settlement. Vulnerability is composed of several components, including physical, social, economic and environmental. Vulnerability is often considered the most difficult component of risk to assess and evaluate because there are many different ways to interpret vulnerability. For example, a geologist may measure vulnerability as the degree of loss of infrastructure due to a landslide, while an economist may measure vulnerability in terms of per capita GDP or household income, and a social scientist may use literacy rates or social status.

A number of things can contribute to increasing risk in each of the risk factors, many of which are related either directly or indirectly to poor environmental management as indicated on figure 6: below. environmental issues, governance, social factors and lack of awareness or preparedness contribute to creating hazards and increasing exposure and vulnerability. Addressing these factors is therefore important to reduce disaster risk. As stated earlier, working on exposure gives the most immediate potential to reduce the risk from disasters. Working on hazard and vulnerability reduction are longer term processes that can be more challenging because they span multiple sectors and the organisation of societies.



Figure 6: Examples of the factors leading to increased disaster risk for each component

As seen earlier, women may be affected differently by disasters. Clearly, when women's vulnerability is reduced, it can have a great impact on DRR. This can be done by addressing the following:

Hazards – In some places, women's roles as stewards of natural resources means they have the potential to reduce environmental degradation and the likelihood of hazards. UN WOMEN (2016) notes that women are change agents, leaders and innovators. In devising climate responses, including those relating to adaptation and capacity building, women should not be passive recipients but play an active role in identifying solutions.¶ (UN WOMEN 2016:3)

Exposure – Women can be more exposed than men to certain natural hazards due to their gender specific roles and responsibilities; although sometimes the opposite can be true. Women may be involved and affected differently at each phase of the DRR cycle Figure 7: both in the pre-disaster phase starting from the risk and vulnerability assessment to risk reduction, to disaster preparedness, as well as in the post-disaster phase including relief, early recovery/transition, reconstruction, and development and ongoing risk reduction. Women need to be kept informed about evacuation procedures, early warning systems in order to reduce their and their family's exposure. When empowered, women may also have different influence at each phase of the cycle. This view is echoed by UNDRR in their 2008 report on how gender perspectives can be integrated into DRR (UNISDR 2008). The report notes that —when women are supported to be active participants in preparedness and response efforts, their role within families and communities has been used to great advantage. Women's responsibilities in households, communities, and as stewards of natural resources, position them well to develop strategies for adapting to changing environmental realities.¶ (UNISDR 2008)

Vulnerability – As discussed above, gender cuts across poverty and other forms of inequalities and more women than men are considered to be vulnerable. This is due to a host of factors, including socio-cultural norms, economic factors and gender-biased perspectives of policy makers and practitioners. Since there is a demonstrable link between vulnerability and the likelihood of being affected by disasters, it is imperative that DRR measures specifically address gender considerations. Therefore, it is necessary to address gender-based inequalities with a focus on how they intersect

with one's class, sexual orientation, ethnicity, minority, disability, and displacement, marital status, among other factors.

There are several phases to DRR and actions are usually divided into two main categories of measures:

- 1) **Structural measures**, which relate to any physical construction to reduce or avoid possible impacts of hazards;
- 2) **Non-structural measures**, which relate to knowledge, policies, laws, public awareness raising, training and education for disaster prevention and preparedness.

These measures are implemented at different times of the disaster management cycle. The actors involved in these types of measures range from government agencies to local communities. The disaster management cycle comprises of four categories. It typically starts at the event, i.e. as soon as a disaster hits. This is the state of emergency and response needs to be immediate focusing on saving lives. The second phase starts the process of recovery where restoration and reconstruction take place. The third phase is mitigation, decreasing vulnerability and building capacity. Finally, preparation is important so that if there is another disaster, plans are in place to reduce the impact of the disaster. These phases will be revisited in later chapters with an emphasis on prevention by reducing vulnerability.

