NILE BASIN CAPACITY BUILDING NETWORK-RIVER ENGINEERING (NBCBN-RE)

ENVIRONMENTAL ASPECTS OF RIVER ENGINEERING

RESEARCH FINDINGS ON

LEGAL AND INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT INCLUDING EIA

EGYPT, KENYA, RWANDA, SUDAN & UGANDA

Research Team:

Dr Kateyo Eliezer	Uganda	Coordinator
Mr Kakitahi Muhumuza J	Uganda	Researcher
Dr Oonge Isaboke Z	Kenya	‘’
Dr Nyende Jacob	Uganda	‘’
Mrs Ndyabarema Jovah	Uganda	‘’
Eng Mugabi David	Uganda	‘’

Funded by: UNESCO-IHE AUGUS2004

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

The Research Team on Legislation and Institutional framework for environmental management with particular emphasis on EIA in the Nile Basin countries wishes to express their unreserved happiness for carrying out this task to this stage and hopefully to its conclusion in the subsequent phases. This work was compiled by Dr Kateyo from his research work together with Mr Muhumuza Kakitahi John, Mr Mugabi David, Dr Nyende Jacob, Mrs Ndyabarema Jovah (all from Uganda) and Dr Oonge Zablon from Nairobi University, Kenya. It also contains information from Egypt, Rwanda and the Sudan presented during the Second Regional Workshop in Kampala in April 2004, as well as comments from Cairo Workshop in June 2004.

The Research Team would like to express their sincere gratitude to Dr Joop de Schutter of IHE-UNESCO who has been the Cluster's Scientific Advisor for keeping everybody on their toes searching for more information, constructive criticisms and focusing ahead for new developments in the EIA process with the aim of making the team the 'think tank' on EIA issues in the Nile Basin. In the same breath, sincere thanks go to Dr Hesham Ghany of the NBCBN-RE Secretariat in Cairo for his continuous check and reminders on the progress of the work to make sure that it stayed on course.

Lastly but not least, special thanks go to the Dutch Government through IHE-UNESCO, and NBI for sponsoring this Project.

Long live everyone in the struggle to make the Nile Basin a better place.

ACRONYMS

CBA	Cost Benefit Analysis
DLC	District Local Council
DWD	Directorate of Water Development
EEAA	Egyptian Environmental Affairs
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMCA	Environmental Management and Coordination Act
EMP	Environmental Management Plan
ERA	Environmental Risk Assessment
HCENR	Higher Council for Environment and Natural Resources
KAP	Knowledge Attitudes and Practices
LEC	Local Environment Council
NBCBN-RE	Nile Basin Capacity Building Network-River Engineering
NBI	Nile Basin Initiative
NEAP	National Environment Action Plan
NEMA	National Environment Management Authority
NEPA	National Environmental Policy Act
NES	National Environment Statute
SEA	Strategic Environmental Assessment
SIA	Social Environmental Assessment
REMA	Rwanda Environment Management Authority
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
WPC	Water Policy Committee
WRMA	Water Resources Management Authority

EXECUTIVE SUMMARY

This is a report of research findings on the status of environmental management with particular emphasis on Environmental Impact Assessment (EIA) in the Nile Basin countries of Egypt, Kenya, Rwanda, Sudan and Uganda. The report is divided into five chapters: Chapter One gives the background and overview of EIA process, environmental legislation and institutional framework; Chapters Two and Three present detailed findings of the legal and institutional framework respectively for environmental management in the countries mentioned above; Chapter Four presents detailed accounts on selected EIA procedures; and Chapter Five examines three projects that have undergone the EIA process in Kenya, Sudan and Uganda.

1. Objectives

The objectives of this research were to:

- Identify common legal and institutional framework for environmental management in the Nile Basin countries
- Evaluate selected EIA procedures in the Nile Basin countries mentioned above and recommend common basin wide procedures
- Analyze selected EIA methodologies as they apply in the Basin countries
- Review EIA process for RE case studies/experiences in the Nile Basin

2. Methodologies

The methods used to gather the information contained in this report included reviews of published legal documents (policies, statutes, acts, and guidelines) under use in the member states of the Nile Basin. Other documents consulted included those of international development agencies, namely World Bank, Asian Development Bank, European Union and UNDP. The EIA Training Resource Manual by UNEP was also consulted. More information was obtained from internet search and by administering questionnaires to and carrying out interviews with key informants involved in EIA.

3. Findings

3.1 Legal and Institutional Framework

The environmental management in the five countries is similar in some aspects and different in others. It is based on well-articulated policies and statutes or acts in all the countries except Rwanda. In these countries the institutional arrangement with lead

agencies in the overall charge of environmental issues including EIA is enshrined in the legal framework as summarized below:

Country	Policy/Statute/Act	Responsible Agency
Egypt	Environmental Law No 4 1994	EEAA
Kenya	Environmental Management & Coordination Act	NEMA
Sudan	Environmental Policy Act 1998	HCENR
Uganda	National Environment Management Statute 1995	NEMA
Rwanda	In formative stages	

The institutional arrangement for environmental management for Uganda is given here as an example. National Environment Management Authority (NEMA) is the responsible agency in Uganda for the management of the environment, coordinating, monitoring and supervising all activities in the field of the environment. Similar agencies are found in the other countries: in Egypt it is called Egyptian Environmental Affairs Agency (EEAA); in Kenya it is NEMA; and in Sudan it is Higher Council for Environment and Natural Resources (HCENR).

3.2 EIA management and monitoring

The procedures for doing EIA in all the countries is almost the same, following the common conventional steps of developers writing project briefs to be followed by scoping, screening, doing EIA study, and so on. In Uganda, NEMA is the principal lead agency responsible for the EIA process but works together with relevant lead/ sectoral agencies in executing its responsibilities. However, the National Environment Statute 1995 stipulates that the actual implementation of the EIA process is a function of the relevant line ministries and departments, the private sector, non-governmental organisations and the general public.

In Uganda all developers whose projects are subjected to EIA studies must ensure that mitigation measures and actions as approved through the EIA to protect the environment are adopted and implemented. The developer must undertake to conduct self-monitoring,

self-record keeping and self-reporting, and the information gathered through monitoring is stored and made available during inspection. It is also the developers' responsibility to mitigate any undesirable impacts not contemplated in the EIS and accordingly report to the lead agency or NEMA. In Sudan, the monitoring of mitigation measures calls for a responsible body. Such an agency is lacking in the Sudan. The HCENR, if institutionally upgraded and financially supported, could fill the gap. In Kenya the Authority, through the Environmental Inspector appointed under EMCA, is mandated with environmental auditing and monitoring after project implementation to ensure conformance with the EIA report. The guidelines and procedures are established in Part VII, sections 68 and 69 of EMCA 1999.

3.3 Water Resources Management

The **water** sector is recognised as being very important for the socio-economic development of Uganda. It is managed under the **Water Statute 1995**. Section 5 of this Statute states that '*all rights to investigate, control, protect, and manage water in Uganda for any use, is vested in Government and shall be exercised by the Minister and the Director in accordance with the provisions of this part of the Statute.'* The Directorate of Water Development (DWD) is the lead technical water sector agency. It coordinates and regulates all sector activities and provides support services to the local governments and other service providers. The implication of this statement for our project is that all issues related to RE projects and programmes have to be endorsed by the said ministry.

In Kenya, the Water Act No. 8 2002 is the main statute presently governing water resource management as well as the water supply and sewerage services provision. It provides for the management, conservation, use and control of water resources and for acquisition and regulation and management of water supply & sewerage services. Water Resources Management Authority (WRMA) is a corporate body with perpetual succession and a common seal. It is charged with overall and prudent management of water resources.

3.4 Public participation in EIA

In Uganda, public participation in the EIA process takes centre stage at both inception and during the course of development throughout the entire process. In Kenya, the environmental law states that every person in Kenya is entitled to a clean and healthy environment and has duty to safeguard and enhance the environment by being involved in the development policies, plans and processes for the management of the environment. In Egypt, public participation in the EIA process is not a requirement and as a result it is often ignored.

3.5 Cost benefit and Risk analysis

Although the concept of CBA is mentioned in the legal documents of Uganda, the case study of Karuma Hydroelectric Power Project and others do not show any evidence of it being applied in the EIA process. The EIA legal procedures in Kenya do not even mention it. The Environmental Risk Assessment is similarly ignored in the EIA process.

3.6 Enforcement and conflict resolution

The guidelines and regulations for conflict resolution for the NBCBN countries of Uganda and Kenya are still at developmental stage but Kenya seems to have enough provisions within the legislation to cater for this aspect. In Uganda, guidelines for its operations are still at developmental stage in which case litigation may be the method of choice. An edge has been given to the regulatory authority (NEMA) over the developer whereby no civil or criminal liability, in respect of an approval of a project or consequence resulting from an approved project, shall be incurred by the Executive Director or any person acting on his behalf, by reason of the approval, rejection or denial or any conditions attached to the approval. However there is still an allowance for the aggrieved party to seek justice from the High Court.

3.7 Case studies

The experiences from the case studies in Uganda (Karuma Hydroelectric Power Project), Kenya (Sondu-Miriu River Hydro-Electric Power Project) and Sudan (Hamadab Hydropower Project) show that the EIA process follows the conventional procedures as

mentioned above. However the aspects of CBA, ERA are clearly lacking. Furthermore, aspects of monitoring and enforcement seem to be very weak.

3.8 Way Forward

Although the EIA process follows basically the same procedures in all the four countries, the first fundamental step of deciding on terms of reference is left to the developer without benchmarks on which to base the decisions. Similar projects in different countries are likely to have different EIA studies done. This therefore calls for development of standard benchmarks in both hard and soft copies for use in RE related projects and programmes. In order to strengthen and harmonise the EIA process in the Nile Basin a number of activities should be carried out:

- Pilot testing of DR EIA for some RE projects and subsequent improvement. This can be achieved by linking with other research clusters such as one on small dams. This will end the subjective ways of handling EIA process.
- Assessment of valuation techniques in CBA and ERA for EIA. Detailed research needs to be carried out so as to know why these aspects are largely inored even by international development agencies before they can be strongly advocated for the Nile Basin countries.
- Development of CBA benchmarks for integration in EIA, SIA and SEA
- Survey of Knowledge, Attitudes and Practices (KAP) of public participation and conflict resolution/management
- Study of likely public health impacts in relation to climate change and water usage. Already the effects of climate change are being felt in which case there is need to begin research on and preparation for them
- Publication of common EIA procedures for use in RE projects and policies in the Nile Basin

1. INTRODUCTION

1.1 Background

The NBCBN-RE project, launched in 2000, aims at establishing a network of professionals and practitioners in the water sector in the River Nile basin. It provides a platform through which they meet and exchange ideas, experiences and chart out future plans for sustainable utilization of the Nile waters. Networking and capacity building are realized through workshops, training, meetings and joint researches. The project is under the umbrella of Nile Basin Initiative (NBI). Since the launching of NBCBN-RE, a number of regional workshops have been held, and six regional research clusters launched.

The 'Environmental Aspects of River Engineering' cluster was launched during a regional workshop in Kampala from 16-18 June 2003, with attendance from Egypt, Eritrea, Kenya, Rwanda, Sudan and Uganda. Uganda hosts the cluster and coordinates all its activities. The first activity agreed upon by the participants in the workshop was to review the Environment Impact Assessment (EIA) process in the Nile basin countries with the aim of finding common ground on which to suggest basin wide best EIA practices and procedures. This report is an initial outcome of the situational analysis of the EIA process in Egypt, Kenya, Rwanda, Sudan and Uganda carried out by various professionals in their countries. More research will be carried out on areas for harmonization, tools development, and decision support systems before a common EIA process is worked out and adopted by the concerned countries.

1.2 Why Environmental legislation?

Environmental legislation is a process of laying down checks and balances on the parties concerned with management, using or exploiting and/or processing natural resources in order to safeguard the environment for sustainable development. It is a backbone for the implementation of EIA (UNEP, 1996). An EIA process needs to be enshrined in a policy so that it can be guided, results easily understood and interpreted. However, any policy must have an enforceable legislation if good results are to be realised. Legislation for EIA

requires statutory powers to ensure that it is done in prescribed manner (procedures) for specific activities such as river development programs and projects. It should also define the institutional framework. Environment-related responsibilities and powers are most effective when grounded in law. Policies and laws should address environmental quality, EIA guidelines and procedures (UNEP, 1996). According to the EIA-EU Procedures, legislation is priority number one.

