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# **Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach**

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# Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach

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## **Advisory**

This report deals with a fast moving field and the subject matter may become quickly dated. Readers are advised to check the main sources cited for updates and new materials. However, UNEP considers the fundamentals of EIA and SEA good practice as discussed here to be more durable and likely to remain relevant in the immediate future.

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## THE UNITED NATIONS ENVIRONMENT PROGRAMME

The United Nations Environment Programme (UNEP) is the overall coordinating environmental organization of the United Nations system. Its mission is to provide leadership and encourage partnerships in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life without compromising that of future generations.

UNEP's Economics and Trade Branch (ETB) is one of the branches of the Division of Technology, Industry and Economics (DTIE). Its mission is to enhance capacities of countries, particularly developing countries and countries with economies in transition, and to integrate environmental considerations in development planning and macroeconomic policies, including trade policies. The work programme of the Branch consists of three main components: economics, trade and financial services. The Economics component of the programme focuses on enhancing the capacities of countries, particularly developing countries and countries with economies in transition, to develop and implement assessment tools and economic instruments.

UNEP's work on assessments includes the further development and promotion of environmental impact assessment as an effective tool to integrate environmental considerations at the project, programme and policy levels to achieve sustainable development.

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## FOREWORD

This document on *Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach* updates the earlier UNEP publication on *Environmental Impact Assessment: Issues, Trends and Practice*. As before, it provides a companion volume to the *UNEP EIA Training Resource Manual* issued in an updated and revised edition in 2002.

*Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach* also may be read on its own by those who want a comprehensive introduction to this subject. The main objective of this volume is to provide information and guidance on EIA and SEA good practice with particular application to developing countries and countries in transition to market economies. It is intended to support local practitioners in the design and implementation of appropriate country specific EIA and SEA arrangements and in addressing emerging demands for a more integrated approach to decision-making in support of sustainable development. This last area was identified as a priority at the 2002 World Summit on Sustainable Development (WSSD) and is being taken forward by UNEP through a number of initiatives, including those reported below.

UNEP recognizes that such an approach will take time to become standard practice.

In the interim, EIA and SEA afford useful entry points to a closer integration of environmental, social and economic considerations in evaluating proposed actions. The final chapter of this volume indicates how this might be achieved. SEA in particular provides a promising means of ensuring that higher level policy, planning and programme initiatives become consistent with the principles of sustainable development. This process also has evolved significantly in the period since the release of *Environmental Impact Assessment: Issues, Trends and Practice*. Accordingly the attention given to SEA has increased substantially in this volume both in its own right and as a catalyst to integrated assessment.

In that regard, EIA is no less valuable although it is frequently overlooked, possibly because it has been in place for much longer. During the past decade, there have been continuing efforts to improve coherence in the adoption of EIA practices and to identify basic principles and standards of good practice and guidelines on elements of an integrated approach. This document annotates and compares the lessons of EIA experience in developing and transitional countries to provide points of reference for EIA practitioners to review or develop EIA guidelines appropriate to the specific needs, development priorities and socio-economic and cultural background of countries.

More than ever, the discussion here confirms the findings of the previous volume that EIA exhibits many of the requirements for establishing an integrated approach to implement sustainable development. Specifically, EIA provides:

- a legal basis for development of an integrated approach;
- a stepping stone towards other integrative and strategic modes of analysis;
- a tool for adding value to decision-making, and demonstrable benefits in the form of environmentally sound development and the inculcation of new policy values; and
- a “hands on” means of professional and institutional capacity enhancement.

I am confident that the information, guidance and materials in this volume will assist EIA and SEA practitioners in these countries to design and implement processes that correspond to international standards of good practice. Increasingly, effective and successful EIA and SEA processes will be seen as those that promote an integrated approach and eventually provide for or contribute to a full consideration of the environmental, economic and social aspects of development proposals at all levels of decision-making.

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This report builds on a previous document entitled “*Environmental Impact Assessment: Issues, Trends and Practice*” issued by UNEP in 1996. This latter document was the result of the cooperative efforts of a number of international experts committed to supporting Environmental Impact Assessment (EIA) as a major part of capacity building for sustainable development.

UNEP acknowledges the increasing interest in the application of Strategic Environmental Assessment (SEA) and attempts to better integrate the use of EIA with other tools in the project and programme life-cycle and achieve the integration of environmental, social and economic impacts when tools such as EIA and SEA are being used. Indeed, UNEP has actively pursued integration in the use of assessment tools in particular sectors such as trade and trade-related issues. As a result UNEP commissioned an update of *Environmental Impact Assessment: Issues, Trends and Practice* to reflect the ever-expanding work accomplished, and experience gained, in the pursuit of what may be termed “Integrated Assessment” practice. This report is the outcome of that important initiative.