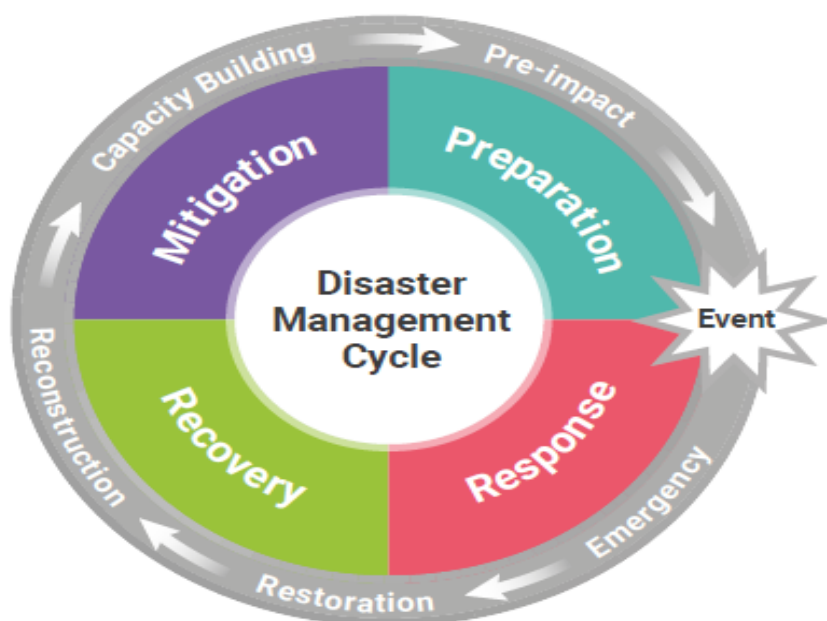


Figure 7: Disaster Management Cycle

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-Strategic Environmental Assessment and Biodiversity Guidance. CBBIA, Nov. 2004. 46 pages. SEMII: The SEMII development project provided many IEE and ESIA memo reviews (to help identify typical report shortcomings) and these draft checklists (which were revised by the Consultant):

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-The Resettlement Action Plan checklist.

-Source; <https://www.un.org/youthenvoy/2013/08/unep-united-nations-environment-programme/>

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-United Nations Environment Programme. *Environmental Impact Assessment Training Resource Manual*. UNEP Division of Technology, Industry and Economics Economics and Trade Branch, 2002.

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http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines

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<https://www.nilebasin.org/new-and-events/284-ethiopia-to-host-nile-basin-development-forum-2020>

¹<https://www4.unfccc.int/sites/NAPC/Documents/Parties/NAP-ETH%20FINAL%20VERSION%20%20Mar%202019.pdf>

8. LIST OF ANNEXES

8.1. Annex 3. Categories of Activities

There are three major classes of action (Categories) that prescribe the level of documentation required in the environmental assessment process.

Category 1 (Inclusion/Mandatory List). Actions that are perceived to have potentially significant environmental effect on the environment require full ESIA report or environmental impact statement (EIS). Projects that fall into this category (inclusion list) must forego a detailed environmental study, including primary and secondary data collection, public participation and disclosure, with a final output presented to the competent authority for review and approval in the form of a full ESIA report (EIS).

Category 2. Actions in which the significance of the environmental impact is either not clearly established or potential environmental impacts are not widespread, considered to be less complex, or are relatively easy to mitigate. All development actions included in this category require the preparation of a preliminary environmental impact study report or an initial environmental examination (IEE).

Category 3 (Exclusion List). Actions that do not individually or cumulatively have a significant environmental effect or are considered to be environmental improvement are included in this category (exclusion list) and do not require to prepare an IEE or EIS. A specific list of categorical exclusions is presented below. Such projects normally do not require environmental documentation and will receive an environmental clearance letter from the competent authority and licensing agency as per the requirements set forth in the ANRS environmental Proclamation. When appropriately documented and approved by the competent agency, additional projects may also qualify to be included in Category 3 (categorical exclusion list).

In the following sections, the details of project types that will fall in each Category are presented. It is important to note that the provided Categories are not exhaustive or fixed. The competent authority, at its discretion and based on provided information in the environmental screening report or public

consultation results, can change the categorization of the proposed development projects or activities.