1.3 Importance and brief historical account of EIA

The Environmental Impact Assessment (EIA) is an effort to anticipate, measure and weigh the socio-economic and biophysical changes that may result from a proposed project. It assists decision-makers in considering the proposed projects for environmental costs and benefits. When the benefits sufficiently exceed the costs, the project can be viewed as environmentally justified. This is a relatively new planning and decision-making tool first enshrined in the United States in the National Environmental Policy Act of 1969. It is a formal study process used to predict the environmental consequences of any development project.

Therefore, an Environment Impact Assessment has to be made before starting a project. For analysis of environmental impacts, many professions and disciplines have to be involved. Like economic and engineering feasibility studies, Environmental Impact Assessment is a management tool for officials and managers who make important decisions about major development projects. EIA should include other information tools for management such as economic valuation of externalities, social impacts, risk, and could also include special concerns such as women. However, these additions should not distract from, or dilute, the basic prediction of biophysical changes in the environment and their consequent impacts on health and welfare (social environment).

The process of EIA begun in the United States of America (USA) in 1969 through the National Environmental Policy Act (NEPA); this became law in 1970. Australia, Europe, Latin America and Asia (particularly Philippines) followed thereafter with the drafting of national environmental legislation. Between 1970 and 1975, EIA was being used with a

focus on sufficient description and prediction of ecological and land use changes. During this time, formal opportunities were established with emphasis on accountability and control of project designs and mitigations.

Multi-dimensional EIA incorporating social impact assessment of changes in services and community infrastructure and lifestyles emerged between 1975 and 1980. Public participation became an integral part of project planning and EIA required risk analyses of facilities and new technologies to be undertaken. Establishment of better linkages between EIA and policy planning and implementation was done during the period from 1980 to 1992. This period saw great emphasis being placed on research and evaluation procedures that included monitoring and auditing.

1.4 Methodologies

1.4.1 Literature review

A review supported by internet search of published policy and legal documents on environmental management and, in particular, EIA process in the member states of the research cluster was undertaken. In addition to this, information was sourced from publications of international development agencies, namely, the World Bank, Asian Development Bank and European Union; other sources included United Nations Environment Program (UNEP). Case studies from Uganda, Kenya, and Sudan on river engineering projects that have undergone EIA were also carried out in trying to assess how the EIA process was carried out in the these projects; this activity involved a review of the published Environmental Impact Statements (EIS).

1.4.2 Questionnaire and interviews

Information from literature review was supplemented by administering a questionnaire to key informants and stakeholders involved in the EIA process in Uganda:

- Two EIA officers from National Environment Management Authority (NEMA)
- One officer at the Directorate of Water Development (DWD)

- Three academicians at the Makerere University Institute of Environment and Natural Resources (MUIENR)
- Two government officials in the Justice Ministry
- Two officials from Uganda Electricity Transmission Company Limited (UETCL)

In all these cases, the questionnaires were answered in the presence of the researchers who made sure that all the questions were answered and every questionnaire recovered. Additional information was obtained by way of interviews with these respondents. The joint use of the questionnaire and interview methods was beneficial to the researchers in as far as directing respondents to provide relevant input on the key aspects of the research.

1.5 Environmental legislation and institutions

1.5.1 Egypt

The legal framework for EIA in Egypt was established under Environmental Law No.4 of 1994. In collaboration with the Danish International Development Agency (DANIDA), the Egyptian government developed the national EIA system that established the Egyptian Environmental Affairs Agency (EEAA) as the lead agency. To supervise and manage the entire EIA process in Egypt, the Central EIA department was set up within EEAA. The General guidelines for EIA were issued by EEAA in 1995 and these detail the procedures for EIA as identified in Environmental Law No.4 of 1994 and its executive regulation, providing a general outline of the content of a full EIA report. Brief sectoral guidelines defining content of EIA reports for establishments that need full EIA also exist.

The General guidelines categorise development projects into three types under the screening phase; they are:

- White list: projects with minor environmental impacts
- Grey list: projects which may result in substantial environmental impacts

- Black list: projects for which complete EIA is mandatory due to the magnitude and nature of their potential impacts

With the assistance from the Support for Environmental Assessment and Management (SEAM) project, further guidance documents have subsequently been issued by the EEAA; these include:

- Guidance on dealing with Grey list projects
- Guidance for wastewater treatment works
- Guidance for ports and harbours
- Guidance for industrial zones
- Guidance for tourist activities

To complement the role of EEAA, environment management units were established in the Governorates and this has helped promote the application of EIA to industrial projects that are being undertaken in the new industrial cities.

1.5.2 **Sudan**

Legislation pertaining to environmental management is found in the Environment Policy Act of 1998 which, under section 9, stipulates that EIA be undertaken where the quality of the environment is to be adversely affected. The authority responsible for environment management is the Higher Council for Environment and Natural Resources (HCENR).

1.5.3 **Kenya**

Environmental Management and Coordination Act 1999 (EMCA), that came into effect on 14th January 2000, is responsible for environmental management. EIA regulations came into effect on 13th June 2003, and they stipulate the processes of EIAs, Environmental Audits (EA) and Environmental Monitoring (EM). In addition to this, there exist sectoral statutes on Fisheries, Water, Forestry and Wildlife among others; and also service sectoral statutes on Public health, Agriculture, Factories and Mining among others. Some of the legislation pertaining to water resource management includes: The Agriculture Act (Cap 318), The Water Act (No.8 of 2002), The Fisheries Act (No.5 of 1989) and The Maritime Zones Act (No.6 of 1989).

EMCA established the National Environment Management Authority (NEMA) that is mandated to coordinate all national environment issues and ensure districts prepare environment action plans. The lead agency for water resource management is the Water Resource Management Authority (WRMA) established under part III section (1) of the Water Act 2002.

The EIA process is well defined and enshrined in the regulations; however, there are no provisions for the use of CBA as a complementary evaluative technique to EIA. EMCA provides for carrying out conventional EIA for certain activities mentioned in the Act. The Act, under section 5a Part III, details and invokes the principle of public participation in environment management.

1.5.4 **Rwanda**

Environment management regulations, EIA practices and guidelines in particular, are just being developed in the country at present. The government established the National Environment Policy in 2002 for the purpose of integrating environmental aspects into policies, planning and implementation activities carried out at the national, provincial and local level. In January 2004, the Rwanda Environment Management Authority (REMA) was established and is currently drafting the National EIA guidelines. Much as EIA has been practiced since 2002 without national guidelines, it should be noted that the guidelines and procedures used were those stipulated in UNDP-World Bank guidelines.

Management of water resources is the responsibility of the line ministries, namely, Land, Water, Forest, Environmental and Natural Resources (MINITERE) and Agriculture and Livestock (MINAGRI) among others. There is currently no law governing water resource management except the 1994 law on pollution and contamination of springs, lakes and rivers.

1.5.5 **Uganda**

The legal framework for environment management in Uganda is stipulated under the National Environment Statute (NES) No.4 of 1995. Under Section 5 of this statute, National Environment Management Authority (NEMA) was established as the principal agency for the management of the environment and is responsible for the EIA process in Uganda. The NES No.4 (1995) paved the way for the formulation of the EIA legislation: *Guidelines for EIA 1997* and *EIA Regulations 1998.*

Existing regulations provide for a comprehensive institutional mechanism for effective environment management. Various sectors and activities including urban development, agricultural and industrial development, energy generation and transportation, natural resource exploitation and waste management, have recognizable lead agencies that work in partnership with the authority, NEMA. In addition to this, all districts have environment offices and committees that provide support service to the line Ministry of Water, Lands and Environment and the authority.

The research found out that the EIA process in Uganda is being used effectively by the NEMA registered practitioners; however, the following were of notable concern:

- EIA auditing and monitoring is rarely done and this has disabled the capacity of the process to monitor compliance with the agreed conditions set out in construction permits and operating licenses. The exception is large sized industrial and energy developments.
- The institutional framework does not have sufficient capacity to ensure that compliance is adhered to.

2. LEGAL FRAMEWORK FORENVIRONMENTAL MANAGEMENT

2.1 Uganda

The legal aspects for environmental management in Uganda are enshrined in the various legal documents:

2.1.1 The Constitution of the Republic of Uganda 1995

Article 39 of the Constitution states that 'every Ugandan has a right to a clean and healthy environment.'

Article 245 states that 'Parliament shall, by law, provide for measures intended to:

(a) protect and preserve the environment from abuse, pollution and degradation

(b) manage the environment for sustainable development; and

(c) promote environmental awareness'

2.1.2 National Environment Management Policy for Uganda 1994

One of the key Policy objectives is to 'integrate environmental concerns in all development policies, planning activities at national, district and local levels, **with full participation of the people,'** while one of the key principles states that 'full **environmental and social costs or benefits** foregone as a result of environmental damage or degradation should be incorporated in public and private sector planning and minimised where possible.' This therefore calls for cost-benefit-analysis of policies, projects and programmes.

The Policy gives a clear objective for EIA, which is 'to provide a system of Environmental Impact Assessment (EIA) and environmental monitoring so that adverse environmental impacts can be foreseen, eliminated or mitigated.' One of the guiding principles on EIA states that 'EIAs should consider not only biophysical/environmental impact but address the impact on existing social, economic, political and cultural conditions.'

2.1.3 National Environment Statute 1995

Environmental Impact Assessment is comprehensively covered in Article 20 in which the roles of a developer, minister and lead agency responsible are clearly outlined. Thus the statute gives the legal requirements for the EIA process in Uganda. Based on the above legal documents, the National Environment Management Authority produced *Guidelines for Environmental Impact Assessment in Uganda 1997*. The general policies of EIA are given as being to conduct EIA for planned policies and projects that are likely to, or will have significant impact on the environment, so that adverse impacts can be foreseen, eliminated or mitigated. It stresses the policy of the Government of Uganda which is to see EIA process being inter-disciplinary, fully transparent so that all stake holders have access, and that the process serves to provide balance between environmental, economic, social and cultural values for sustainable development in the country. The Guidelines comprehensively cover the EIA process, such as the basic components of the process, responsibilities of the developers and practitioners, and participation of the public, among others.

2.1.4 The Environmental Impact Assessment Regulations, 1998

These regulations are cast in nine parts among which are:

- Project briefs
- Environmental impact studies
- Environmental impact statement
- Review process of the environmental impact statement
- Decision on EIS by the Executive Director
- Access to EIS reports and other information among others.

Thus these Regulations give details of the measures to be taken in conducting an EIA and environmental audits. An EIA is to be carried out for all projects listed in Annex 3 of the Guidelines, in which No. 4 lists dams, rivers and water resources including (a) storage dams, barrages and weirs; (b) river diversions and water transfer between catchments; (c) flood control schemes; and (d) drilling for purpose of utilising ground water resources including geo-thermal.

