

PREFACE

Environmental impact assessment is a process analyzing the positive and negative effects of a proposed project, plan or activity on the environment. The specific purpose of the assessment is to provide the decision makers with information allowing them to introduce environmental protection considerations in the decision-making process leading to the approval, rejection or modification of the project, plan or activity under examination.

The requirements for environmental impact assessments of projects or plans which may have adverse effects on the human environment are today embodied in the national legislation of many countries and in a number of international agreements. However, the procedures used for preparation of such assessments vary considerably from country to country, and at present there is no agreement, on a global or regional level, on procedures which may lead to comparable results.

The present document has been prepared in response to frequent requests from developing countries for simple and yet adequate procedures and guidelines for the preparation of environmental impact assessments which could be used in the context of regional agreements on the protection of the marine environment adopted in support of UNEP's Regional Seas Programme.

The approach outlined in this document is neither totally new nor comprehensive: it is limited to a narrowly defined practical and easily applicable methodology which could be used to assess or predict the environmental consequences of projects or activities proposed for a given site. Since the approach utilizes analogies it is not applicable to projects that are unique in size or scope. The document does not cover some equally important considerations related to planning of sustainable development, such as environmental accounting, cost-benefit analysis of environmental protection measures, comparative analysis of available alternatives, risk assessment and management, physical planning, etc. These considerations have been left aside on purpose, not because their importance is not recognized, but because their mandatory association with the approach to the environmental impact assessment recommended in this document may distract from the central goal: prediction of the environmental consequences of a planned activity, based on

- simple and easily understandable goals and principles;
- methodology which can be essentially handled by national expertise available in most developing countries;
- information either already available or deducible from analogous situations; and on
- public participation.

The approach advocated in this document has developed gradually and was tested on concrete case studies organized by the Priority Actions Programme Regional Activity Centre and the Co-ordinating Unit of the Mediterranean Action Plan, in co-operation with the relevant national authorities in Cyprus and Egypt.

The first draft of the approach was commissioned by UNEP from two consultants (Messrs Arne Jernelov and Uri Marinov) and was used in the preparation of environmental impact assessments for a marina ^{1/} and for a submarine sewer outfall of a medium-sized town ^{2/} in Cyprus. These two case studies, together with the first draft of the approach, were reviewed at the Review Meeting on EIA Procedures held in Nicosia, Cyprus, from 24 to 27 October 1988.

Based on experience gained through the review meeting in Nicosia, the approach was modified and further tested through the analysis of the environmental impact of a sewage treatment plant ^{3/} for a medium-sized city in Egypt. The results were reviewed at the Interregional Workshop on the Application of the EIA Procedures held in Cairo, Egypt, from 19 to 22 November 1989.

The meetings in Nicosia and Cairo were attended by 83 experts from 20 countries.

The comments and suggestions received from these meetings are incorporated in the substantive part of the present document.

This document is planned to be used in further testing of the approach which emerged from the meetings in Nicosia and Cairo, and will be revised on the basis of the experience gained through the preparation of additional case studies.

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1. INTRODUCTION

Historic background

The formal process known today as environmental impact assessment (EIA) resulted from the raising of environmental awareness during the 1950s and 1960s. During those two decades it became increasingly evident that many industrial and other projects were producing undesirable environmental consequences. In response to these problems several governments realized the need for a mechanism ensuring that the environmental consequences of all major projects and plans were examined before their execution was formally authorized.

The Congress of the United States of America was among the first to enact, in January 1970, a comprehensive environmental legislation, the National Environmental Policy Act (NEPA) ^{4/}, using the concept of EIA and requiring a systematic interdisciplinary evaluation of the potential environmental effects of all major federally funded projects.

Since the adoption of NEPA, national legislation requiring EIAs have increased worldwide and, today, even countries without such legislation produce EIAs selectively.

Due to the concern about the potential transboundary environmental effects of national development projects, several international agreements specifically require EIAs for projects or plans which may have wider than national impacts. This is particularly evident in the case of agreements dealing with the protection of the marine environment (see annex I). The draft of a convention on environmental impact assessment in a transboundary context is at present being negotiated under the sponsorship of the UN Economic Commission for Europe.

The Action Plan adopted in June 1972 by the United Nations Conference on the Human Environment recognized environmental management as "functions designed to facilitate comprehensive planning that takes into account the side effects of man's activities and thereby to protect and enhance the human environment" ^{5/}.