A draft of this report benefited greatly from peer review by a panel of international specialists who devoted considerable time and effort to improving the draft. Their advice and encouragement was invaluable in determining the final structure and content of this document. The authors are indebted to the following members:

Dr M. Husain Sadar, Adjunct Professor, Department of Natural Resource Sciences, Faculty of Agricultural and Environmental Sciences, MacDonald Campus, McGill University, Canada; Dr Peter Tarr, Executive Director, Southern African Institute for Environmental Assessment, Namibia; Kin Che LAM, PhD, Professor & Head, Department of Geography and Resource Management, The Chinese University of Hong Kong, Hong Kong; Dr Mark Curtis, Associate Professor, Department of Natural Resource Sciences, Macdonald Campus, McGill University, Canada; and Ms Amel Benzarti, General Director, Centre International des Technologies de l’Environnement de Tunis (CITET), Tunisia.

The report was edited by Andrea Smith and administrative assistance was provided by Desiree Leon and Rahila Mughal.



## ABBREVIATIONS AND ACRONYMS

CDF	Comprehensive Development Framework (World Bank)
CEE	Central and Eastern Europe
CSD	United Nations Commission on Sustainable Development
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	environmental management systems
ESIA	Environmental and Social Impact Assessment
GEF	Global Environment Facility
IA	integrated assessment
IAIA	International Association for Impact Assessment
IAP	Integrated Assessment and Planning
IEMA	UK Institute of Environmental Management and Assessment
ISO	International Organization for Standardization
MCA	multi-criteria analysis
MDGs	Millennium Development Goals
MEAs	multilateral environmental agreements
MoU	Memorandum of Understanding
NIS	Newly Independent States of the former Soviet Union
PRS	Poverty Reduction Strategy
PSIA	Poverty and Social Impact Analysis
RIAM	Rapid Impact Assessment Matrix
SEA	Strategic Environmental Assessment
SER	State Environmental Review
SIA	Sustainability Impact Assessment
SIAP	Strategic Integrated Assessment and Planning
SIAT	Strategic Integrated Assessment of Trade
SIP	Strategic Integrated Planning
ToR	Terms of Reference
UNCSD	United Nations Commission on Sustainable Development
WCED	World Commission on Environment and Development
WSSD	World Summit on Sustainable Development



# Chapter 1: Introduction and Objectives

## 1.1 Purpose of the document

This report provides information and guidance on Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) good practice. It is intended as a resource for those who are involved in EIA/SEA practice, training and professional development. Particular emphasis is given to concepts, procedures and tools that are used currently or are potentially relevant in implementing an integrated approach to impact assessment of development policies, plans and programmes. As far as possible, it tries to provide comprehensive coverage of generic elements of good practice that appear to be internationally accepted and widely applicable. It also attempts to indicate some of the possible future directions for integrated assessment based on current trends and initiatives.

## 1.2 Relationship to UNEP mandate and other initiatives

Publication of this document, *Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach*, is one component of a larger programme of EIA/SEA activities being undertaken by the United Nations Environment Programme (UNEP), Economics and Trade Branch (ETB), Division of Technology, Industry and Economics (DTIE). These activities respond to specific requests made at the UN Conference on Environment and Development (UNCED) in regard to Agenda 21 (Rio de Janeiro, 1992) and at the 17th Session of the UNEP Governing Council (Nairobi, 1992). UNEP was asked to:

*".... (undertake) further development and promotion of the widest possible use of environmental impact assessment, including activities carried out under the auspices of United Nations specialised agencies,"*

and

*".... promote widespread use of environmental impact assessment (EIA) procedures by Governments and, where appropriate, international organizations as an essential element in development planning and for assessing the effects of potentially harmful activities on the environment."*

The 2<sup>nd</sup> and 3<sup>rd</sup> UN Commission on Sustainable Development (CSD) meetings held in May 1994 and April 1995 respectively recommended that UNEP carry out further work on the development of a framework to facilitate the assessment of the environmental impact of trade policies, taking into account the needs of developing countries and countries with economies in transition. The CSD at its 8<sup>th</sup> Session held in April 2000 noted the work of UNEP on assessment of trade policies and stressed that such assessments should be conducted with a view to promote sustainable development (see below).

Under this mandate, UNEP is actively engaged in EIA/SEA capacity building at the national and international levels and with specific reference to the needs of developing countries and states with economies in transition. A key tool to assist this effort is the *EIA Training Resource Manual*. The initial version of the manual was prepared in 1996 and circulated widely by UNEP, together with a companion document on *Environmental Impact Assessment: Trends, Issues and Practice* (an earlier version of the current document). Subsequently, the Manual was pilot-tested in the context of EIA capacity-building projects and EIA training courses in a number of developing countries and countries in transition. A second version has been prepared to incorporate the lessons learned from the testing (UNEP, 2002).



This document also takes into account advances in concepts and practice that have occurred in the period since the initial version was published. It complements the materials in the revised EIA Training Resource Manual and the two documents will be of maximum effectiveness when used together. For example, EIA trainers can incorporate useful examples and advice on good practice and on integrated approaches into training modules and courses based on the Manual. However, the two documents can also be used separately as required.