8.1.1. Category 1 Activities (List of projects requiring full ESIA (Inclusion List))

1. Agriculture

- Land development schemes covering an area of 500 hectares or more to change land use for agricultural production.
- Large scale (more than 500 hectares) monoculture of cash and food crops.
- Establishment of large scale floriculture farms or processing plant for a cropped area of larger than 30 hectares.
- Any size agricultural projects, including floriculture that is located in environmentally sensitive areas or within 30 meters of wetlands and other water bodies.
- Agricultural programs necessitating the resettlement of 100 families or more.
- Development of agricultural estates covering an area of 500 hectares or more involving a change in type of agricultural use.
- Agricultural Mechanization of projects covering an area of larger than 500 ha.
- Pest control activities involving the use of new pesticides that have not been included in the WHO categories II and III (See annex 2).
- Projects involving manufacture, transport or storage of agrochemicals.
- Introduction of new (exotic) animal breeds, crops, or seeds.
- Introduction of genetically modified organisms (GMOs).
- Land based aquaculture projects accompanied by clearing of swamp forests or wetlands covering an area of 5 hectares or more.
- Introduction of exotic or new aquatic species in water bodies.
- Large scale (over 1 ton per day) commercial fishery.
- River Basin Development (all sizes).

2. Airports

- Construction of airports having an airstrip of 2,000 meters or more.
- Airstrip development in Regional and national parks or any other environmentally sensitive areas.

3. Defense activities and military services

- Designing of large military range or training grounds, or significant changes in the uses of such areas.
- Shooting range, artillery range, or any other related installations.
- Temporary military campsites, designed for more than one year.
- Planning the use of low-level flying military fixed-wing jet aircraft as part of a training program at an altitude below 330 m above ground level for more than 25 hours per calendar year in populated areas, in areas designated as major wildlife habitat, and/or in known staging areas of migratory birds.

4. Forestry

- Conversion of hill forest land to other land use covering an area of 50 hectares or more.
- Logging or conversion of forest land to other land use within the catchment area of reservoirs used for municipal water supply, irrigation or hydro power generation or in areas adjacent to Regional and national parks (all sizes).
- Introduction of new/exotic tree species for development of forest plantations.
- Timber logging covering an area of over 200 hectares.
- Logging of areas that are known to include threatened or endangered plant species or within ecologically sensitive areas (all sizes).
- Aforestation or reforestation (monoculture forest plantation) projects with 200 hectares or more coverage.
- Resettlement programs in natural forests or nature reserves.
- Construction of roads inside forest or nature reserves.

5. Housing/Urban Development

- Development of any structure including residential areas, shopping centers, complexes, hotels, restaurants, hospitals, learning centers with a foot print of larger than 5,000 m².
- Establishment of bus and rail terminals with a foot print of more than 5,000 m².
- Construction of any structure with a foot print of more than 500 m² in close proximity of significant wetlands or water bodies (less than 30 meters)
- Township development with a foot print of 30 hectares or more.
- Subdivisions of 10 or more lots and housing projects of 10 houses or more.
- Conversion of swamps/wetlands of significant value for industrial, housing or agricultural use covering an area of more than one hectare.
- Conversion of any other swamps and/or wetlands for industrial, housing or agricultural use covering an area of more than 10 hectares.

6. Industry

- Chemical production where production capacity of each product or of combined products is greater than 100 tons/day or any mechanized plant employing more than 10 people.
- Petrochemical plants (All sizes).
- Manufacturing, transport and use of pesticides and other hazardous substances (all sizes).
- Non-ferrous primary smelting producing 50 tons/day and above of product and refining, drawing, rolling and surface treatment.
- Non-metallic