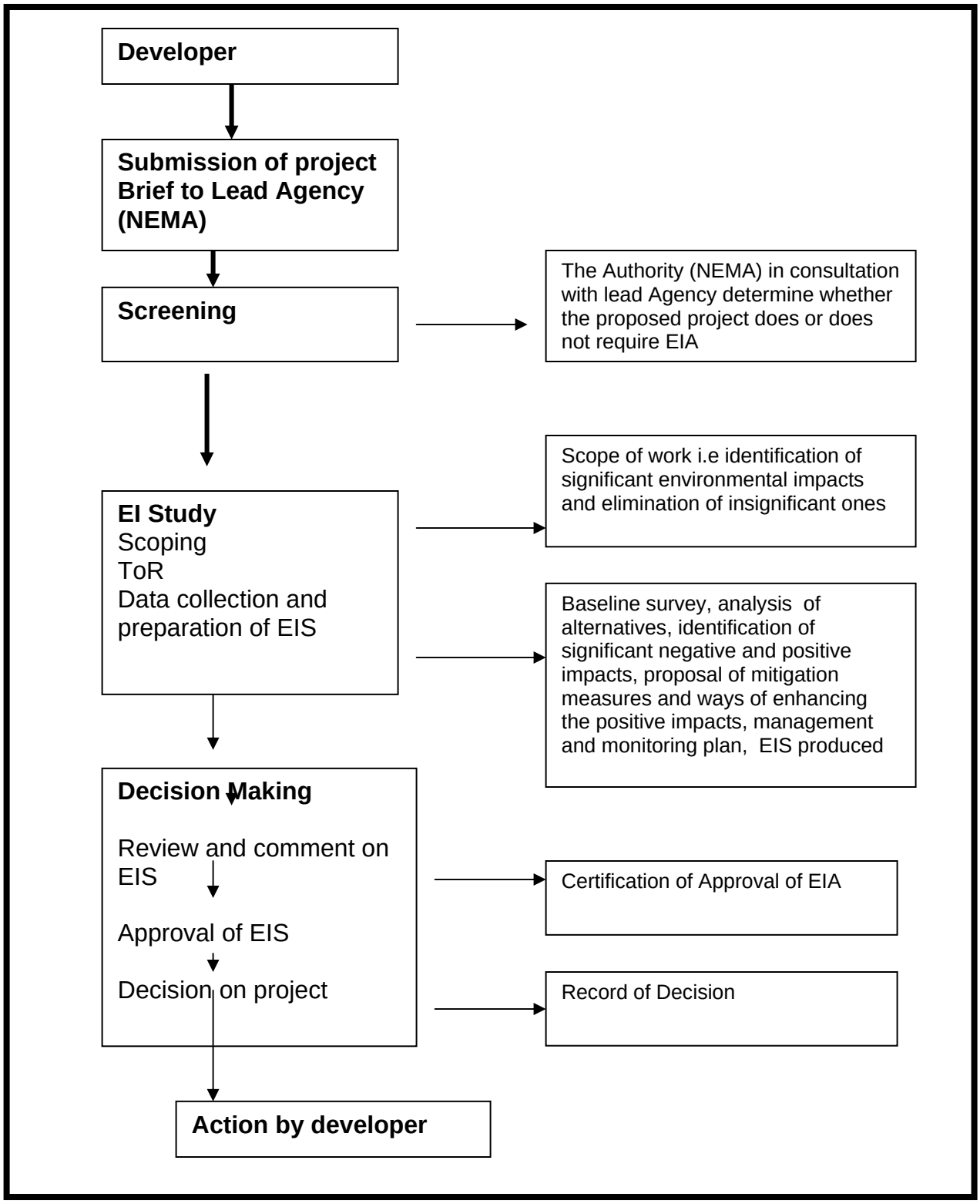


Fig. 1. EIA Process in Uganda

2.1.5 **Legal aspects to water resource management in Uganda**

In addition to the general policies and legal instruments on environmental management, there are sectoral policies and statutes that govern day-to-day management of various sectors of the natural resources. The water sector is recognised as being very important for the socio-economic development of Uganda. It is managed under the **Water Statute 1995**. Section 5 of this Statute states that '*all rights to investigate, control, protect, and manage water in Uganda for any use, is vested in Government and shall be exercised by the Minister and the Director in accordance with the provisions of this part of the Statute.'*

The Water Statute is therefore the principal law for the management of water resources in Uganda. It mandates the Ministry of Water, Lands and Environment (MWLE), as the principal institution for the management of water resources.

2.2. Kenya

In order to realize sustainable development through proper environmental management, the Government of Kenya enacted new regulations in 2003 governing environmental management and introduced new processes such as environmental impact assessments (EIAs), environmental audits (EAs) and environmental monitoring (EM) as stipulated by the EIA Regulations, which came into effect on 13th June 2003.

2.2.1 **The Environmental Management and Coordination Act (EMCA)**

This is Kenya's environmental law that came into effect on 14th January 2000 after going through a long and active process that started in 1993. It took such a long time to come into effect because the consensus was that the long process was essential to ensure the support for the complex law by various Government Agencies. The underlying implication is that, by enhanced public participation, the stakeholders in the Government Agencies and civil society assume the ownership of the Bill developed and consequently the statute enacted by Parliament. Prior to the Act coming into force, environmental aspects were contained in over 77 existing sectoral laws and regulations. The EMCA is therefore referred to as a **framework environmental law**, and addresses environmental aspects of water, forests, human beings, minerals, fish, air, energy, soil etc as components

of the environment and it is in part II of this statute that the right or entitlement to " Clean and healthy environment'' is clearly stated. It also adds that every one has the duty to safeguard the environment.

2.2.2 **Fundamental principles of environmental management in Kenya**

These principles are reflected in part II of the EMCA 1999 and embodied in the act itself. They are hereby outlined:

- To ensure sustainability of the environment and natural resources
- Precautionary measures to mitigate environmentally deleterious consequences of social-economic activities.
- Integration of environmental considerations into development planning and management.
- Promotion of public awareness and participation in environmental decision-making and enforcement
- Providing legal and institutional machinery for application of the principles

2.2.3 **National Environmental Management Authority**

This Authority is established under EMCA 1999 and mandated to coordinate and ensure that prudent environmental practices are observed in the country. NEMA will further ensure that measures towards controlling or mitigating of environmental degradation are not only implemented but also enforced. The Act under section 124(1b) requires the Authority to identify appropriate measures necessary for the national implementation of conventions such as the UNCCD. This includes the initiation of legislative proposals to enable the country to meet her obligations. The Act enshrines the principle of public participation and provides the necessary mechanisms for implementation of programs. It also calls for the preparation of Environmental Action Plans from national to the district levels.

2.2.4 **Common law foundations to environmental law**

Kenya is governed by Acts of parliament, and statutes that derive their force from the constitution. However, in case of lack of specific statute, the Kenya Judicature Act (Cap 8, laws of Kenya) permits the use of common law. The common law was initially the only available law with some relation to the environment**.**

There are four major juridical formulations of the common law on environmental problems i.e. nuisance, trespass, negligence and strict liability that are embedded in Cap 8 of laws of Kenya. The Public Health Act, section 115 as well as section 175 of the Penal code Cap 63 prohibit/criminalize public nuisance. Again, with regard to water pollution the provision on riparian rights has environmental implications. The common law however has various gross limitations, which are explained in chapter 6 of environmental law in Kenya (Okidi, 2001).

2.2.5 **Constitutional provisions on environmental law in Kenya**

Chapter V of the constitution of Kenya provides the fundamental rights and freedoms of the individual including the right to life, personal liberty, protection from slavery and forced labour; freedom of conscience, expression, assembly, association, and movement. However there is no provision for the right to clean/sound and healthy environment as is the case for some constitutions around the world including our neighbours, Uganda**.**

This not withstanding, there are numerous provisions within the constitution of Kenya that mention the environment and/or natural resources. Most of the statutes are sectoral either by natural resources e.g. fisheries, water, forestry and wildlife while others are by functional sectors such as public health, agriculture, factories, mining shipping or chiefs authority.

2.2.6 **Legislation relevant to water resources**

The legislation under this group aims at better provision for conservation, control, apportionment and use of water resources. Protection of water supply and catchments is clearly critical issue under these Acts. The relevant statutes under this category include:

- The Agriculture Act (Cap 318)
- The Water Act (Cap 372)

2.2.7 **Legislation relevant to regional development authorities**

- Lake basin development authority Act (Cap 442)
- Kerio valley development authority Act (Cap 441)
- The Tana and Athi Rivers Development Authority Act (Cap 443)
- Coast development Authority Act (No 20 0f 1990)
- Ewaso Nyiro North Development Authority
- Ewaso Nyiro South Development Authority

They were established to plan and co-ordinate the implementation of development projects in the respective jurisdiction and for matters connected with and incidental thereto. Most of these authorities have come to be synonymous with environmental conservation.

2.3. Sudan

2.3.1 Background

The Sudan, the largest country in Africa, has an area of 2.5 million km^2 and hosts an estimated population of 30 million people. It is a country with mosaic variation in ethnicity, climate, ecology and resources. Recently the country has witnessed profound change in economy since the discovery of oil. Urban and industrial development is becoming inevitable.

The Sudan has taken considerable steps regarding the issues of the environment. NGOs have been active in raising awareness of the country's environmental problems. The Hydro-biological Research Unit and the Institute of Environmental Studies of the University of Khartoum could be regarded as landmarks in the environmental history of the Sudan.

- The Sudan is currently embarking on ambitious developmental programs such as rehabilitation of agricultural schemes, road construction, irrigation canals,

construction of new dams and rehabilitation of new ones, and finally extraction of and transportation of oil with all the adverse environmental impacts that it will have if no careful planning and assessment is given.

2.3.2 Legislation

The Sudan has taken a remarkable step towards promulgating comprehensive environmental legislation, the **Environmental Policy Act of 1998**. In reference to EIA the Policy Act states as follows 'There shall be subject to environmental impact assessment any major development project, which is likely to adversely affect the quality of the environment'. The following information about such projects shall be presented to the competent authority:

- the environmental impact of the proposed project
- any adverse impact on the environment if the project is implemented.
- the possible alternative to the proposed project.
- a warranty that the short term exploitation of the environmental resources is consonant with its long term productivity and development.
- in case of projects exploiting non-renewable natural resources an assurance that such exploitation or undertaking as authorized.

2.3.3 Features of the EIA process in the Sudan

Problems negatively impacting the efficiency of the EIA process in Sudan fall into internal and external categories. The former are related to origin, procedure and fate of EIA as follows:

- Legislation and institutional aspects of EIA;
- Lateness of the EIA in the project cycle;
- Inadequate time allotted for completion of EIA;
- The constituents and qualification of the EIA team members;

2.3.4 Agencies conducting EIA

Currently the Higher Council for Environment requires the owner to do the EIA via any consultant, and then it is subjected to review from the council. However, for an effective implementation of any EIA two pre-requisites are vital: proper qualification of the

conducting agency as well as non-polarity. Unfortunately this is not provided for in the review guidelines.

2.3.5 Timing of EIA

The implementation of EIA has to ensure that, should an adverse environmental impact be foreseen, the necessary corrective measures are formulated in the early stages before the preparation of the proposed project. In the Sudan, for example, the rehabilitation of canals and construction of pump stations in the Northern Province Irrigation Rehabilitation Project was well underway when tenders for EIA were opened!

The time factor affects the EIA quality and it would not allow for application of recommended mitigation measures.

It is worth mentioning that EIA requirements were first introduced by the World Bank in 1989 and was made a requirement for funding projects (Operational Directive 4.01).