In addition, this document can be used to augment the work UNEP is currently undertaking on the economic, environmental and social implications of trade and trade-related policies and agreements for countries that are party to such agreements. UNEP has responded to recent concerns about the impacts of trade on environments and societies by preparing a *Reference Manual for the Integrated Assessment of Trade-Related Policies* (UNEP, 2001). This Reference Manual exemplifies how an integrated approach might be applied to trade and other issues that cut across sectors. It will assist those involved in the decision-making process on trade issues to undertake assessments of likely impacts (and identify measures to avoid them or reduce their severity), to inform the negotiations, and ultimately influence trade agreements.

Subsequent to the publication of the Reference Manual, UNEP has been directed, further, to cooperate with other organizations including UN agencies and the World Trade Organization (WTO) on issues related to trade, environment and development and to use assessments as tools to identify linkages between and among the three areas. In response, UNEP is undertaking work to strengthen existing planning tools and processes by developing a tool for integrated, *ex-ante* planning in the agricultural sector. The results of this work will be published in a forthcoming *Handbook on Integrated Assessment of Agriculture*. The Handbook will provide guidance to individuals, research organizations, governmental organizations and policy makers at the national level seeking to explore such impacts and their relationship with trade-related policies. Consistent with the Reference Manual, it emphasises the importance of an open, participatory process for integrated assessment and proposes relevant indicators for assessment and a range of policy responses to manage significant impacts.

### **Box 1:1 UNEP's work on integrated assessment of trade liberalization policies**

Since 1997, UNEP has commissioned a number of country case studies on the impacts of specific trade liberalization policies. The first round of country studies completed in 1999 included:

- Shrimp farming in Bangladesh;
- Lake fisheries in Uganda;
- Water sector in Romania;
- Forestry sector in the Philippines;
- Automobile sector in India; and the
- Mining sector in Chile.

Recently completed country studies include the following:

- Cotton production in China;
- Fisheries in Argentina;
- Banana production in Ecuador;
- Crop (cocoa and rubber) production in Nigeria;
- Forestry in Tanzania; and
- Fisheries in Senegal.

These studies are described and analysed in UNEP (2002a).

### 1.3 Need and rationale for an integrated assessment

New impetus and directions for sustainability appraisal and integrated assessment were indicated strongly at the World Summit on Sustainable Development (WSSD).<sup>1</sup> Many paragraphs of the Plan of Implementation for the WSSD, the major document from the conference, promote the integration of the three components of sustainable development and stress the importance of an “holistic and inter-sector approach” for this purpose.<sup>2</sup> (The Introduction in Chapter 6 describes the different aspects of integration within EIA/SEA). Poverty eradication is identified as “the greatest global challenge facing the world today and an indispensable requirement for sustainable development, particularly for developing countries” (A/CONF.199/L.1 (6)). It is a many-sided issue that can be met only by addressing the root causes of poverty and their environment-development linkages such as ill health, lack of clean water, food insecurity and vulnerability to natural hazards. This means that impact assessment (along with other policy tools) needs to become “more integrated and pro-poor” (DFID, EC, UNDP and the World Bank, 2002).

Subsequent to WSSD, UNEP has embarked on an important initiative to promote integrated assessment and planning for development. The aim is to build on current thinking and best practice regarding integrated assessment and to link it more closely to **all key decision points** in the development process through promotion of a framework for Strategic Integrated Planning for Sustainable Development. Work began in early 2003 to develop an integrated approach to assessment and planning and to identify countries in which the framework may be piloted in a range of situations. By examining the results from diverse pilots, the framework can be improved in a way that is more likely to guarantee its widespread use in the future. Ultimately, if the pilots were to be successful, the framework would be disseminated widely. The framework is discussed in more detail in Chapter 6, *Towards Integrative Approaches to Impact Assessment and Planning*.

Thus, the need for an integrated and comprehensive approach to impact assessment and development planning has never been greater. A number of initiatives at the global level are creating this need. One of the most important has been the establishment initially of the International Development Targets, now transformed into the Millennium Development Goals (MDGs).<sup>3</sup> These now strongly influence the focus and direction of much of the development assistance activities of the multilateral organizations and bilateral agencies. They also have a similar effect on the internal actions of governments.

A range of Goals has been set - some expressed quantitatively with time periods or deadlines - and accompanied by indicators. The Goals are ambitious and cover a range of issues. Examples include:

- Halve, between 1990 and 2015, the proportion of people whose income is less than US\$1 a day;
- Have halted by 2015 and begun to reverse the spread of HIV/AIDS;
- Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate;
- Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources; and
- Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

<sup>1</sup> Held at Johannesburg, South Africa, 26 August to 4 September 2002.

<sup>2</sup> Poverty eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base are identified as the “overarching objectives” of sustainable development (A/CONF.199/PC/L.1 (2)).

<sup>3</sup> See for example, the World Bank website <http://www.worldbank.org/>.

