

CHAPTER 18

Environmental Impact Assessment of Biodiversity

Mr. George Sikoyo
MUIENR

INTRODUCTION

The biodiversity treaty of 1992 in Rio, Brazil is consistent with Agenda 21, chapters 15 and 16 (Holmberg, J. Thomson, K & Tomerlake, L, 1993), which covers biodiversity and biotechnology respectively. The overall objective of the treaty is the conservation of biodiversity, sustainable use of its components and fair and equitable sharing of benefits from the latter use of genetic resources. The treaty includes innovations such as the vital role that women play in the conservation of biological diversity and the desirability of sharing benefits arising from the use of traditional knowledge, innovations and practices of indigenous and local communities.

The burden upon member states like Uganda that ratified the biodiversity convention includes:

- (a) developing national strategies, plans, or programmes for the conservation and sustainable use of biological diversity or adopt existing plans to this purpose;
- (b) integrate conservation and sustainable use of biodiversity into relevant cross-sectoral plans and policies;
- (c) identify important components of biodiversity and monitor them, particularly those parts requiring urgent conservation action, or which offer the greater potential for sustainable significant adverse impacts on the conservation and sustainable use of biological diversity;
- (d) integrate conservation and sustainable use of biological resources into national decision-making; protect and encourage customary use of biological resources in accordance with traditional cultural practices; support local populations in this regard; and encourage co-operation.
- (e) adopt economically- and socially-sound measures that act as incentives for the conservation and sustainable use of biological resources.

--- *Gender and Biodiversity Conservation in Africa* ---

If individual countries are to fulfil the above requirements, then the reductionist approach and thinking to environmental problems, which characterised research in the past cannot sufficiently handle environment and environment-related issues like biodiversity. These require ballistic and integrated approaches in research to harmonise environment, social and economic development goals. This thought is reinforced further by the consensus reached by world governments at the Rio Conference in 1992. It recognised the need for re-shaping decision-making if environment and development were to be brought into balance for the benefit of both present and future generations. This sharply contrasts with the systems for decision-making in the past which tended to separate economic, social and environmental factors at the policy, planning and management levels. Environmental Impact Assessment (EIA) as a new innovation in research was one of the tools recommended in Agenda 21. The recommendation identifies the need to adopt "comprehensive analytical procedures for prior and simultaneous assessment of the impacts of decisions, including the impacts within and among the economic, social and environmental spheres; these procedures should extend beyond the project level to policies and programs".

Environmental Impact Assessment (EIA) is the information-gathering and analytical process that helps to ensure environmentally-sound development. EIA is a method of analysis which identified the environmental impacts of project activities and ensures that they are predicted and taken into account. It can be applied to all kinds of projects, policies, plans, programmes and budgets in any sector of the economy, including biodiversity conservation projects. The EIA process attempts to identify potential problems so that economic feasibility and environmental impacts of alternative approaches can be assessed while there is still need to make changes. Furthermore, it involves assessing environmental effects of a particular activity and identifying ways of minimising and mitigating its negative environmental effects. It (EIA) complements the conventional package of engineering, socio-economic, financial and economic analyses and provides practical advice to planners. EIA are designed to identify and measure the biophysical and social changes produced by a project or alternative project designs.

The primary objective of environmental assessment is to predict alternative future states of resources and environments, depending on the project design choices. EIA identifies potential problems and opportunities and is thus an essential part of the project cycle. By itself however, it is insufficient for decision-making. It generates important information for decision-making, policy-makers, and planners. It provides the means for data about environmental changes to be translated into an assessment of the effects of these on human production and consumption systems. EIA also provides information that can be fed into other methods of project analysis like cost-benefit analysis and cost-effectiveness.

This presentation covers the legal requirement, different levels and stages of the EIA. The environmental impact assessment, review and analysis during the project cycle or development of biodiversity projects is also discussed.

LEGAL REQUIREMENTS OF THE EIA

Historically, EIA procedures were first developed in the 1970s following a recognition that it was necessary to assess the environmental impact of development activities before they were implemented, with a view to taking some kind of corrective measures if they would harm the environment. Since then EIA procedures have progressively been refined and developed. Today EIA is recognised as an integral part of any development activity. It is a legal requirement in many countries. A range of guidelines for EIA have been developed by different agencies and countries, and there is a strong role for EIA in the National Environment Action Programme (NEAPs). For example, Uganda's National Environment Statute, 1995 Part V, Section 20 (3) requires that an environment impact assessment is undertaken by the developer for projects that:

- (a) may have an impact on the environment;
- (b) are likely to have significant impact on the environment; and
- (c) will have a significant impact on the environment.

The EIA study has either to conform to the guidelines of a given country as stipulated in the legal framework (like Uganda's environment statute) or must suit donor requirements. The donor agencies like the World Bank, Department For International Development (DFID); formerly the Overseas Development Agency (ODA), United States Agency for International Development (USAID) and the OECD have individual specific guidelines for conducting EIA.