Table 1. Some of the EIAs conducted in Sudan

Project	**Year**	**Executor**	**Funding Agent**
Sudan's Southern Stock Route	1985	IES	US-AID
The Locust Control Project	1988	IES	US-AID
UNICEF Hand-pumps Program in Kordofan	1988	IES	UNICEF
The Hamadab Dam	1991	Monenco Consultants	Government of Sudan
The Heightening of Roseiris Dam	1992	G Karrar and Partners	Government of Sudan
En-Nuhoud-El Fashir Road	1995	W Kirkpatrick and S&S Cons.	African Development Bank
Kh. N. Thermal Power Generation Plant	NA	NA	NA

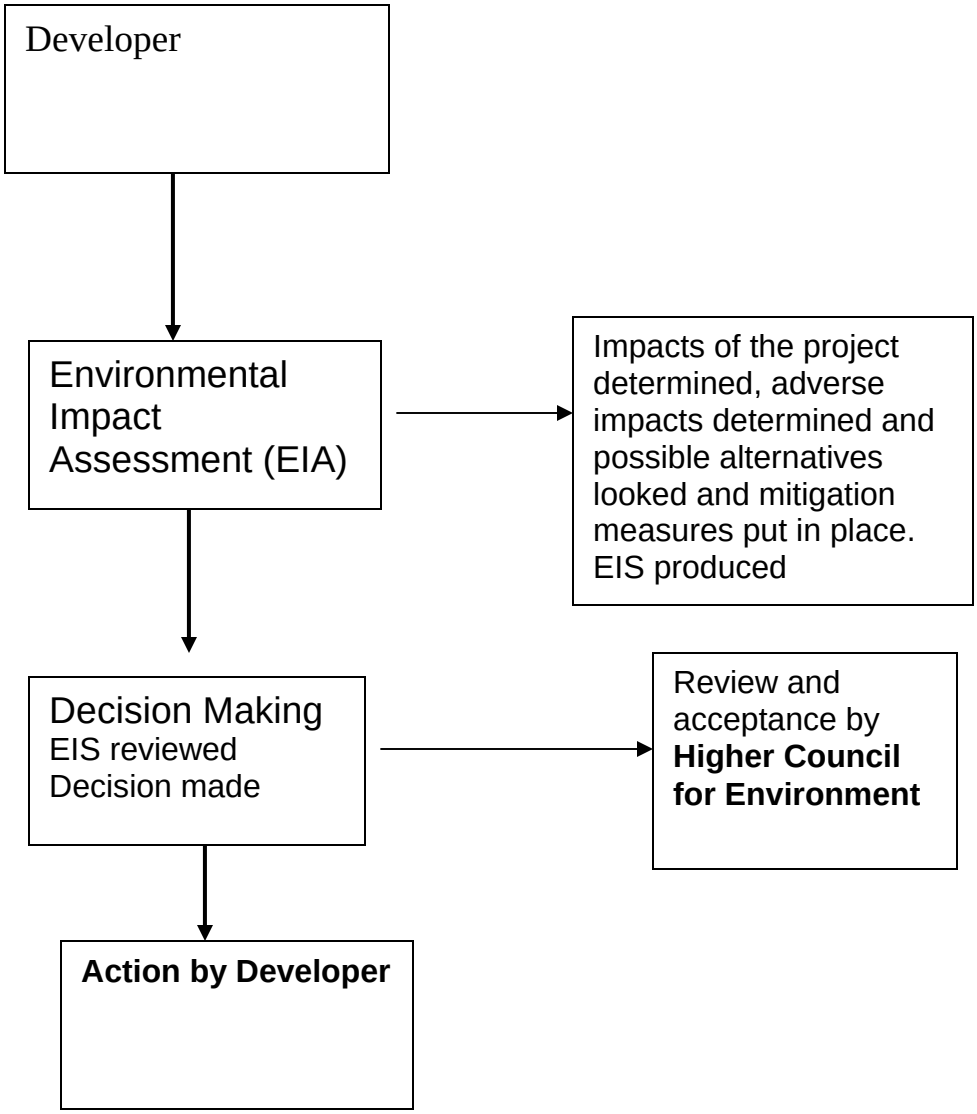


Fig.2. EIA Process in the Sudan

2.4. Egypt

The legal framework for EIA in Egypt was established under Environmental Law No.4 of 1994. In collaboration with the Danish International Development Agency (DANIDA), the Egyptian government developed the national EIA system which established the

Egyptian Environmental Affairs Agency (EEAA) as the lead agency. To supervise and manage the entire EIA process in Egypt, the Central EIA department was setup within EEAA. The General guidelines for EIA were issued by EEAA in 1995 and these detail the procedures for EIA as identified in Law No.4 of 1995 and its executive regulation, providing a general outline of the content of a full EIA report. Brief sectoral guidelines defining content of EIA reports for establishments that need full EIA also exist.

The General guidelines categorise development projects into three types under the screening phase:

- White list: projects with minor environmental impacts
- Grey list: projects which may result in substantial environmental impacts
- Black list: projects for which complete EIA is mandatory due to the magnitude and nature of their potential impacts

With the assistance from the Support for Environmental Assessment and Management (SEAM) project, further guidance documents have subsequently been issued by the EEAA. These include:

- Guidance on dealing with Grey list projects: This document includes a summary of the procedural requirements for completing the screening form B, a note outlining how to answer the questions on form B and an example of a completed screening form
- Guidance for wastewater treatment works
- Guidance for ports and harbours
- Guidance for industrial zones
- Guidance for tourist activities

To complement the role of EEAA, environment management units were established in the Governorates and this has helped promote the application of EIA to industrial projects that are being undertaken in the new industrial cities.

Much as EIA in Egypt is reasonably well established, the following are specific aspects that will require attention in the near future:

- The competence of EIA consultants needs to be boosted based on the prevailing capability and qualifications. It becomes apparent that at times, consultants do not have a full understanding of the subjects being dealt with.
- The review process and quality of EIA reports needs to be strengthened by providing clear detailed guidelines and criteria. EEAA currently relies on independent consultants to review full EIA studies or scoped EIAs. A review checklist developed for the tourist projects and the petroleum sector could be extended to other types of projects.
- There is limited environmental data required for EIAs and what exists in different government departments is difficult to obtain and at times costly. EEAA is working at addressing this issue through the establishment of a computerized database system.

The principle of public participation is not mandatory in the Egyptian EIA system and as a result it is often ignored. Public participation needs to be encouraged at all stages of the EIA process.

3. INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT

3.1 Uganda

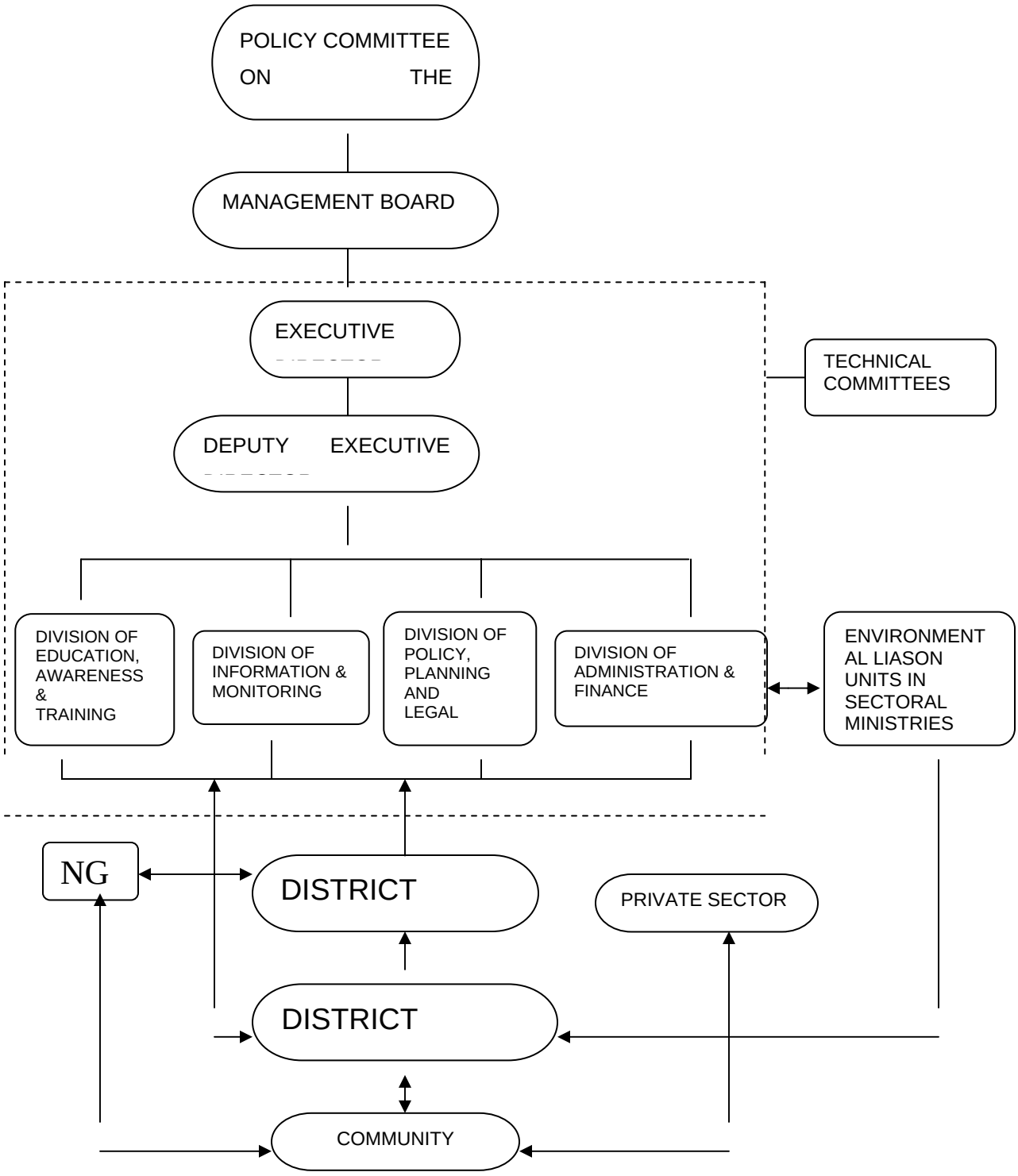
The National Environment Management Policy for Uganda, 1994 recommended an establishment of a National Environment Management Authority (NEMA) to be '**the principal agency for coordinating, monitoring and supervising all activities in the field of environment.'**

3.1.1. National Environment Authority (NEMA)

Following the Policy recommendation above, the National Environment Statute 1995 established NEMA in Section 5 as the principal agency in Uganda for the management of the environment, coordinating, monitoring and supervising all activities in the field of the environment. NEMA prepares a National Environment Action Plan (NEAP) that is reviewed every five years, from which the local government environment committees develop local environment work plans.

NEMA is under the general supervision of the Minister of Water, Lands and the Environment, who appoints a Board of Directors to the Authority. The Board members are approved by the Policy Committee on the Environment (PCE). For advisory roles on technical matters, the Board appoints Technical Committees on environmental impact assessment, biodiversity conservation, licensing of pollution and soil conservation.

FIG. 3. THE INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT IN UGANDA



3.1.2 Institutional arrangement for the Water Resource Sector

The Water Statute provides for the establishment of a Water Policy Committee (WPC), whose membership comprises of eight representatives from relevant government ministries and departments (including the Executive Director of NEMA and the Managing Director of National Water and Sewerage Corporation, NWSC), two representatives from district administrations and two persons having special qualifications and experience. The committee is chaired by the Permanent Secretary of the ministry responsible for water resource, while the Director of Water Development (DWD) is the Secretary, making DWD the secretariat for the WPC.

The functions of the WPC include:

- Setting national policies, standards and priorities for water resource management
- Revising and updating the Water Action Plan
- Coordinating revisions to relevant legislation
- Coordinating sector ministries plans and projects
- Settlement of disputes between government agencies
- Coordinating formulation of international water resource policy