Since the MDGs were agreed, the poverty Goal (the first Goal listed above) has gained the highest profile and probably is the most influential in guiding development efforts. Sustainable poverty alleviation (eradication is even more ambitious) is currently attracting enormous expenditure in financial resources. The emphasis on poverty alleviation has created important initiatives such as Poverty Reduction Papers (supported by a range of agencies) and the Comprehensive Development Framework (World Bank). Most of this effort is aimed at enhancing economic development whose benefits will flow, it is expected, to the poorest sections in a country.

There are three main challenges posed by the MDGs. First, it is necessary to ensure, to the extent possible, that actions to achieve one Goal do not compromise the ability to achieve any of the other Goals (it may be necessary to accept such an outcome, on a temporary basis, but efforts should be made to avoid it). This requires the ability not only to assess the outcome of the action on the Goal, but also the positive and negative impacts of the intended action on the ability to achieve any of the other Goals. Basically, it is an issue of ensuring the most cost-effective allocation of resources during the economic development of a country.

The second challenge relates to a potentially important weakness in the design and delivery of poverty eradication. The focus on poverty alleviation has engendered a strong emphasis on the delivery of economic benefits to the poorest people on the basis that a higher standard of living will also improve health and educational opportunities (other priority Goal areas). However, the attention given to ensuring that any strategy, programme or set of actions aimed at poverty alleviation is environmentally sustainable, is debatable.<sup>4</sup> Thus, it is imperative that efforts are made to incorporate environmental issues into poverty alleviation actions.

Finally, the Goal that each country should integrate the principles of sustainable development into country policies and programmes (for example through implementation of a National Strategy for Sustainable Development) presents a major opportunity as well as a challenge. Achieving this Goal will reinforce the need for use of an integrated, cross-sectoral and comprehensive approach to guiding the design and implementation of development. Such an approach is referred to as integrated assessment and focuses on ensuring that sustainability aspects are incorporated into policy design and decision-making.

Overall, the MDGs establish the primacy of poverty reduction. Only the systematic and regular use of integrated assessment in a planning and decision-making context is likely to help address poverty and related issues of equity. It has the potential to be a powerful tool for development planning in all countries.

Practical application of integrated assessment in development-related decision-making may still be relatively rare, but its more frequent use cannot be doubted. Some international agencies have moved almost directly from tried and tested techniques such as cost-benefit analysis to experimental use of integrated assessment with sustainability decision rules/criteria. It is clear that new approaches are needed to improve our ability to undertake such integrated assessment.

<sup>4</sup> Although the *Poverty Reduction Strategy Sourcebook* (World Bank, 2002a) contains a section entitled "Environment" the evidence to date from draft/completed PRSPs/CDFs indicate that environmental aspects are not yet fully integrated into poverty reduction strategies.

A “trigger” for such innovations in the near future may be a shift in the paradigm of development assistance and development financing. A number of bilateral agencies, for example the UK Department for International Development (DFID), are promoting the use of macro-level support to governments in the form of such instruments as “Direct Budgetary Support” and “Sector-Wide Approaches” - often in support of agreed poverty reduction strategies. The World Bank is following a similar course of action in some of its activities. Large sums of money covering time periods of 3-5 years (or even longer) are committed to central government budgets, to be allocated by recipients for improving education or health provision and economic development programmes targeted at the poorest sections of society. This will result in less support for “traditional” aid projects. However, the implications of spending these large sums still need to be examined to ensure minimum harm and maximum benefit.

This shift in emphasis and direction of development cooperation is accompanied, to some extent, with a move away from reactive “safeguarding” approaches to minimize harm (e.g. EIA and related techniques) in development-related activities. While still retained as essential “toolkit” items there is now an emphasis in some agencies toward proactive analysis of contexts/situations to identify and develop opportunities to maximize benefit while at the same time attempting to minimize harm.

An example of this trend is in the World Bank, which has reaffirmed its commitment to both its safeguarding policies and to environmental mainstreaming through use of SEA for policies, programmes and other strategic-level interventions.<sup>5</sup> The focus is on “environmental sustainability”. It has taken a relatively cautious approach to expanding SEA beyond the existing use of Sectoral and Regional Environmental Assessments, by initiating a pilot programme of SEAs to learn from experience.

Currently, the World Bank is reorganizing its environmental and social review of budgetary support lending (a variety of types exist and it is expected to be renamed “Development Support Lending”). The Board of Governors has decided that the Bank will examine the environmental and social implications of such lending at a level of detail proportional to the potential impacts. The procedures for mainstreaming will not be based on the existing safeguarding policy nexus. It is realized that these are too oriented to investment lending (projects) and cannot be easily transferred to budgetary support lending. The aim is to transfer the “spirit” of the safeguards, but not the specific procedural detail.

At present there is a period of learning from experience (until 2004) when the Bank is experimenting with a variety of tools (such as SEA/SEA variants, Country Environmental Analyses and Social Analysis). There is a “toolbox” and different tools are being tested in countries such as Ghana and Uganda. However, a considerable focus of World Bank budgetary support lending will be aimed at middle income and transition countries, as they are considered best equipped institutionally to manage the loans and deliver results.