- ✓ Cement - for clinker throughput of 30 tons/hour and above

¹Source: Central Statistical Agency, Addis Ababa

- ✓ Lime - 100 tons/day and above burnt lime rotary kiln or 50 tons/day and above vertical kiln.
- ✓ Asbestos (all sizes).
- ✓ Glass and glass products manufacturing with a total of value of 500,000 Birr or more or plants employing more than 10 employees, using mechanization.
- ✓ Manufacturing of tiles and ceramics with a total value of 500,000 or more or plants employing more than 10 employees, using mechanization.
 - Iron and steel
 - ✓ Require iron ore as raw materials for production greater than 100 tons per day;
 - ✓ Using scrap iron as raw materials for production greater than 200 tons per day; or
 - ✓ Plants employing more than 10 people, using mechanization.
 - Wood, pulp and paper industry with a production capacity of greater than 50 tons per day, or industries employing more than 10 people, using mechanization.
 - Fiber and particle board manufacturing with a production capacity of greater than 30 tons per day, or industries employing more than 10 peoples and using mechanization.
 - Textile industries including cotton and synthetic fibers, cloth dying, etc. with a total value of 500,000 Birr or more or industries employing more than 10 people, using mechanization.
 - Food and beverage industries including manufacturing of animal oil and fats, vegetable oil refinery, manufacturing of dairy products, brewing, distilling, and malting, fish meal factories, soft drinks, canned fruits, sugar factories, and other agro-processing industries with a total cost of total cost of 500,000 Birr or more, or industries employing more than 49 people².

²Source: Ministry of Trade and Industry, Addis Ababa.

The costs of the project are based on 2009 currency values provided by the Ministry of Trade and Industry and the Bureau of export promotion and can be changed with out notice as per inflation rate and or changes in definition of the project sizes by the Federal / Regional state.

- Rubber and plastic products manufacturing employing more than 10 people and using mechanization or with a value of 20,000 to 500,000 Birr.
- Wood and wood product manufacturing with a total cost of 500,000 Birr or more, or industries employing 10 people or more and using mechanization.
- Leather industries including tanneries, and dressing factories. (All sizes)
- Electrical machinery apparatus, appliance, and supplies employing over 10 people

using mechanization or with a total value of 500,000 Birr or more.

7. Infrastructure

- Construction of hospitals with outfall into lakes and major water bodies used for, recreational purposes.
- Industrial estate development for medium and heavy industry covering an area of 10 hectares or more.

8. Irrigation, Drainage, and Flood Control³

- Construction of dams and man-made lakes and artificial enlargement of lakes with surface areas of 100 hectares or more.
- Construction of dams for use in irrigation or flood control purposes with either or both of the following:
 - ✓ Dam height of more than 15 meters,
 - ✓ Reservoir surface area larger than 30% of command area.
- Drainage of wetland, wild-life habitat or of virgin forest covering an area of 10 hectares or more.
- Modern surface Irrigation schemes covering an area of 200 hectares or more.

³Source: Ministry of Water Resources, Addis Ababa.

The costs of the project are based on 2009 currency values provided by the Ministry of Trade and Industry and the Bureau of export promotion and can be changed with out notice as per inflation rate and or changes in definition of the project sizes by the Federal / Regional state.

- Groundwater based irrigation schemes covering an area of 100 hectares or more.
- River diversions and water transfers between two watersheds.

9. Land Reclamation

- Land reclamation activities involving an area of 5,000 hectares or more.

10. Livestock and Range Management

- Introduction of new breeds including genetically modified breeds.
- Intensive livestock rearing areas with more than 50 cattle/equines, more than 10 dairy cows, or more than 200 shoats.
- Introduction of new or exotic species.
- Large-scale livestock production in urban areas (more than 5 cattle/equine or 25 shoats).
- Large-scale slaughter houses (more than 25 cattle and/or 200 shoats per day).
- Large-scale extensive grazing of cattle, equines, shoats, etc (more than 500 ha).

11. Mining

- Mining of materials in new areas where the mining lease covers a total area in excess of 100 hectares or any size mining activity within environmentally sensitive, nature reserves or protected areas.
- Ore processing, including concentrating for metallic material.
- Sand dredging involving an area of 50 hectares or more.

12. Petroleum Industry

- Development of oil and gas fields (oil and gas field exploration).
- Construction of oil and gas separation, processing, handling, and storage facilities.
- Construction of oil refineries.
- Construction of product depots for the storage of petrol, gas or diesel (excluding service stations) which are located within 3 kilometers of any commercial, industrial or residential areas and which have a combined storage capacity of 50,000 barrels or more.

14. Ports

- Construction of ports on lakes such as Tana Lake.
- Port expansion involving an increase of 50 percent or more in handling capacity per annum.