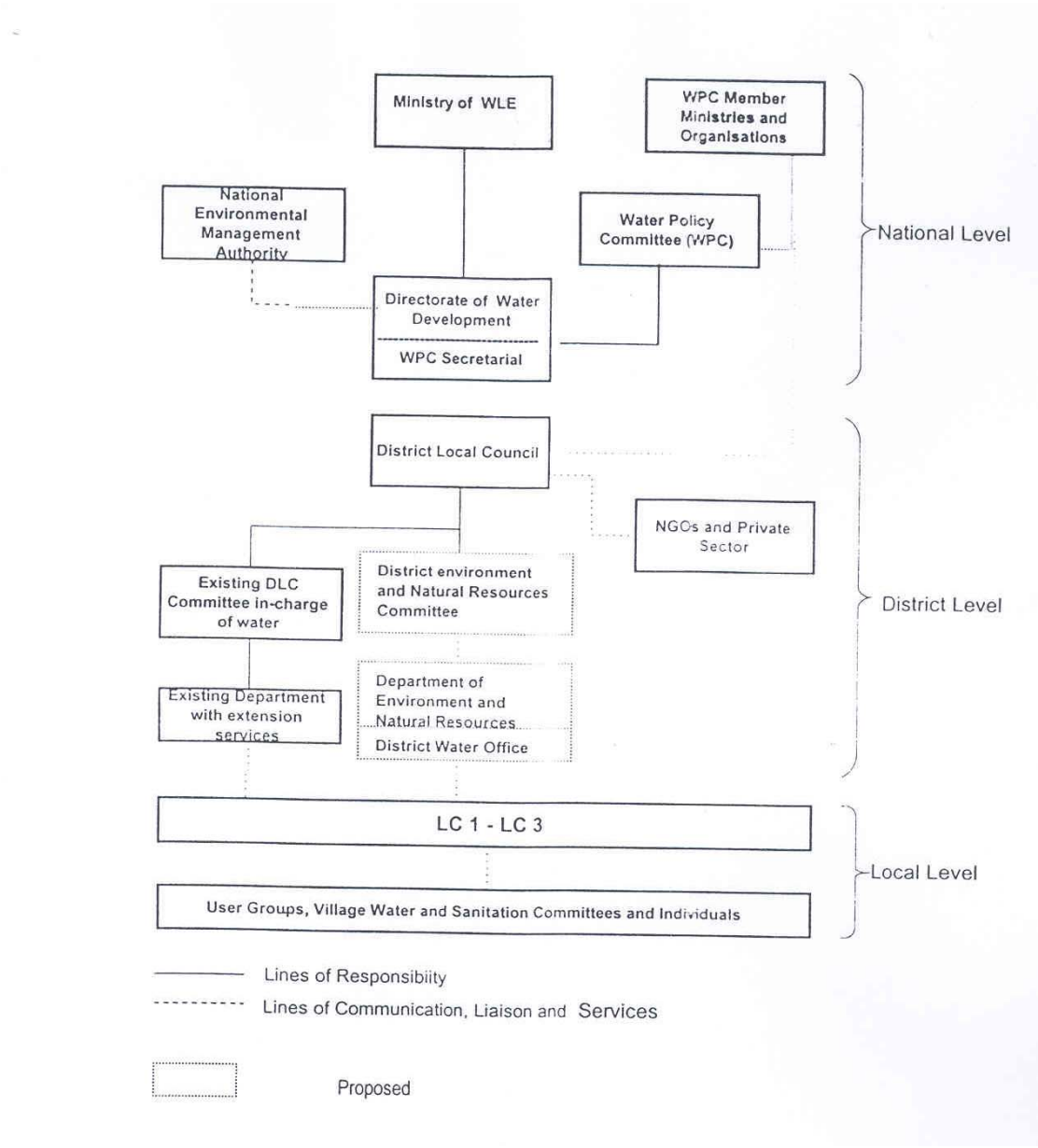
The water sector in Uganda falls under the Ministry of Water, Lands and Environment as does NEMA though the latter is semi-autonomous. The Directorate of Water Development (DWD) is the lead technical water sector agency. It coordinates and regulates all sector activities and provides support services to the local governments and other service providers. It is headed by a Director and comprises two departments:

1 The Water Resource Management Department responsible for ensuring sustainable and integrated management of the country's water resources
2 The Water Supplies Department responsible for ensuring adequate supply of safe water for animal and human consumption, and together with the Ministry of Health and that of Education and Sports, provides appropriate sanitation and hygiene facilities.

The Directorate has also got two functional units, that is, the Water Liaison Unit and that of Finance and Administration.

The primary objectives and goals of DWD include:

- Promoting coordinated, integrated and sustainable water resources and the provision of water for all social and economic activities
- Provide safe water supply and sanitation facilities within easy reach, based on management responsibility and ownership by the users either directly through water supply committees or indirectly through public bodies
- Promote development of water supply for agricultural production in order to modernize agriculture and mitigate effects of climate variations on rain-fed agriculture. The institutional arrangement for water management is shown below:



3.2 Kenya

The Environmental Management and Coordination Act (EMCA, 1999) provides for the establishment of an appropriate legal and institutional framework for the management of the environment. In this regard, it establishes the provincial and district environmental committees.

The EMCA 1999, under part III sections (3-36), lays down the institutional framework for environmental administration and management. Much of the institutional framework has been set up already.

3.2.1. National Environment Management Authority NEMA)

The object or purpose of NEMA is to exercise general supervision and coordination over all matters relating to the environment and to be the principal instrument of government in the implementation of policies relating to the environment (EMCA 1999, Section 9a-q). NEMA being an umbrella Authority to all environmental management concerns is as established in EMCA 1999 section 10 headed by the Board of the Authority.

3.2.2 Water Resource Management

General

Water resources form a major component of the environment and are in line with river engineering, which is the central issue under NBCBN. Having stated that, it makes sense thus to examine closely water resource management, including the legal and institutional framework and tie this with the environmental management component of water management.

The Water Act No 8 2002

The water act No 8 2002 is the main statute presently governing water resource management as well as the water supply and sewerage services provision in Kenya. It provides for the management, conservation, use and control of water resources and for acquisition and regulation and management of water supply & sewerage services. This Act replaces the Water Act (Cap 372) and certain provisions of the Local Authority Act

(Cap 268). This Act also establishes the water resources management strategies and the water services strategies.

Water resources management Authority (WRMA)

The WRMA is established under part III section 7(1) of the Water Act 2002. The authority is a corporate body with perpetual succession and a common seal. It is charged with overall and prudent management of water resources. However, the ownership and control of water resources is vested in the state (part II section 3) of the Water Act 2002.

Duties of the Minister

Part II section 4(1-3) of the Water Act 2002 present the minister with powers to control every water resource in accordance with the Act. The Minister is to promote the investigation, conservation and proper use of water resources in Kenya. He/she is to ensure the effective exercise and performance by any authorities or person under the control of the minister; of their powers and duties in relation to water. To assist the minister in all the above is the Director of water. The right to use of water from any resource is vested in the Minister.

4. PROCEDURES FOR THE EIA PROCESS

4.1 Country statuses

4.1.1 Uganda

The procedures of carrying out EIA should be well known by both the proponents and EIA practitioners; they should be embedded in policies and laws governing the EIA process. In Uganda the projects to be considered for an EIA are listed in the Third Schedule of the National Environment Statute 1995, Section 4 which lists dams, rivers and water resources including:

(a) storage dams, barrages and weirs;

(b) River diversions and water transfer between catchments;

(c) Flood control schemes;

(d) Drilling for the purpose of utilizing ground water resources including geothermal.

For any developer whose project falls in this Schedule, the procedure is to prepare a **project brief** stating, in a concise manner, the nature of the project, activities to be undertaken, project design, materials to be used and waste products to be generated, environmental effects and mitigation measures, and any other matters required by NEMA.

The developer then submits ten copies of the project brief to the Executive Director of NEMA, and where the Director deems the project brief to be complete, a copy may be transmitted to the lead agency for comment and review. The Executive Director then considers the brief and comments and if satisfied, then the developer is permitted to carry out EIA, following Guidelines for EIA in Uganda, 1997. This study is conducted in accordance with the Terms of Reference (TOR) worked out by the developer in consultation with NEMA and the lead agency and is undertaken by experts whose names and qualifications are approved by the Authority.

4.1.2 Kenya

In Kenya the projects considered for EIA are listed in the Second Schedule of EMCA 1999 of which component 4 lists dams, rivers and water resources and furthermore enumerates storage dams, barrages, piers, rivers diversions, water transfer between catchments, flood control schemes and drilling for the purpose of utilising groundwater resources including geothermal energy as undertakings requiring EIA study. The process follows the conventional steps of scoping, screening and so on.

4.1.3 Egypt

In Egypt, the general guidelines for EIA issued by EEAA in 1995 puts projects into three groups: Group A consists of projects with minor environmental impacts which do not require EIA; Group B consists of projects which ***may*** result in substantial environmental impacts; and Group C consists of 'black projects' for which complete EIA ***must*** be done due to the magnitude and nature of their potential impacts. General and sectoral guidelines spell out the procedures for carrying out the EIA studies.

4.2 Public participation in EIA

Consultation and public participation are integral aspects to the EIA process. There appears to be a growing view that increased consultation and public participation, using one or more of the numerous means that exist, can produce significant benefits for both the proponents of projects and those likely to be affected by them. This is because consultation and public participation are likely to identify impacts early enough so that mitigation measures are instituted to prevent environmentally unacceptable development and the avoidance of public controversy, confrontation and delay. Involving communities early enough may result in few or no objection. It may also result in substantial project modifications or even abandonment if no other accommodation can be reached.

This is because projects or programmes have significant impacts on the local population. Whilst the aim is to improve the well being of the population, a lack of understanding of the people and their society may result in development that has considerable negative consequences. More significantly, there may be divergence between national economic

interests and those of the local population. The EIA provides an ideal forum for checking that the affected public have been adequately consulted and their views taken into account in project preparation and consequently improving the project.
There are no clear rules about how to involve the public and it is important that the process remains innovative and flexible. In practice, the views of people affected by the plan are likely to be heard through some form of representation rather than directly. It is therefore important to understand how decisions are made locally and what are the methods of communication, including available government extension services.

The views of racial minorities, women, religious minorities, political minorities and lower cast groups are commonly overlooked (World Bank, 1991). There has been an enormous increase in the number of environmental NGOs and "Green" pressure groups throughout the world. Such organizations often bring environmental issues to the attention of the local press. However, this should not deter consultation with such organizations as the approach to EIA should be open and positive with the aim of making improvements. Relevant NGOs should be identified and their experience and technical capacity put to good use.

4.2.1 Uganda

The Government of Uganda wants to see the EIA process being interdisciplinary, fully transparent to which **all stakeholders** have access. Part 5 of the *Guidelines for EIA in Uganda* 1977 gives a detailed account about public participation in the EIA process. The first sentence reads thus: ‘The central policy of the EIA process is the full opportunity for public involvement and participation throughout the entire EIA process’. Therefore public participation in the EIA process takes centre stage at both inception and during the course of development. The guidelines provide that the public may appropriately be involved in the EIA process in the following ways[1]:

- Focus group discussions with people in the project area during socio-economic.
- Informing the public about the project
- Participation in scoping exercises.
- Open public meetings/hearings on the projects

- Inviting written comments on proposed projects from those who can put their comments in writing.
- Use of community representatives
- Comments and review of the EIS
- Making relevant documents available to any interested members of the public in specified places or at production cost.

The regulations for Public participation in the EIA Process after EIS has been submitted for controversial or extremely important national projects are quite elaborate:

1. Invitation of the public general comments in writing after the Executive Director of NEMA is satisfied with the EIS. This includes all information contained in the EIS.
2. Invitation for comments from persons specifically affected by the project. This is done in a newspaper having local circulation in the area where the project shall be located and on other mass media and through the distribution of the necessary information through lower governments established under the Local Government Act 1997 and shall be in languages understood by the majority of the affected persons.
3. Determination to make a decision or hold public hearing by considering the EIS and all comments received under the above. The Executive Director shall call for a public hearing under these regulations where there is a controversy or where the project may have trans-boundary impacts.
4. Public Hearing is held on the written request of the Executive Director, the lead agency on the environmental impact statement if:
    - As a result of the comments made under 1-3 above the Executive Director is of the opinion that a public hearing will enable him to make a fair and just decision;
    - The Executive Director considers it necessary for the protection of the environment and the promotion of good governance.

    The public hearing shall be held within such period as the Executive Director in consultation with the lead agency may determine but which period shall not be

less than thirty days nor more than forty five days of receiving comments under 1-3 above. The main components of the public hearing are:

- It is presided over by a suitably qualified person known as a presiding officer, appointed by lead agency in consultation with the Executive Director. The presiding officer serves on such terms and conditions as the lead agency and the person so appointed may agree.
- The scope of the public hearing determined in the terms and conditions as the lead agency and the person so appointed may agree and are commensurate with the nature and size of the project.
- It's conducted at a venue, which is convenient and accessible to those persons who are likely to be specifically affected by the project.
- The date and venue are advertised through the mass media, so as to bring it to the attention of persons most likely to be affected by the project and those persons making comments.
- On the conclusion, the presiding officer makes a report of the views presented at the public hearing and factual findings to the lead agency and the Executive Director within thirty days from the day on which the public hearing was concluded.