As a follow-up of this recognition the Governing Council of UNEP requested the formulation of principles and guidelines which could be used as a guide to countries in establishment of laws and machinery for EIA. Through a series of meetings of national experts the goals and principles of EIA were developed (see section 2 of this document) and adopted in 1987 by a decision of the Governing Council ^{6/}. By the same decision the Governing Council recommended that the adopted goals and principles "should be considered for use as a basis for preparing appropriate national measures, including legislation, and for international co-operation in the field of environmental impact assessment, including further international agreements" and requested UNEP:

- (a) "to assist States, as appropriate, in implementing the goals and principles;
- (b) to conduct a survey of States and relevant international organizations on their experience in applying the goals and principles; and
- (c) to investigate measures which could be undertaken to further international co-operation and agreement in the field, including the application of environmental impact assessment, to development projects with possible transboundary environmental effects".

Basic concepts

The first step in understanding EIAs is to define what the process actually entails. While many definitions and descriptions are given in the literature ^{7/, 8/, 9/, 10/, 11/, 12/, 13/} and in national legislative acts, the actual working definition varies between countries. In general, an EIA can be defined as the process of identifying, predicting, interpreting and communicating the potential impacts that a proposed project or plan may have on the environment. In some countries (USA, for instance) if an EIA indicates that a project may have significant or controversial environmental impacts, a more detailed environmental impact statement (EIS) is required.

An EIA is often described as a process for assessment of how a project or plan may affect, negatively or positively, various impact indicators, i.e. elements or parameters that provide some sort of measure of the magnitude of an environmental impact^{8/}. Level of employment, loss of forest and vegetation, changes in water quality are examples of such indicators. The indicators may be either qualitative or quantitative, depending on the parameter and the means by which it is evaluated. For instance, some indicators may be evaluated against pre-existing standards or laws (e.g. air and water quality, level of noise). Other indicators (e.g. morbidity and mortality) may have numerical values. In some cases, it may be necessary to use a purely subjective value-based scale of assessment, such as acceptable and unacceptable change. However, even when using such evaluation scale, the basis for evaluation may be somewhat quantitative, such as the number of trees expected to be lost or the number of residents expected to be dislocated.

An ambitious attempt was made by the IMO/FAO/Unesco/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) to define, on a purely scientific ground, the EIA procedures applicable to the protection of the marine environment and the capacity of the marine environment to receive safely a certain amount of waste. Unfortunately, the attempt fell short of expectation both on scientific grounds, because solely on the basis of theoretical considerations it is impossible to forecast ecological effects, and on practical grounds, because the exercise became too theoretical and unsuitable for management decision-making. Nevertheless, the GESAMP report on that subject^{14/} contains many thought-provoking concepts and ideas and provides interesting reading.

The responsibility for carrying out EIAs depends on the national legislative requirements of individual countries, and varies considerably from country to country in order to fit into the specific socio-economic and political system of the country.

Past experience and justification for a more practical approach

EIAs have been extensively carried out and used over the last 15 years. Their wide application clearly indicates a need to ensure that environmental considerations are included in the decision-making process. However, particularly in developing countries, the procedures established for EIA in developed countries have met much criticism.

From the standpoint of developing countries the most often experienced shortcomings of procedures for EIA prepared according to the conventional "standards" of developed countries are:

- the frequently inadequate institutional infrastructure, as well as the lack of adequate expertise, experience and information (database), requires assistance of foreign experts and consulting firms which only occasionally results in transfer of know-how and in training of local experts;
- collection of data, frequently of little substantive relevance, takes considerable time and often delays urgently needed projects and plans;
- frequently, a large proportion of the only marginally relevant background material included in the EIAs has been excerpted from the memory of the foreign consultants' word processors, and is identical regardless of whether the project is proposed for the wetlands of Bangladesh or the arid area of Chile;
- EIAs are too voluminous (frequently more than 1,000 pages), too technical, and often attempt to cover every theoretical possibility, with the result that they have been of little value as practical management tools in developing countries; and
- the cost of preparing EIAs is frequently very high.

The approach

Realizing the shortcomings listed above and responding to frequent requests for simple and practical, but still adequate administrative and predictive EIA procedures, an attempt was made to formulate such procedures, supplemented with guidelines which could be used in preparing EIAs for typical development projects which may affect the marine environment.

The approach suggested in this document:

- is based on the goals and principles ^{or} endorsed by the UNEP Governing Council (see section 2);
- recognizes and utilizes the fact that very few projects are unique in nature or size and, therefore, assumes that knowledge about observed environmental effects in analogous cases can be used in carrying out EIAs;
- includes monitoring of environmental impact as an integral part of the EIA process, thus allowing that errors in the initial predictions can be observed and corrected, more knowledge about environmental consequences can be gathered on an on-going basis, and more accurate predictions can be made; and
- requires less time-consuming and costly collection of site-specific data by using knowledge from analogous cases.