The different levels of EIA

The three different levels of EIA include:

- (i) ***Environmental Impact Review***: EIR is required for small-scale projects that may have significant impact on the environment and whose potential adverse impacts can easily be identifiable and for which mitigation measures can readily be prescribed. The objective is to ensure that the mitigative measures are identified and included in the design and implementation of the project.

---- *Gender and Biodiversity Conservation in Africa* ----

- (ii) ***Environmental Impact Evaluation (EIE)***: EIE requires a more detailed analysis than an EIR and is conducted for projects that are likely to have significant impacts on the environment. Its purpose is to determine if more in-depth environmental impact assessment is required and to assess various alternatives that the decision-maker can select one which does not have significant environmental impacts.
- (iii) ***Environmental Impact Study (EIS)***: EIS is the major and detailed assessment conducted for any project which clearly will have significant impacts whose mitigation measures cannot readily be prescribed unless in-depth analysis of the project and its possible alternatives is conducted. The purpose of an EIS is to assess the environmental impacts of various alternative actions so that the decision-maker can determine if an alternative exists which has minimal or fewer adverse impacts. Conducting the EIS requires greater public participation than EIE.

THE STAGES OF ENVIRONMENTAL IMPACT ASSESSMENT

Different agencies have different ways of carrying out EIA, but all follow similar stages and ask similar questions. Although originally conceived as a one-off activity that takes place before a project begins, the role of EIA has expanded to cover all parts of the project cycle. There are two phases of EIA design and implementation. First of all, a preliminary screening of environment is carried out at the design stage of identifying and planning a project and this is then developed into concrete recommendations and actions through appraisal, implementation and monitoring right up to evaluation (see Figs 1 and 2).

Environmental aspects of the project cycle

The Project Cycle: All projects whether environmental or non-environmental are frequently identified and developed in a process known as the project cycle. The stages in the project cycle include:

- Identification: Finding a niche for a project
- Planning: Choosing the best project option
- Appraisal: Assessing whether the project is feasible
- Implementation: Carrying out the project
- Monitoring: Examining how the project is being carried out
- Evaluation: Judging whether the project has been successful
- Impact assessment: Looking at changes resulting from the project.

--- Policy Issues on Biodiversity ---

In the project cycle, there are many places where environmental, or biodiversity and resource concerns may be injected (see Figure 4). These concerns have to be taken into account early enough in the cycle and during the design stage. Only in this way, can alternatives be considered before too much time and effort can be invested in one project.

The following questions need to be asked in the process of analysis:

- (a) Do laws or regulations require environmental impact assessment in the proposed development project ?
- (b) Will a project harm or benefit the environment?
- (c) Are we choosing project activities in such a way as to minimise negative environmental impacts and maximise environmental benefits?
- (d) What changes in the environment have taken place as a result of the project?
- (e) What environmental lessons can we learn from the project?

CONCLUSION

Environmental Impact Assessment considerations should be adequately incorporated in the planning, design, implementation and post-evaluation of biodiversity conservation projects. The overall purpose is to consider the full environmental implications of projects we carry out and to try and ensure that we make the best of most fully-informed choices in terms of their impact on the environment.

REFERENCES

- Biswas, A. K., (1992). *Environmental Impact Assessment for Developing Countries*, Butterworth/Heinemann, Oxford
- Carley, M. (1994). *Policy Management Systems and Methods of Analysis for Sustainable Agriculture and Rural Development*, International Institute for Environment and Development. FAO, Rome
- Convery, J.F. (1995). *Applying Environmental Economics in Africa*, World Bank Paper Number 277, Africa Technical Series
- Dixon, J. A. Scura, L. F., Carpenter, R. A. and Sherman, P. B. (1994). *Economic Analysis of Environmental Impacts*, 2nd ed. Earthscan Publication Ltd, London

---- *Gender and Biodiversity Conservation in Africa* ----

Emerton, L. (1996). *Valuing the Environment: Case Studies*, African Wildlife Foundation. Nairobi, Kenya

Gittinger, J. P. (1992). *Economic Analysis of Agriculture Projects*, EDI Series in Economic Development, 2nd ed. The Johns Hopkins University Press, Baltimore and London. Holmberg, J. Thomson, K & Timberlake, L. (1993). *Facing the future, beyond the Earth Summit*, IIED, Earthscan

Knausenberger, W. I., Booth, G. A. Bingham, C. S. & Gaudet, J. R. (1996). *Environmental Guidelines for Small-Scale Activities in Africa, Environmentally Sound Design for Planning and Implementing Humanitarian and Development Activities*, USAID, Technical Paper No 18

MUIENR, (1997). *An Environmental Impact Assessment Manual*, based on the EIA course Held at Hotel Margherita, Kasese, organised by Makerere University Institute of Environment and Natural Resources (MUIENR/Overseas Development Association (ODA))

OECD, 1995. *The Economic Appraisal of Environmental Projects and Policies, a Practical Guide*. Environment