The Bank’s adjustment lending policy will be revised by the end of 2003. This ties in with the “learning” period and appropriate mainstreaming approaches will be in place by the time the policy is agreed.

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<sup>5</sup> World Bank (2002b).

#### **1.4 EIA and SEA as steps towards integrated assessment**

This document is firmly based on the view that the current, closely linked appraisal tools; EIA (sometimes referred to as environmental assessment) and SEA are a secure foundation upon which new approaches can be built. This “article of faith” rests on the fact that, in global terms, EIA/SEA are the only tools whose use is required by law, in many countries, and whose results are publicly acknowledged and available. No other tool has this status, nor is any likely to achieve it in the near future (EIA is more entrenched in law than SEA, but the latter is becoming a legal requirement in more and more countries). The national and international importance of EIA/SEA cannot be over-estimated. Thus, this document is based on the premise that permanent advances in the design and implementation of development will be based on the future development and adaptation of EIA/SEA. Only the passage of time will show whether this view is correct.

Formally, EIA/SEA are structured approaches for obtaining and evaluating environmental information prior to its use in decision-making in the development process. This information consists basically of predictions of how the environment is expected to change if certain alternative actions are implemented and advice on how best to manage environmental changes if one alternative is selected and implemented. EIA focuses on proposed physical developments such as highways, power stations, water resource projects and large-scale industrial facilities. SEA focuses on proposed actions at a “higher” level such as new or amended laws, policies, programmes and plans. Often, physical developments and projects are the result of implementation of a policy or plan, for example an extended highway network may be an outcome of a new transport policy.

Increasingly EIA/SEAs include prediction and evaluation of social, economic and health impacts as well as environmental impacts. There are two main reasons for this broadening of the scope of EIA/SEA. First, potentially affected communities have been demanding it. Secondly, some environmental impacts are caused by direct social and economic impacts of an action, and if they are not included in the EIA/SEA, then some potentially harmful environmental impacts may be omitted inadvertently from the EIA/SEA. Thus, EIA/SEA already has progressed in terms of scope of study and methods of analysis and evaluation, toward integration of a range of issues relevant to decision-making. The extent of “integration” in EIA/SEA depends to some extent on the definition of the “environment” in national legislation and policies. In some countries and international organizations the definition is broad, incorporating biophysical and socio-cultural dimensions (including health). In other jurisdictions the definition is more restricted with the emphasis on the biophysical aspects.

##### **Box 1:2 Links between socio-economic and environmental impacts**

A water resource development initiative caused changes in the hydrological regime of the river downstream of the project. The changes in the quality of water and the flow reduced, significantly, an area of reeds that were used by local villagers to make baskets and other articles. Selling these products provided an important source of income. Without the resource of the reeds, the villagers had to find an alternative source of income. They did so by exploiting trees that they processed into charcoal for which a market existed. By exploiting this resource they contributed to an already serious problem of deforestation and added to the attendant problems of soil depletion and erosion that accompany deforestation. This chain of events could have been foreseen if the socio-economic importance of downstream natural resources had been investigated and likely impacts predicted. It would have been possible either to protect the reeds, through controlled discharges, or to provide an alternative economic resource that could have been exploited without adding to existing environmental degradation.

*Source: World Bank (1991).*



Decision makers are provided, by EIA/SEA, with information (and often recommendations) on the anticipated consequences of their choices. EIA/SEA is therefore a proactive management tool with technical input, not a technical aid with “add on” management aspects. This distinction is crucial to an understanding of the objectives of EIA/SEA and how it can best be implemented.

EIA has been in existence since 1970 (when it was introduced into the United States of America) and has spread rapidly since then to all parts of the world. EIA is still relatively new in some countries, but virtually all countries have it as a legal or administrative requirement.

SEA is a more recent tool. It emerged in the middle to late 1980s as it became clear that the EIA procedures in many countries did not require the application of EIA to policies, programmes and plans. However, it was realized that the implementation of such actions could have significant environmental consequences. Thus, informally at first, SEAs were implemented for such actions. Over time, various moves have been initiated to introduce administrative requirements for use of SEA and then to amend existing EIA laws or to introduce new ones focusing on SEA. For example, the use of SEA will become a legal requirement in all the member states of the European Union in 2004.

The use of EIA/SEA has been formalized by the introduction of national laws and regulations, and in some cases policies which establish systems of institutionalised procedures to ensure that all proposed development-related actions expected to be environmentally damaging are assessed prior to authorization and possible implementation. These systems of linked and integrated procedures set out the “rules” by which:

- individual proposed actions are subject to an EIA/SEA study;
- such EIA/SEAs are conducted;
- EIA/SEA results and recommendations are used in decision-making; and
- if an authorization or approval to proceed is obtained, how the results are used to guide and assist the implementation and operation of the proposed action.