The advantages of this approach to the EIA process are that in most cases the EIA document, which is the key output of the EIA process, could be:

- based on existing or deducible information;
- prepared within a few months;
- prepared at relatively low cost;
- prepared by national civil servants, administrators, managers and scientists of developing countries with minimal initial training, thus making the heavy involvement of foreign experts unnecessary.

Any assessment of environmental consequences involves various degrees of uncertainties. It may be argued that the approach suggested in this document, i.e. an EIA process largely based on existing knowledge and analogies from previous experience of similar projects, is even more uncertain than the more elaborate, time consuming and costly approaches usually used.

In order to minimize the occurrence of unexpected adverse effects due to the uncertainties in the assessment, a monitoring programme is advocated as an integral part of every EIA process. The monitoring programme associated with and carried out as part of the EIA process would gradually add to the information on which the initial assessment of the environmental impact (i.e. the EIA document) is based and would allow for the reassessment of the measures which may have to be taken in order to safeguard the environment. With the monitoring programme the EIA process - instead of being a rigid document which once and for all defines the conditions under which a project or plan can be executed and operated - becomes a continuous process with a built-in corrective mechanism for periodic reassessment of the conditions under which the project or plan can be allowed to operate.

Contents of the EIA document

The EIA document, which is the key document of the EIA process, should normally include the following:

- description of the project or plan and of the activities it is likely to generate;
- description of the site where the project or plan is proposed to be carried out, including the natural environment and the socio-economic structures which may be affected by the project or plan on the site and in its vicinity;
- reasons for selecting the proposed site and the technology proposed to be applied, including the description of alternatives which have been considered;
- identification and assessment of anticipated or forecasted negative and positive impacts on environmental quality and environmental health as a consequence of implementing the project or plan;

- description of measures proposed for eliminating, minimizing or mitigating the anticipated adverse impacts; and
- proposed programme of monitoring the environmental impact of the project.

Preparation of the EIA document

Depending on the national legislative requirements, essentially three basic options exist for the preparation of the EIA document ^{10/}. It can be prepared by

- the agency, company or individual proposing the project;
- the government agency controlling or authorizing the project; or
- an independent party.

To eliminate possible bias which could arise when a project proponent prepares the EIA, guidelines for form and content of the EIA can be prepared by a responsible government agency, supervision can be provided by a reviewing or controlling body with no interest in the project, and/or publication and public review of the final EIA can be required ^{15/}.

Role of EIA in the decision-making process

A satisfactory decision can no longer be made on any project without consideration of its environmental consequences although in many cases socio-economic and/or political considerations may be of decisive importance. The role and function of EIA is to contribute to the decision-making process by focussing on the environmental issues and by ensuring that the potential impacts are considered in a thorough and systematic manner; when such impacts cannot be avoided, they may at least, with foresight, be minimized or mitigated.

2. GOALS AND PRINCIPLES OF ENVIRONMENTAL IMPACT ASSESSMENT

The Governing Council of UNEP adopted in 1987 the following goals and principles and recommended them to be considered for use as a basis for environmental impact assessments ^{9/ 13/ 16/}. The General Assembly of the United Nations, later in the same year, endorsed the goals and principles and the recommendations of the Governing Council regarding their application ^{17/}.

PRELIMINARY NOTE

EIA* means an examination, analysis and assessment of planned activities with a view to ensuring environmentally sound and sustainable development.

The EIA goals and principles set out below are necessarily general in nature and may be further refined when fulfilling EIA tasks at the national, regional and international levels.

GOALS

1. To establish that before decisions are taken by the competent authority or authorities to undertake or to authorize activities that are likely to significantly affect the environment, the environmental effects of those activities should be taken fully into account.
2. To promote the implementation of appropriate procedures in all countries consistent with national laws and decision-making processes, through which the foregoing goal may be realized.
3. To encourage the development of reciprocal procedures for information exchange, notification and consultation between States when proposed activities are likely to have significant transboundary effects on the environment of those States.

PRINCIPLES

Principle 1

States (including their competent authorities) should not undertake or authorize activities without prior consideration, at an early stage, of their environmental effects. Where the extent, nature or location of a proposed activity is such that it is likely to significantly affect the environment, a comprehensive environmental impact assessment (EIA) should be undertaken in accordance with the following principles.

Principle 2

The criteria and procedures for determining whether an activity is likely to significantly affect the environment and is therefore subject to an EIA should be based on the following principles:

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