15. Power Generation and Transmission

- Construction of steam generated (thermal) power stations burning fossil fuels and having a capacity of more than 50 MW.
- Construction of dams and hydroelectric power schemes with either or both of the following.
 - ✓ dams over 15 meters high and ancillary structures covering a total area in excess of 20 hectares;
 - ✓ reservoirs with a surface area in excess of 250 hectares;
 - ✓ Hydroelectric power generation more than 100 MW.
- Construction of combined cycle power stations.
- Construction of nuclear-fueled power stations.
- Construction of high voltage (more than 11 KV) transmission lines.
- Construction transmission lines and substation 115 KV or greater.
- Construction of oil and gas pipelines with a pipe diameter of over 60 cm.
- Large scale windmill farms and solar power generating plants with a foot print of over 10 and 1 hectare, respectively.
- Production and distribution of electricity, gas, steam, and geothermal energy.

16. Quarries

- Proposed quarrying of aggregate, limestone, silica, quartzite, sandstone marble and, decorative building stone within 3 kilometers of any existing residential, commercial or industrial areas, or any area for which a license, permit or approval has been granted for residential, commercial or industrial development.

17. Railways

- Construction of new routes.
- Construction of branch lines.

18. Tourism and Recreational Development

- Construction of resource facilities or hotels along the shorelines of Lake Tana, Abay

River, and in Lake Tana Islands.

- Hilltop resort or hotel development in nature reserve or environmentally sensitive areas.
- Construction of lake front resort-facilities or hotels with more than 30 rooms.
- Hilltop resort or hotel development covering an area of 5 hectares or more.
- Development of tourist or recreational facilities in national/Regional parks.
- Development of tourist or recreational facilities, on islands within the lakes that have a potential to be declared as national parks.
- Development of tourism or recreational facilities in protected and adjacent areas (national parks, forest reserves, Lake Tana islands, etc).
- The removal of natural resources/objects for construction purposes within a national park, nature reserve, or national/regional historic site, if the removal involves the establishment of a new borrow site, the expansion of an existing borrow site, the reopening of an inactive borrow site, an increase in the amount of extraction, new extraction or the extraction of materials from aquatic locations.
- The establishment, expansion or relocation of a trail, campsite or day-use area within a national park, nature reserve, or national/regional historic site.
- Physical activities carried out in national parks, nature reserves, or national/regional historic sites for management or scientific purposes that involve intent to:
 - ✓ Manipulate ecosystem function;
 - ✓ Remove from a national park, nature reserve, or national/regional historic site, damage or destroy a member of a species that has been identified as endangered or threatened wildlife in Ethiopia or as a species of special concern;
 - ✓ Damage or destroy fossils or in-situ archaeological resources; or
 - ✓ Threaten the continued existence of a biological population within a national park, or nature reserve.
- Major construction works for sport complexes.

19. Transportation

- A new controlled access freeway.
- Construction of new national trunk roads.
- Major urban roads (four lane highways).
- Upgrading and/or rehabilitation/paving of major rural roadways.
- New construction or extension of fixed rail transit facilities and/or branch lines.

0. Rural and Urban Water Supply

- Construction of dams or impounding reservoir for water supply with a surface area of 200 hectares or more or a height of over 15 meters.
- Groundwater development for industrial, agricultural or urban water supply of greater than 2,000 m³ per day.
- Canalization of water courses (water course training).
- Water transfer schemes (between two catchments).

- Water treatment plants.

21. Waste Treatment and Disposal

- Toxic and Hazardous Waste.
 - ✓ Construction of incineration plant.
 - ✓ Construction of recovery plant (off-site).
 - ✓ Construction of waste water treatment plant (off-site).
 - ✓ Construction of secure landfill facility.
 - ✓ Construction of storage facility (off-site).
- Municipal Solid Waste
 - ✓ Construction of incineration plant.
 - ✓ Establishment, expansion, relocation or closure of a site for the disposal of solid waste within national parks, nature reserve, or national/regional historic sites.
 - ✓ Construction of composting plant.
 - ✓ Construction of recovery/recycling plant.
 - ✓ Construction of municipal solid waste landfill facility.
- Municipal Sewage
 - ✓ Construction of waste water treatment plant and sewerage systems.
 - ✓ Construction of Lake Outfall.
 - ✓ Night soil collection, transportation and treatment.
 - ✓ Construction of sewage systems.