Thus, there are two distinct but related aspects which characterize EIA/SEA and which must be considered by any government, agency or private sector entity wishing to introduce EIA/SEA into development decision-making. First, there is the type, nature and scope of the EIA/SEA system (set of procedures) to be introduced. Secondly, there are issues relating to the conduct of the individual studies needed for specific proposals. This document focuses on both these aspects of EIA/SEA.

### 1.5 Effectiveness of EIA

In the mid-1990s, a major international review of the effectiveness of EIA was implemented (Sadler, 1996). This study was wide-ranging in its scope and comprehensive in the depth of its analysis and provides the most recent comparative information on the benefits of EIA, and also of its major weaknesses.

The review showed that to date, no country has abandoned EIA, or weakened its EIA procedures. Indeed, any legal amendments that have been made have tended to strengthen these procedures and increase their scope and effectiveness. Thus, EIA has been “tried and tested” at the project level.

The main advantages and benefits of EIA are:

- improved project design/siting;
- more informed decision-making (with improved opportunities for public involvement in decision-making. This aspect is discussed in Chapter 4);

- more environmentally sensitive decisions;
- increased accountability and transparency during the development process;
- improved integration of projects into their environmental and social setting;
- reduced environmental damage;
- more effective projects in terms of meeting their financial and/or socio-economic objectives; and
- a positive contribution towards achieving sustainability.

Despite widespread agreement on these achievements, it is recognized that they do not occur uniformly or consistently in all countries or organizations.

The study of EIA effectiveness showed a number of difficulties and constraints, generally although not universally applicable, that continue to prevent and hinder EIA from consistently delivering these advantages and benefits:

*EIA scope*

- small-scale projects not included in most EIA systems although their cumulative impacts may be significant over time.

*EIA application*

- difficulties in ensuring adequate and useful public involvement (or participation);
- insufficient integration of EIA work at key decision points in relation to feasibility and similar studies in the project life-cycle; with some major decisions being made even before EIAs are completed;
- lack of consistency in selection of developments requiring specific EIA studies;
- weak procedures for obtaining early agreement on the scope of EIA studies;
- inadequate understanding of the relative roles of baseline description and impact prediction;
- poor integration of biophysical environmental impacts with social, economic and health effects;
- production of EIA reports which are not easily understood by decision makers and the public because of their length and technical complexity;
- lack of mechanisms to ensure that EIA reports are considered in decision-making;
- weak linkages between EIA report recommendations on mitigation and monitoring and project implementation and operation; and
- limited technical and managerial capacities in many countries to implement EIAs.

Basically, some aspects of EIA application to physical development projects require general improvement. It is one of the intentions of this document to suggest ways to remedy these weaknesses and overcome these constraints.

## **1.6 Effectiveness of SEA**

Although SEA is more recent, comparable international reviews of effectiveness have been completed. The reviews tend to focus on particular aspects of SEA or different contexts in which it has been used. In Box 1.3, references are given to work that has particular application to SEA in developing and transitional countries. A massive literature now exists on SEA in general, much of which relates to experience in developed countries. Some key references can be found in the text, particularly in Chapter 5. An analysis of these documents reveals that SEA is being used in different ways and for differing purposes. Overall, the benefits of using SEA are seen to be valuable and further

experimentation is recommended to build up international experience. The range of SEA applications is far wider than that of EIA. This is probably due to the fact that use of SEA is “need” driven rather than being an issue of legal compliance in many countries and within agencies. However, there are some fundamental issues regarding the nature of SEA that have not yet been resolved completely, for example whether SEA should be considered as a new tool or just an amended and “scaled up or super-charged” EIA. In the context of this document, SEA is considered to be a variant of EIA with its own special area of applicability and capacity to take different forms, but keeping to certain accepted principles. Often, as will be discussed later, there are direct links between application of SEA for a policy and individual EIAs for the projects that arise from implementation of the policy.

There appears to be an emerging consensus that the practice and methodology of SEA need not be defined as precisely as that of EIA (Sadler and Verheem, 1996; Brown and Therivel, 1999), and this is particularly the case with respect to developing countries (Dalal-Clayton and Sadler, 1998). Instead of a detailed prescription of steps to be followed (as in EIA), it seems preferable to establish a limited set of principles and criteria that allow for a variety of ways of implementing SEAs depending on context (Thissen, 2000). Basically, the view seems to be that SEA is one concept that can take multiple forms (Verheem and Tonk, 2000), and a framework approach can be taken with certain core elements “mixed and matched” to meet the needs of a particular situation (Sadler 1996, 2001, Partidario, 2000). In that case, then SEA can be mandated by an enabling law or regulation, but with accompanying guidelines and advice on the key principles, elements and criteria that are non-prescriptive about approach and method.

### **Box 1:3 Some recent reviews of EIA/SEA effectiveness with particular reference to developing and transitional countries**

Dalal-Clayton, B. and Sadler, B. (1998) *The Application of Strategic Environmental Assessment in Developing Countries*. Environmental Planning Issues No.18. London: IIED.