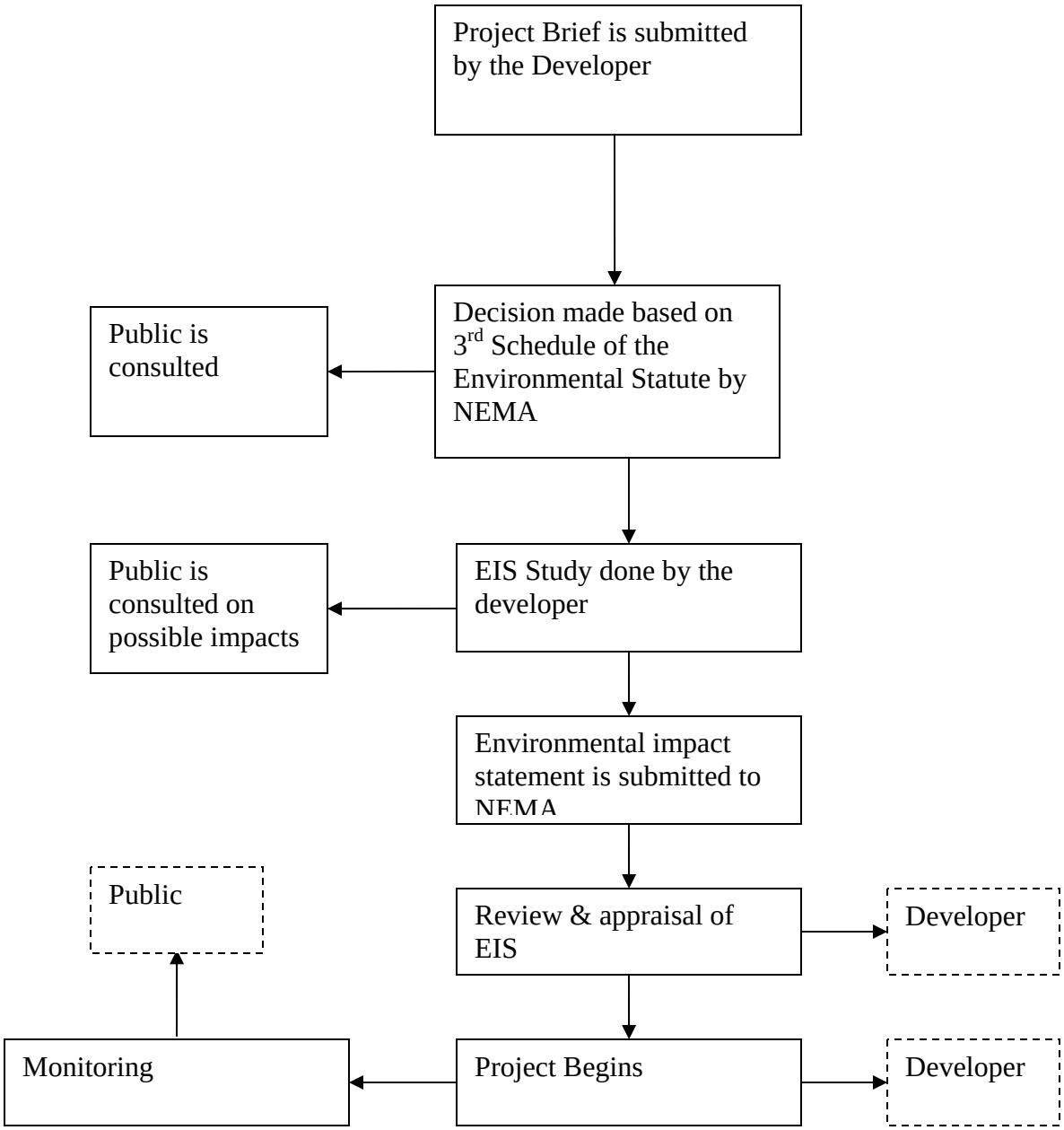


Fig. 5. Public participation in the EIA Process

4.2.2 Kenya

The environmental management statute for Kenya (EMCA) is the product of a new methodology for the development of framework environmental law, which is designed to promote public participation in the conception and formulation of the law. The underlying implication is that, by enhanced public participation, the stakeholders in the Government Agencies and civil society assume the ownership of the Bill developed and consequently the statute enacted by Parliament.

In part II section 3(1) it is stated that every person in Kenya is entitled to a clean and healthy environment and has duty to safeguard and enhance the environment. By this statement it is implied that people are supposed to participate in the process of safeguarding the environment. In spite of the above, section 5a of part II invokes the principle of public participation in the development policies, plans and processes for the management of the environment. Public participation starts from the grass roots so as to involve all stakeholders.

The EMCA 1999 part VI section 59(1a-d) stipulates that the results of EIA have to be published in a gazette and in a newspaper circulating in the area or proposed area of the project. This is basically to ensure that the public gets to know of the environmental impacts of the proposed development and hence participate in any matters arising.

4.2.3 Egypt

Public participation in the EIA process in Egypt is not a requirement and as a result it is often ignored.

4.2.4 Sudan

The participation of NGOs and people will is encouraged to make sure that EIA is real rather than procedural.

4.2.5 The World Bank

The World Bank's Operational Directive (OD) 4.01 on Environmental Assessment (EA) requires that affected groups and local NGOs be informed and consulted in a meaningful

way as part of EA preparation (para 21). **Information disclosure** is a prerequisite for meaningful consultation. Proper **consultation** is a requirement for EA category A projects but is also useful for other projects as it helps

1. Improve understanding of the potential impacts of proposed projects;
2. Identify alternative sites or designs, and mitigation measures, to improve environmental and social soundness;
3. Clarify values and trade-offs associated with these different alternatives;
4. Identify contentious issues;
5. Establish transparent procedures for carrying out proposed projects; and
6. Create accountability and a sense of local ownership during project implementation.

The World Bank guidelines are clear on Public involvement (consultation and participation). The key factor that distinguishes consultation from participation is the degree to which those involved are allowed to influence, share or control decision-making.

1. The World Bank requires *consultation* with affected groups and local NGOs as part of the EA preparation process.
2. *Participation* is required during project preparation under certain conditions and is generally recommended as part of implementation. This is a voluntary process in which people, including marginal groups (poor, women, indigenous, ethnic minorities) come together with project authorities to share, negotiate and control the decision-making process in project design and management.
3. *Information dissemination* is a necessary precondition for consultation and participation.

4.2.6 Recommendations for Public Involvement in the EIA Process

Legal and institutional requirements for effective public participation could include: a) full and timely advance notification of EIA decisions; b) timely access to EIA documents, including background reports and data; c) an opportunity to be heard, whether at public

hearings, or through written comments; d) a written record of decisions, in which the responsible official or authority notes the key issues and/or concerns raised by the community, NGO, and other participants during the EIA process, and describes how these issues and concerns have, or have not, been addressed in the decisions reached; e) provision of an administrative or judicial review procedures in which the adequacy of the environmental review process can be tested.

A broad range of steps can be taken to encourage and support public participation, including but not limited to: a) mass communication efforts to discuss EIA studies; b) creation of project monitoring committees which include community, NGO, and/or private sector representatives, and which play a role in the preparation of EIAs, or in the compliance monitoring of completed projects; c) intervener funding; d) strengthening of NGOs in order to improve the quality of participation.

4.3 Cost benefit analysis (CBA) and Environmental risk analysis (EMR)

The Environmental Impact Assessment (EIA) assists decision-makers in considering the proposed projects for environmental costs and benefits. When the benefits sufficiently exceed the costs, the project can be viewed as environmentally justified. This is a relatively new planning and decision-making tool first enshrined in the United States in the National Environmental Policy Act of 1969. It is a formal study process used to predict the environmental consequences of any development project.

The central issue in CBA is the aggregate gain or loss to society as a whole, and not identification of winners or losers. Therefore, the whole exercise of CBA is to bring about an increase in the economic as well as social welfare of the stakeholders.

In CBA the following must be taken into account: quantitative estimation of the extent of benefits and costs of the project, discounting of future coasts and benefits. In all these analyses, there must be comparisons of alternatives so as to come up with the most beneficial choice.

Regarding the possible integration of cost-benefit analysis in EIA, there are difficulties in doing so. It is recognized that valuation and the reflection of some monetary values in

EIAs is an essential exercise, particularly if the results of the assessment were to have an impact on influencing decision and policy makers. It should, however, be noted that since there are difficulties associated with the quantification of intangibles including cultural and social values, qualitative analysis have to substitute for quantification of costs and benefits until valuation techniques are more reliable.

Checklists, matrices, networks diagrams, graphical comparisons and overlays, are all techniques developed to help carry out an EIA and present the results of an EIA in a format useful for comparing options. The main quantitative methods of comparing options are by applying weightings, to environmental impacts or using economic cost-benefit analysis or a combination of the two. Assigning economic values to all environmental impacts is not recommended as the issues are obscured by the single, final answer. However, economic techniques, can provide insight into comparative importance where different environmental impacts are to be compared, such as either losing more wetlands or resettling a greater number of people.

In the developed countries of Western Europe the discussion on concepts and tools for sustainable development is moving towards the principles of integrated environmental management and integrated cost benefit analysis. In some countries of the Rhine and Scheldt delta methodologies have been adapted for production of so called society interests based on cost benefit analysis. These are studies that integrate both monetary and non-monetary values in the planning and decision making process. They require research into new valuation techniques considering concepts for spatial quality, infrastructure damage, victim risk etc. It is to be expected that these approaches will very quickly gain importance in EIA/SEA processes worldwide especially where environmental degradation or human safety are fields of concern.

The management of risks is a central issue in the planning and management of any adventure (Simmons, 1998) and should be proactive so as to avoid risks. Risk management has not been historically an organisational issue in many development

bodies probably because of lack of capacity for risk assessment. Risk analysis and management are embedded in multi-disciplinary understanding of environmental issues. Being proactive, risk analysis should begin in the pre-proposal phase and continue through the proposal and subsequent phases.

4.3.1 Uganda

In 1991, Uganda started the National Environmental Action Plan process (NEAP) as a strategic framework within which the environment and sustainable issues were identified and prioritised. It is also the basis for managing, monitoring and evaluating environmental plan of action. One of the tools the NEAP proposed to use is environmental economics. Two of the four objectives were:

1. to integrate costs and benefits into economic planning and development at all levels of government in order to reflect the true costs and benefits of development.
2. to incorporate cost of producing or maintaining natural resources into the costs incurred by (and benefits derived from) resource users through the use of appropriate management mechanisms such as leases, management contracts, users' fees, concession agreements and similar pricing mechanisms.

4.3.2 Kenya

The EMCA 1999 does not expressly encompass the aspects of ERA, while CBA is actually not mentioned at all. However in the procedure for EIA, a developer may be required to carry out the conventional EIA as well as ERA. In the later case however, the Director General would be specific on the identification of the substances arising form the activity for which a risk assessment is required.

4.4 Enforcement and conflict resolution

4.4.1 *Uganda*

Enforcement of the EIA regulations is done through the following ways:

- Creating awareness through training, and publicity in the mass media. The line department charged with this is District Support Coordination and Public Education that works hand in hand with Environmental Monitoring and Compliance.
- Inspection by NEMA through the department of Environmental Monitoring and Compliance.
- Use of the District environmental Officers
- Public involvement at the inception and during the project life.
- Personal initiatives by the developers.

Compared to other countries Uganda is the second rated country in Africa regarding environmental regulation but enforcement of these regulations is still a problem. Much depends on the requirement of the funding agency and magnitude of the project as donor funded ones attracts more attention and public interest.

Major areas of conflict in the Ugandan EIA process are conflict of location in terms of being out of character with the environment, for example:

- Residential areas
- Fragile ecosystems
- Going ahead without satisfying the EIA requirements

For the above cases, NEMA has the ultimate authority over environmental issues as per the provisions of the Environmental Statute of 1995. Any EIA without a consultative process cannot be approved.

The EIA regulations provide for the following :

1. *The effect of approval or rejection of a Project which is in a potential dispute area*
    - No civil or criminal liability, in respect of an approval of a project or consequence resulting from an approved project, shall be incurred by the Executive Director or any person acting on his behalf, by reason of the approval, rejection or denial or any conditions attached to the approval.
    - The fact that an approval is made in respect of an environmental impact assessment shall afford no defence to any civil action or to a criminal

prosecution under any enactment concerning the project or the manner it is operated or managed.