22. Watersheds Development

- ✓ Watershed development project that comprise other infrastructure construction in addition to management or rehabilitation activities.

8.1.2. Category 2 Activities (List of projects requiring Preliminary ESIA or IEE)

The project may have adverse environmental impacts that are less significant than Category 1 impacts. Few if any of these impacts are irreversible. The impacts are not as sensitive, numerous, major, or diverse as Category 1 impacts; remedial measures can be more easily designed. Preparation of a mitigation plan suffices for many Category 2 projects. Category 2 projects generally will require the preparation of a preliminary environmental assessment or initial environmental evaluation (IEE) report by the project proponent. Typical examples of project types that will require IEE include:

1. Agro-industries (Agriculture, Livestock, and Fishery);

- Land development schemes covering an area of less than 500 hectares to bring forest/grazing land into agricultural production.
- Medium and small scale monoculture of cash and food crops (smaller than 500 hectares).
- Establishment of small and medium scale floriculture farms or processing plant for

cropped area of smaller than 30 hectares.

- Agricultural projects located within 30 to 200 meters of environmentally sensitive areas.
- Agricultural programs necessitating the resettlement of up to 100 families.
- Development of agricultural estates covering an area of less than 500 hectares involving changes in type of agricultural use.
- Agricultural mechanization of projects covering an area of smaller than 200 ha.
- Pest control programs involving the use of new pesticides that are assigned as less toxic categories II and III, according to the WHO nomenclature.
- Land based aquaculture projects covering an area of less than 5 hectares.
- Small and medium scale (less than 1 ton per day) commercial fisheries.
- Projects involving repackaging, formulation, or warehousing of agricultural products.

2. Airports

- Construction of airports having an airstrip of less than 2,000 meters.

3. Forestry

- Conversion of hill forest land to other land use, covering an area of less than 50 hectares.
- Timber logging covering an area of less than 200 hectares.
- Aforestation and reforestation (monoculture forest plantation) projects smaller than 200 hectares in coverage.

4. Housing/Urban Development

- Development of any structure including residential areas, shopping centers, complexes, hotels, restaurants, hospitals, and learning centers with a foot print of between 500 m² and 5,000 m².
- Establishment of bus and rail terminals with a foot prints of between 500m² and 5,000m².
- Construction of any structure with a foot prints of between 100 m² and 500 m² within 30 meters of significant wetlands or water bodies.
- Township development with a foot print of less than 30 hectares.
- Conversion of any swamps/wetlands that is not designated as significant for industrial, housing or agricultural use covering an area of one to 30 hectares.

5. Industry

- Chemical production where production capacity of each product or of combined products is less than 100 tons/day or any mechanized plant employing between 3 and 10 people.
- Non-ferrous primary smelting producing less than 50 tons/day of product and refining, drawing, rolling and surface treatment.
- Non-metallic
- ✓ Cement - for clinker throughput of less than 30 tons/hour.
- ✓ Lime – less than 100 tons/day burnt lime rotary kiln or less than 50 tons/day of vertical kiln.

- ✓ Glass and glass products manufacturing with total cost of 20,000 to 500,000 Birr or any manufacturing that employs between 3 and 10 people.
- ✓ Manufacturing of tiles and ceramics with total cost of 20,000 to 500,000 Birr or any mechanized plant that employs between 3 and 10 people.
- Iron and steel
- ✓ Require iron ore as raw materials for production of 100 tons per day or less; or
- ✓ Using scrap iron as raw materials for production of 200 tons per day or less.
- Wood, pulp and paper industry with a production capacity of 50 tons per day or less, or mechanized industries that employ between 3 and 10 people.
- Fiber and particle board manufacturing with a production capacity of 30 tons per day or less or mechanized industries that employ between 3 and 10 people.
- Textile industries including cotton and synthetic fibers, cloth dying, etc. with production of 20,000 to 500,000 Birr or mechanized industries that employ between 3 and 10 people.
- Food and beverage industries including manufacturing of animal oil and fats, vegetable oil refinery, manufacturing of dairy products, brewing, distilling, and malting, fish meal factories, soft drinks, canned fruits, sugar factories, and other agro-processing industries with a total cost of 20,000 to 500,000 Birr or mechanized industries that employ between 5 and 49 people.
- Rubber and plastic products manufacturing employing between 3 and 10 person, or with a total value of 20,000 to 500,000 Birr.
- Wood and wood product manufacturing with total cost of 20,000 to 500,000 Birr, or mechanized industries that employ between 3 and 10 people.
- Electrical machinery apparatus, appliance, and supplies employing between 3 and 10 persons using mechanization, or with a total value of 20,000 to 500,000 Birr.