Dalal-Clayton, B. and Sadler, B. (2004 forthcoming) *Strategic Environmental Assessment: A Global Overview*. London: IIED and Earthscan.

DEAT (Department of Environmental Affairs and Tourism) and CSIR (2000) Guideline Document: Strategic Environmental Assessment in South Africa. Pretoria, South Africa.

Dusik, J. (ed.) (2001) *Proceedings of International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment*. Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.

Kjorven, O. and Lindhjem, H. (2002) *Strategic Environmental Assessment in World Bank Operations: Experience to Date – Future Potential*. Environment Strategy paper No. 4, Environment Department, Washington DC: World Bank.

Lee, N. and George, C. (eds.) (2000) *Environmental Assessment in Developing and Transitional Countries*. Chichester: John Wiley & Sons, Ltd.

OECD (1997) *Strategic Environmental Assessment (SEA) in Development Cooperation: State-of-the-art-Review*. Final Report. Paris: OECD/DAC Working Party on Development Assistance and Environment.

World Bank (1991) Environmental Assessment Sourcebook Vol. 1: Policies, Procedures and Cross-Sectoral Issues. *Technical Paper Number 139*. Washington DC: World Bank.

World Bank (1999) *Case Studies on Regional and Sectoral EA: An Analysis of Lessons Learned*. Washington DC: World Bank.

An important compendium and source of information on EIA/SEA guidelines, handbooks etc., is Donnelly, A., Dalal-Clayton B., Hughes R. (1998) *A Directory of Impact Assessment Guidelines* (Second Edition). London: IIED.



## **1.7 Target audience for this document**

Although covering a wide range of topics in EIA/SEA with a focus on integration, this document is aimed primarily at three main categories of reader. They are:

- central/local government staff with responsibilities for ensuring effective implementation of EIA/SEA procedures and playing a significant role in appraising, approving or managing development projects;
- staff of multi- and bilateral agencies responsible for the identification, design and implementation of sustainable development projects; and
- managers with environmental responsibilities in the private sector.

It may be useful also to staff of non-governmental organizations (NGOs), those working in higher education centres and research institutes, and students following a range of courses focusing on aspects of planning, engineering and business management.

### ***Government staff***

Currently, there are a significant number of countries that have legal requirements and accompanying guidelines for EIA/SEA, or in the case of SEA, are likely to do so in the near future. Many of these countries do not possess a group of EIA/SEA “experts” with easy access to international thinking/writings on EIA/SEA. Often there are individuals who have a reasonable knowledge of EIA/SEA basics, but who feel a certain sense of isolation in terms of their familiarity with and access to, mainstream EIA/SEA concepts and practice. In most cases they possess copies of guidelines and similar documents, but are not certain if these form a representative sample of current “good EIA/SEA practice”.

Often it is to these individuals that governments turn when they wish to draft a law, regulation or guidelines. It would be of great benefit to these people and their governments if they could obtain and use “model” or “reference” EIA/SEA advice or guidance that summarizes the important common features of good EIA/SEA practice. This information needs to be combined with emerging thinking and practice in the application of EIA/SEA and EIA/SEA-like approaches (such as sustainability assessment) to a variety of development-related actions such as trade negotiations and agreements, national policies and transport plans, and such guidance needs to focus on issues, concepts and approaches in a non-country specific and neutral manner. It is the objective of this document to provide this guidance.

With the challenge of the Millenium Goal to “*Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources*”, all governments face the problem of finding mechanisms, tools and approaches which can be used in all socio-economic conditions to assist their countries to move toward achieving their sustainability objectives. Basically, how does a government know whether a particular development initiative moves it toward or away from sustainability (it may, of course, be neutral!)? It is clear that there is no single “magic bullet” which can be used, but it is becoming obvious that a suite of tools or approaches, in varying combinations, can be applied. One of these tools is EIA/SEA. In the future, attention will focus mainly on adapting and using EIA/SEA in conjunction with other tools as a means of testing development proposals against pre-determined sustainability criteria.

### ***Staff of multi- and bilateral agencies***

In the 1990s, senior staff of these agencies have been concerned about the effective delivery of benefits from the projects and programmes they support. The results of evaluation studies have indicated that many projects do not achieve some, or indeed all of their intended objectives or goals (for example Eggers, 1992). As a result, there has been

increasing attention paid to project and programme identification and design to help ensure that the beneficiaries do receive a sustainable flow of intended benefits once external support ceases. The aim is to ensure project sustainability (in terms of continuing delivery of benefits) and the potential use of a tool such as sustainability assessment is seen a mechanism for achieving this objective. Despite the move toward macro-level initiatives amongst certain agencies this objective remains valid.

Such an approach is focused on individual actions and their delivery of benefits. Basically, it is an attempt to manage threats or risks to an action on a case-by-case basis. Although essential, such an approach has limitations. It does not take into account the implications of implementing the actions on the wider environment. It might be that the action would harm some of the natural resources of an area that might be needed as a basis for future economic development activities. Therefore, the conditions for wider sustainable development may be compromised.