2. *Appeals*

- Any person who is aggrieved by any decision of the Executive Director may, within thirty days of the decision, appeal to the High Court.

*4.4.2 **Kenya***

With respect to the enforcement of environmental law the Act has defined the following:

- Environmental standards (part VIII)
- Environmental impact licenses (part VI)
- Environmental inspection, analysis and recording (part X)
- Environmental restoration, conservation orders and easements (part IX)
- Environmental offences (part XIII)

This has been defined in various parts of the EMCA 1999 to provide basis for enforcement and provide a ground for prosecution in cases of contravention**.**

4.5 Impact monitoring and management

The monitoring and management of impacts is a fundamental part of impact mitigation. Effective management of impacts is required to keep them within the predicted levels and to deal with the unforeseen ones or problems.

*4.5.1 **Uganda***

Procedures for monitoring environmental performance of the proposed activity / project are incorporated in the EIS. With regard to the Ugandan guidelines, **all developers** whose projects are subjected to EIA studies must ensure that mitigation measures and actions as approved through the EIA to protect the environment are adopted and implemented.

The developer must undertake to conduct self-monitoring, self-record keeping and self - reporting, and the information gathered through monitoring is stored and made available

during inspection. It is also the developers' responsibility to mitigate any undesirable impacts not contemplated in the EIS and accordingly report to the lead agency or NEMA.

The part of the EIS covering monitoring and management is often referred to as the Environmental Action Plan or Environmental Management Plan. This section not only sets out the mitigation measures needed for environmental management, both in the short and long term, but also the institutional requirements for implementation.

All the management proposals need to be clearly defined and costed. One of the more straightforward and effective changes is to set-up a monitoring programme with clear definition as to which agencies are responsible for data collection, collation, interpretation and implementation of management measures.

The purpose of monitoring is to compare predicted and actual impacts, particularly if the impacts are either very important or the scale of the impact cannot be very accurately predicted. The results of monitoring can be used to manage the environment, particularly to highlight problems early so that action can be taken. The range of parameters requiring monitoring may be broad or narrow and will be dictated by the 'prediction and mitigation' stage of the EIA.

The monitoring is done by the developer, District Environmental Officers, NEMA (through the Department of Environmental Monitoring and Compliance) and the public. Monitoring relies greatly on public participation due to manpower shortage in NEMA and is done based on the Environmental Action Plan, use of Certificate of Approval, complaints received from the public, surveillance and nature of wastes being generated by the process.

NEMA uses inspection forms during the monitoring exercise and it is required that findings be shared with the developer and signed by both parties. The form sources for information on frequency of audits, nature of activities, inputs for the process, bi-products and wastes being generated and how they are being handled. A time frame is

given for agreed upon during this discussion for improvement in areas found to be non compliant.

*4.5.2 **Kenya***

A serious shortcoming of a number of EIA studies conducted in Kenya is the absence of baseline data and impact monitoring during the construction and operation of projects. Without such data, it is impossible to test impact predictions and the success of mitigation measures. Under the EIA regulations the environmental monitoring must accomplish the following aspects:

- Determine the indicators to be used in monitoring activities;
- Collection of meaningful and relevant information;
- Application of measurable criteria in relation to chosen indicators;
- Reviewing objective judgements` on the information collected;
- Drawing tangible conclusions based on the processing of information;
- Making relational decisions based on the conclusion drawn;
- Recommending improved mitigation measures to be undertaken.

*4.5.3 **Sudan***

The monitoring of mitigation measures calls for a responsible body. Such an agency is lacking in the Sudan. The HCENR, if institutionally upgraded and financially supported, could fill the gap. The federal government system adopted by the Sudan casts heavy shadows over the EIA process. The devolution of the comprehensive Environmental Legislation to state levels needs the executive power to make it effective. It is suggested that the central government should have a stronger grip on policies, legislation, foreign affairs and coordination.

4.5.4 The World Bank

One of the purposes of Environmental assessment (EA) is to minimise potentially adverse impacts and enhance the overall quality of the project. The effectiveness of an EA in meeting these objectives is determined during the project implementation through

performance monitoring by the borrower and Bank supervision. Monitoring assesses the effectiveness of the mitigation measures.

In brief, an EMP describes the management systems and the monitoring and auditing arrangements required to ensure both the proper implementation of agreed mitigation measures and the verification of predicted environmental impacts. Its detailed features may vary but the EMP is likely to be prepared by the developer, with the assistance of consultants, and either be incorporated into an EIS or submitted together with it as a separate document. The EMP would then form part of the documentation used for consultation purposes and decision making and would be used by the competent authorities when specifying conditions to be met by the developer when implementing the project. A mitigation and management plan should include the following items:

1. Monitoring objectives
2. Description of performance indicators which provide linkages to impacts and mitigation measures.
3. Description of parameters to be measured, methods to be employed, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for remedial actions.
4. Institutional responsibilities, timing and time scales for monitoring;
5. Reporting arrangements (to the regulatory authority and bank)
6. Cost and financing provisions.

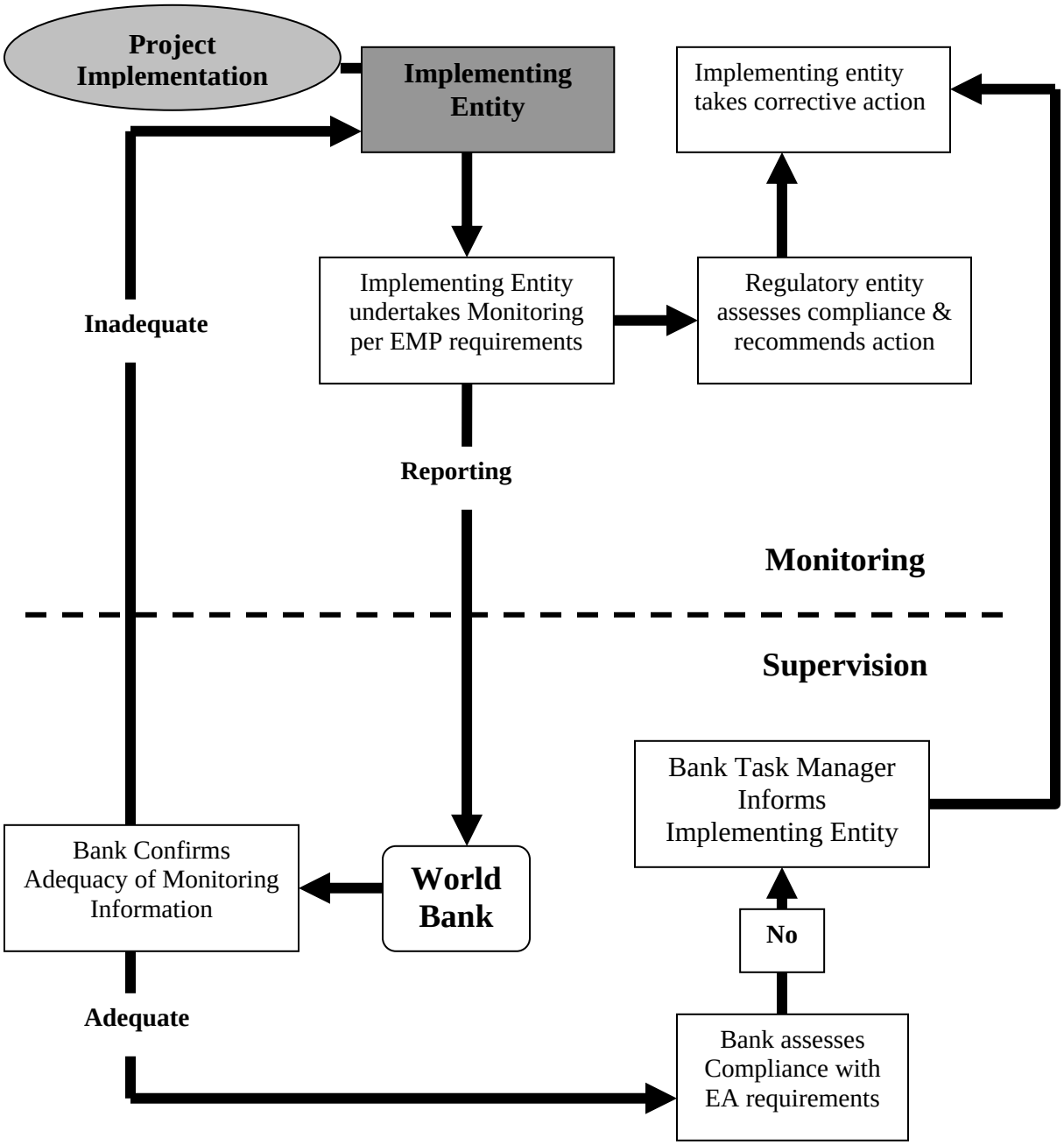


Fig. 6. World Bank Monitoring and Supervision during project implementation

5. EIA EXPERIENCES FROM CASE STUDIES

To find out the effectiveness of the EIA process enshrined in the legal and institutional framework of the different countries in the Nile Basin, some projects have been reviewed as case studies.

5.1 Karuma Hydropower project (UGANDA)

Project description

The Karuma Falls Hydropower Project is located on the southern bank of the Nile River some 80 km downstream of Lake Kyoga in north central Uganda. The project utilizes a natural fall in the river of some 25m and is based on diverting some of the flow into 2 km long set of tunnels and an underground power house with four Kaplan turbines, nominally 50 MW each.

Project Brief (PB)

Project Definition report was prepared in place of the PB. This was submitted at the time when EIA was submitted. So NEMA did not do screening of the project.

EIA Study

Scoping

A pre-feasibility study was conducted in 1996 by NORPLAN AS the Consultant for Norpak Power Limited. This included environmental Scoping. During the scoping, the following was achieved:

- Issues of concern to be assessed were identified
- Community involvement plan was put in place and this was through establishment of Local Council and Elders Committee (LEC).
- Stakeholder consultations including Lead Agencies (DWD, NEMA, UWA), District Authorities of Masindi and Apac, and NGOs carried out.
- Terms of Reference (ToRs) for each of specific themes identified during scoping were developed. The ToRs prepared were circulated to the stakeholders (NEMA and UWA) for their comments; both emphasized the fact that the proposed project

being located near Murchison National Park required careful handling of biodiversity. Then the final ToRs were prepared with their input.

EIA study

A multidisciplinary team based on the identified themes was assembled to carry out EIA. The EIA study began in 1998 and was completed in 1999. During the EIA, LEC and **all the other stakeholders were consulted** from time to time. The **EIS report including mitigation and monitoring plan** was then submitted to NEMA for review. The **Report was published by NEMA and put in the different libraries** in Uganda like NEMA library, Institute of Environment in Makerere University and others. Together with NEMA, **a number of Lead Agencies** including UWA, DWD, Wetland Division, Ministry of Energy and Mineral Development, Environment Officers of Masindi and Apach **reviewed** the report.

Being a sensitive project, NEMA organized a **public hearing** that was attended by Members of Parliament, Local Authorities, Lead Agencies and the communities around. Concerns and comments were given that day and the Consultant incorporated them into the Final EIA report.

EIA Approval

Certificate of approval was given and some other concerns were attached to the certificate as specified conditions of approval. Some mitigation measures have already been effected including compensation.

The Project Brief for Karuma HPP was not submitted to the Lead Agency. However the Environmental Scoping on which the developer together with Lead Agency based the preparation of ToR was used. It follows therefore that the developer decided by himself or used the list provided by the EIA Guidelines that the project required a full EIA.

5.2 Sondu-Miriu River Hydroelectric-Power Project (KENYA**)**

Project Description

Sondu Miriu HEP Project is located on Sondu Miriu River, one of the six major rivers that drains into Lake Victoria basin. It covers six sub locations with a population density of 500 people per square kilometre. The Kenya Generating Company, (KENGEN) plans to divert water from the Sondu-Miriu river into a regulating pond with a capacity of 1.1 million cubic metres. This water will then be led into the main powerhouse via a 7.2 kilometre tunnel. The project is in its civil works stage involving construction of camp sites, roads, a bridge, communication implements and blasting of the tunnel which is still in the initial stages.