6. Infrastructure

- Industrial estate development for medium and heavy industry covering an area of less than 10 hectares.

7. Irrigation, drainage, and Flood Control (small-scale);

- Construction of dams and man-made lakes and artificial enlargement of lakes with surface area of less than 100 hectares.
- Construction of dams for use in irrigation or flood control purposes with a dam height of less than 15 meters.
- Drainage of wetlands, wildlife habitats or virgin forest for the purpose of using for irrigation, covering an area of less than 10 hectares.
- Surface area modern irrigation schemes (diversions, dams) covering an area of less than 200 hectares.
- Groundwater based irrigation schemes covering an area of less than 100 hectares.

8. Land Reclamation

- Land reclamation activities involving an area of less than 5,000 hectares.

9. Livestock and Range Management

- Intensive livestock rearing areas with less than 50 cattle/equines, or less than 10 dairy cows, or less than 200 shoats.
- Small-scale livestock production in urban areas (between 2 and 5 cattle/equines or 5 to 50 shoats).
- Small-scale slaughter houses (less than 25 cattle and/or 200 shoats per day).
- Small-scale (less than 500 hectares) extensive grazing of cattle, equines, shoats, etc.

10. Mining

- Mining of materials in new areas where the mining lease covers a total area of 100 hectares or less.
- Sand dredging involving an area of less than 50 hectares.

11. Petroleum Industry

- Construction of product depots for the storage of petrol, gas or diesel (excluding service stations) which are located within 3 kilometers of any commercial, industrial or residential areas and which have a combined storage capacity of 5,000 to 50,000 barrels.

12. Power Generation and Transmission

- Construction of thermal power stations burning fossil fuels and having a capacity of 50 MW or less.
- Construction of dams and hydroelectric power schemes with either or both of the following.
 - ✓ Dams less than 15 meters high and ancillary structures covering a total area of 20 hectares or less;
 - ✓ Reservoirs with a surface area of 250 hectares or less.
 - ✓ Hydroelectric power generation of 100 MW or less.
- Transmission lines less than 11 KV, and large distribution projects.
- Construction of transmission lines and substations of smaller than 115KV.
- Construction of oil and gas pipeline with a pipe diameter of less than 60 cm.
- Small scale windmill farms and solar power generating plants with foot prints of less than 10 and 1 hectares, respectively.
- Power generation projects involving waste-to-energy conversion.

13. Quarries

- Proposed quarrying of aggregate, limestone, silica, quartzite, sandstone marble and, decorative building stone within 3 to 10 kilometers of any existing residential, commercial or industrial areas, or any area for which a license, permit or approval has

been granted for residential, commercial or industrial development.

14. Resort and Recreational Development

- Construction of lake front resort-facilities or hotels with less than 80 rooms.
- Hill station resort or hotel development covering an area of less than 50 hectares.

15. Rural and Urban Water Supply

- Construction of dams, impounding reservoir with a surface area of less than 200 hectares.
- Groundwater development for industrial, agricultural or urban water supply of 500 cubic meters per day or less.

16. Tourism

- Tourism development that does not include construction and are outside nature reserves and national parks.
- Hilltop resort or hotel development covering an area of less than 5 hectares.

18. Transportation

- Construction of rural/feeder roads.

19. Rural water supply and sanitation

- Construction of rural water supply and sanitation infrastructure that is farther than 30 meters from water bodies or other environmentally sensitive areas.
- Construction of dams or impounding reservoir for water supply with a surface area of less than 25 hectares or height of 15 meters or less
- Groundwater development for industrial, agricultural or urban water supply of 2000 m³ per day or less.

20. Watershed projects

- Watershed development project that only comprise of management or rehabilitation activities.

21. Rehabilitation, maintenance, and upgrading projects

- Rehabilitation, maintenance and upgrading of small scale projects that do not include major construction activities.

22. Promulgation of rules, regulations, and directives.

8.1.3. Category 3 Activities (List of projects that normally will not require any environmental studies (Exclusion List))

Categorical exclusions (Category 3) are actions which, based on past experience with similar actions, do not involve significant environmental impacts.

They are actions which:

- (i) do not induce significant impacts to planned growth or land use for the area;
- (ii) do not require the relocation of significant numbers of people;
- (iii) do not have a significant impact on any natural, cultural, recreational, historic or other

resource;

(iv) do not involve significant air, noise, or water quality impacts;

(v) do not have significant impacts on travel patterns; and/or

(vi) do not otherwise, either individually or cumulatively, have any significant environmental impacts.

Projects that fall in this category typically will not require further environmental studies because the Competent Authority, based on past experience, has determined that such projects are unlikely to have adverse environmental impacts. Professional judgement finds such projects to have negligible, insignificant, or minimal environmental impacts.

1. Any action which normally would be classified as a Category 3, but could involve unusual circumstances, say being in close proximity of an environmentally sensitive area, might require additional review by the competent authority, in cooperation with the proponent, to determine if the Category 3 classification is proper. Such unusual circumstances include:

ü Potential impact on significant environmentally sensitive areas;

ü Substantial controversy on environmental grounds;

ü Significant impact on surrounding prime agricultural land, areas of significant cultural/heritage value, nature reserves, and/or any other environmentally sensitive areas (wetlands, major wildlife habitats, significant riverine/riparian vegetation, etc); or

ü Inconsistencies with any Federal, Provincial, or local law, requirement or administrative determination relating to the environmental aspects of the action.

2. The following actions meet the criteria to be included in Category 3 of this guideline and normally do not require any further approvals by the Competent Authority:

➤ Activities that do not involve or lead directly to construction, such as:

- Education and training projects
- Family planning project
- Health education awareness raising projects
- Grants for training and research programs;
- Nutrition improvement projects;
- Institutional development/capacity building projects
- Research activities not covered in category 1 or 2;

- Technical assistance;
- Most human resource project

Approval of a unified work program and any findings required in the planning process pursuant;

Approval of project concepts; and Engineering to define the elements of a proposed action or alternatives so that social, economic, and environmental effects can be assessed.

➤ Approval of utility installations along or across a transportation facility.

ü Landscaping, implementation of soil conservation practices on farmer level,

improvement of health posts or other structures with a small foot prints (less than 500 m²).

➤ Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur (less than 100 m²).

➤ Development of any structure including residential areas, shopping centers, complexes, hotels, restaurants, hospitals, and learning centers with a foot print of less than 500 m².

➤ Establishment of bus and rail terminals with a foot prints of less than 500 m².

➤ Construction of any structure with a foot print of less than 100 m² in close proximity of significant wetlands or water bodies (more than 30 meters).

ü Program administration, technical assistance and capacity building activities, and operating assistance to allow for continuation/improvement of existing service or increase service to meet routine changes in demand.

9. Any development activity that is not included in Category 1 and 2 projects.

10. Additional actions that meet the criteria may be included in Category 3 of this section, only if the competent authority approves the inclusion of the said action in the exclusion list (Category 3). The applicant shall submit documentation which demonstrates that the specific conditions or criteria for inclusion of activity in the exclusion list are satisfied and that significant environmental effects will not result.

Where a pattern emerges of granting Category 3 status for a particular type of action, the

Competent Agency will initiate rulemaking proposing to add this type of action to the list of categorical exclusions in paragraph (c) or (d) of this section, as appropriate.

***NB.

All those projects have their own owners. The project owner has to know project category and has an obligation to conduct the ESIA or EMP etc . the competency body has an obligation to inform them legally and train them on issue regularly and the proponent has to be penalized if broke the law accordingly.