In 1985 a feasibility study for the Sondu River Multipurpose Development Project was produced. The proposed multipurpose project consisted of three projects, Magwagwa Multipurpose Dam, Sondu/Miriu Hydropower Project and Kano Plains Irrigation Project. The Study recommended a three-phase project development for the Sondu River Multipurpose Development Project with the Sondu/Miriu Hydropower Project being Phase 1.

KenGen, which is a power generation company is only developing the Sondu/Miriu Hydropower Project. However the project includes an irrigation outlet valve at the power station and a provision for the extraction of irrigation water for future implementation by any interested parties.

Generally the EIA process in Kenya is almost the same as that in Uganda.

Project Report

It is not clear whether a Project Report was prepared and submitted to NEMA neither is it clear whether scoping was done. The report also is not clear on how Terms of Reference (TOR) were arrived at. However a feasibility study was produced in 1985. This

recommended a Resettlement Programme that was mainly the identification of affected land that included land survey, valuation, transfer of land and actual compensation.

EIA Study

An Environmental Impact Assessment (EIA) was done in 1991 by Nippon Koei Co. Lt, of Japan, and RPS International, and this included Environmental Monitoring Plan. By the time EIA was carried out, Environmental Coordination Act, 1999 (EMCA) which is the framework for Environmental Law in Kenya, was not yet in place. The study therefore followed the Environmental Guidelines of Japan Bank, International Cooperation and World Bank. A multi-disciplinary team was put in place to work on the issues as described in the ToR. RPS International also conducted a socio-economic study in 1993.

Public Participation

During EIA, consultations were constantly held with the stakeholders

- Lead Agencies: Ministry of Water Resources Management (MWRM), National Water Conservation and Pipeline Corporation (NWCPC)
- NGOs (National Aids Control Programme)
- District Authorities of Nyanda and Rachuonyo) and the affected communities.

After completion of the EIA report, it was submitted to NEMA for review.
The EIA report was then published and all the stake holders were able to read it and make comments/questions. The comments were submitted to the Consultant and later answered during stakeholders meetings. Comments were incorporated by the consultant and final EIA was produced.

Decision making

The EIA report was reviewed and major issues considered here were; environmental findings –impacts and mitigation, level of consultation, and involvement of affected stakeholders. Finally an EIA License was given.

Action by Developer

Actual construction work started on site in March 1999 with Kengen implementing the first phase which is hydropower generation. So far the implementing agency is following the recommendations of the assessment.

The EIA process as enshrined in the Legal and Institutional Framework for EIA is fairly effective. The major short coming in some of the case studies is that EIA studies were started before the framework for EIA for the respective countries was in place and so they don't seem complete.

5.3 Hamadab Hydro-Power Project (SUDAN)

Project Description

The Government of Sudan is proposing to develop Hamadab Hydropower Project on River Nile in Northern Sudan in Hamadab area. It is located in the historical area of the Old Nubian Civilization and the Christian Nubian Kingdoms near the city of Kariema.
The proposed project is expected it have a reservoir of 174km in length with different dimensions. The 60-meter- high dam will have an installed capacity of 1,250 MW.

Sudan Government secured funding in 1992 and a feasibility study was carried out by the Canadian Consultant (Monnco). A Chinese firm is the main Contractor on the dam together with a French Company Alstom and the German firm Lahmeyer. The present status of the project is not clear.

Summary of Environmental Law and the EIA process for Sudan

The Environmental Policy Act 1998 is the comprehensive environmental legislation as discussed in the first sections of this report. The EIA process for Sudan is not clear but can be summarized as in the figure below

EIA for Hamadab Hydropower Project.

In 1992, when the project secured funding, Environmental Policy Act, 1998 was not in place. So the feasibility study was meant to cover all studies relating to the project

especially those upon which the decision to develop depended. It is not clear whether this project was subjected to any Systematic Environmental Impact Assessment. However, Resettlement Action Plan is mentioned as having been part of the feasibility study and indeed it is already being implemented. For example one of the groups of people to be shifted was moved from Hamadab in 2003.

Further more a Health Impact Study was also carried out in 1999 as documented in the book Dams and Diseases by William Jobin (1999).

6. LITERATURE

Africa Water Network ,1999. A basic advocacy and civil rights campaign. The impacts of Sondu-Miriu river Hydro-electric power project on the people of Nyanza. Email: awn@lion.meteo.go.ke.

Anjaneyulu, Y. 1998. Environmental Impact Assessment Methodologies. Published by Vedams Books, India.

Asian Development Bank, 1997. Environmental Impact Assessment for developing countries in Asia. Vol. 1: Overview.

Canter, L. 1998. Environmental assessment in the United States. EIA Newsletter No. 17. Published by EIA Centre, Manchester University.

Dougherty, C. and A W Hall, 1995. A Guide to the EIA of irrigation and drainage projects in developing countries. FAO.

Government of Uganda, 1995. The National Environment Statute. Statute Supplement No. 3.

EIA Centre, University of Manchester:

EIA Leaflets No. 4: Environmental Impact Assessment Research

No. 5: EIA Legislation and Regulations in the EU

No. 10: Consultation and Public Participation within EIA

No. 12: EIA Guidelines

(http://www.art.man.ac.uk/EIA/publications/leafletseries/leaflet10/consultationandppprocess.htm)

Kenya Gazette supplement Acts 1999. The Environmental Management and coordination Act No 8 1999. The government printers, Nairobi Kenya.

Kenya gazette supplement Acts 2002. Kenya Gazette supplement No 107 (Acts No 9). The Water Act No 8 2002. The government printer, Nairobi Kenya.

Ministry of Water Resources Management and Development ,2003. Final National water services and sanitation strategy.

Ministry of Water Resources Management and Development, 2003. First water resources management strategy.

NEAP, 1994. The National Environment Management Policy for Uganda.

NEMA, 1997. Guidelines for Environmental Impact Assessment in Uganda

Ojiambo, E.V., 2002. Battling corporate accountability: experiences from Titanium Mining campaign in Kwale, Kenya. A paper presented at the institute of development studies University of Sussex seminar on linking rights and participation, sharing experiences and opportunities.

Rijsberman, Frank, 1999. Conflict management and consensus building for integrated coastal management in Latin America and the Caribbean.

Sadler, B. 1996. Recent developments with national and international EIA process. FAO.

Simmons, Chester. 1998. Risk Management: Managing Standards. Published by Ken Rigby.

UNEP, 1993. Environmental Economics Series Paper No. 7

UNEP. 1996. Environmental Impact Assessment : Training Manual.

UNEP and African Centre for Technology Studies (ACTS), 2001. The making of a framework environmental law in Kenya. ACTS press P.O. Box 45917 Nairobi, Kenya

World Bank. 1994. Environmental Assessment Sourcebook (Vols I, II & III).

World Bank, **1996.** Environmental Performance Monitoring and Supervision, Environmental Assessment Sourcebook UPDATE, Environmental Department, The World Bank, June 1996.

ANNEX I. QUESTIONNAIRE

NILE BASIN CAPACITY BUILDING NETWORK

ENVIRONMENTAL ASPECTS OF RIVER ENGINEERING

RESEARCH TOPIC: ENVIRONMETNAL IMPACT ASSESSMENT PROCESS :LEGAL AND INSTITUTIONAL ASPECTS

Research Guide Questionnaire

Dear
This Questionnaire is designed to give a general guide of what is expected in this research and is not exclusive of new / additional ideas as you deem them fit. The ultimate goal is to come up with: (1) Institutional arrangement for environmental management in the various Nile Basin Countries, (2) Status quo of EIA process in these countries, (3) Recommendations on unified EIA Procedures, and best Practices for River Engineering in the Nile Basin. Your answers should be as comprehensive as possible by critically reviewing available documents, face to face interviews with key informants in the area of environmental management, and from internet search. A list of references and all the people consulted should accompany the report.

While filling the questionnaire, we suggest that the questions should be in blue and the answers in black so that merging and editing of the various answers becomes easy for the editor; we expect you to send this information by email.
We thank for selfless dedication as we struggle to harness the Nile resources sustainably

Yours truly,

Kateyo, E M
Coordinator
Mugambe Ronald
Coordinator

SECTION A: LEGAL AND INSTITUTIONAL ASPECTS

1 Institutional framework for environmental management

1.1 Does your country have a national agency for overseeing environmental management? (a) Yes (b) No

1.2 If yes, what is the name of the agency?……..……

1.3 How did it come into being?

(a) By Act of Parliament
(b) Ministerial Policy Statement
(c) (c) Presidential Directive

(d) Other
(Specify)……..……

1.4 Is it an autonomous agency? (a) Yes (b) No

1.5 If not autonomous, under whose jurisdiction is it?

(a) Ministry of……

…….

(b) Prime Minister's Office
(c) President's Office
(d) Other
(Specify)……

1.6 If there is no agency, who is responsible for overseeing or coordinating the over all environmental management?

(a) Ministry of……..

…….

(b) Prime Minister's Office
(c) President's Office
(d) Other
(Specify)……

1.7 By way of an **organogram**, show and explain sectoral linkages for environmental management in your country (Make it an Appendix)

2 Legal framework for environmental management

2.1 Does your country have an overall national legal framework for environmental management?
(a) Yes (b) No

2.2 If yes, is it by way of

(a) National Policy
(b) Statute
(c) Both above

2.3 Name it/them……

…….

……

2.4 If there is none of the above, what is the legal framework for environmental management?

(a) Ministerial policy statements
(b) Presidential directives
(c) Others (Specify and elaborate)

3 Environmental Impact Assessment (EIA)

3.1 Does your country have a policy on EIA? (a) Yes (b) No

3.2 If yes, what is it called?…….

……

3.3 How did it come into being?

(a) By Act of Parliament
(b) As a requirement by the National Environment Policy
(c) As a ministerial policy statement
(d) Other
(Specify)……

……

3.4 What are the policy objectives of EIA in your country?
(Elaborate)……

3.5 For which activities is EIA required? (Elaborate)

3.6 Briefly explain the EIA process in your country as laid down by the law in terms of

(a) Procedures

(b) Institutional responsibilities

(c) Developer's responsibilities

3.7 Do EIA guidelines for your country indicate the areas to be covered in EIA study, eg Risk Analysis, CBA, etc? (a) Yes (b) No

3.7 If yes, elaborate

4 Water Resource Management

''Water is life'' and consequently cuts across all sectors of development

4.1 Does your country have a national water sector policy?
(a) Yes (b) No

4.2 If yes, what are the policy objectives? (Elaborate)

4.2 Is the policy supported by legislation such as water statute?
(a) Yes (b) No

4.4 Give the highlights of the statute with respect to water related development projects

4.5 If no national policy and statute, how is the water resource managed?

4.6 Is there a lead agency such as a Directorate of water responsible for water management? (a) Yes (b) No

4.7 If yes,

(a) What is it called?
……

…….

(b) What are its main functions?

(c) Is there an inter-ministerial legal framework under which it coordinates all water related development activities? (Elaborate).

(d) Name all the line ministries that carry out water related development projects and their corresponding sectoral policies, eg Ministry of Agriculture and its sectoral policies on irrigation, animal watering, etc.

4.8 Name major projects on River Engineering in your country which are

(a) Finished

(b) On-going

(c) Proposed

4.9 Name as many as possible water related development projects that have undergone EIA process in your country, and for any two give the

(a) Highlights of the legal procedures

(b) Study methods used to assess the impacts

(c) Institutional involvement in the EIA process as given in the EIS reports

4.10 If your country has ever signed an international water agreement, answer the following:

(a) Name the agreement

(b) Outline the tenets of the agreement

(c) How was the agreement negotiated?

(d) Types of projects and criteria on which cooperation and/or consent are required

(e) Legal provisions for its enforcement

(f) Arbitration / conflict resolution mechanisms

5 Conclusions and recommendations

(a) Is the status quo satisfactory with respect to institutional arrangement for environmental management in your country?

(b) If not, what are the recommendations to make it better?

(c) In case the EIA process is not fully developed, how would you like it to be?

(d) Which procedures and methods should be unified in carrying out EIA on River Engineering projects in the Nile Basin?