As well as promoting sustainable actions, the multi- and bilateral agencies also often have a commitment to assisting countries move towards a sustainable development path. It is important that all their activities within a country are coordinated and that a specific action does not cause unforeseen problems that affect the ability of other initiatives to achieve their objectives. Also, any indirect effects must not affect the conditions needed for sustainable development in a country. Thus, there is a need to find ways of combining design of a sustainable project with an assessment of its wider implications.

#### *Private sector personnel*

The information and advice presented on these emerging themes and practices will be of use to managers, particularly those with environmental responsibilities, in parastatals and in the private sector. Currently, many state-owned enterprises and parastatals are being privatized and decision-making is devolved to the “new” managers. Individual managers may find specific issues, such as the guidance on EIA and its links to facility-based Environmental Management Systems (EMS) of particular interest as they try to improve environmental performance within their companies or installations. Such action is needed to attract investment and improve market share by demonstrating concern, backed up by specific initiatives for the environmental implications of commercial and related activities.

## **KEY POINTS: Summary of Chapter 1**

### **Background and context**

The evolution of EIA/SEA is encouraging the application of a more integrated approach to impact assessment. The limitations of separate assessments of environmental, social and economic impacts are now increasingly acknowledged, as shown by the work of UNEP in relation to trade and trade-related issues. The Plan of Implementation of the Johannesburg WSSD has given added emphasis to the need for integration. The agreed MDGs and the actions needed to achieve them are also encouraging a greater integration in the use of different assessment tools.

### **Innovations**

SEA is now increasingly used although there is a lack of case study experience. The lessons learned from widespread use of EIA are assisting the evolution of SEA. There is still some academic discussion on the nature and role of SEA, but to some extent practice is overtaking theory. There is now renewed interest amongst the major international financing institutions and aid agencies in using SEA to assist them deal with the demands of the “poverty” agenda.

### **Challenges**

The main challenges are:

- Continue to improve EIA by increasing integration between different types of impact;
- Extend application of SEA and ensure lessons are learned to improve practice; and
- Ensure that both “public” and “private” sectors are involved in the pursuit of better integration.

## **References**

- Brown, A. and Therivel, R. (2000) Principles to Guide the Development of Strategic Environmental Assessment Methodology. *Impact Assessment and Project Appraisal* 18 (3): 183-90.
- Dalal-Clayton, B. and Sadler, B. (1998) *The Application of Strategic Environmental Assessment in Developing Countries*. Environmental Planning Issues, No.18. London: IIED.
- Dalal-Clayton, B. and Sadler, B. (2004 forthcoming) *Strategic Environmental Assessment: A Global Overview*. London: IIED and Earthscan.
- DEAT (Department of Environmental Affairs and Tourism) and CSIR (2000) Guideline Document: Strategic Environmental Assessment in South Africa. Pretoria, South Africa.
- DFID, EC, UNDP and World Bank (2002) *Linking Poverty Reduction and Environmental Management*. Washington DC: World Bank.
- Donnelly, A., Dalal-Clayton B., Hughes R. (1998) *A Directory of Impact Assessment Guidelines* (Second Edition), London: IIED.
- Dusik, J. (ed.) (2001) *Proceedings of International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment*. Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.
- Eggers, H. (1992) The Integrated Approach to Project Cycle Management. *Project Appraisal*. 7(1), 3-10.
- Impact Assessment and Project Appraisal (2000) *Special issue on strategic environmental assessment, planning and policy-making*. 18(3), 173-256.
- Kjorven, O. and Lindhjem, H. (2002) *Strategic Environmental Assessment in World Bank Operations: Experience to Date – Future Potential*. Environment Strategy paper No. 4, Environment Department, Washington DC: World Bank.

Lee, N. and George, C. (eds.) (2000) *Environmental Assessment in Developing and Transitional Countries*. Chichester: John Wiley & Sons, Ltd.

OECD (1997) *Strategic Environmental Assessment (SEA) in Development Cooperation: State-of-the-Art Review*. Final Report. Paris: OECD/DAC Working Party on Development Assistance and Environment.

Partidario, M. R. (2000) Elements of an SEA framework – improving the added-value of SEA. *Environmental Impact Assessment Review*, 20(6), 647-63.

Sadler, B. (1996) *Environmental Assessment in a Changing World: Evaluation Practice to Improve Performance*, (Final Report of the International Study of the Effectiveness of Environmental Assessment), Canadian Environmental Assessment Agency and International Association for Impact Assessment, Ottawa, Canada.

Sadler, B. and Verheem, R. (1996) *Strategic Environmental Assessment: Status, Challenges and Future Directions*. Report no. 53. The Hague: Ministry of Housing, Physical Planning and Environment.

Sadler, B. (2001) A Framework Approach to Strategic Environmental Assessment: Aims, Principles and Elements of Good Practice. in Dusik, J. (ed.) *Proceedings of the International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment* (pp. 11-24), Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.

Thérivel, R. and Partidario, M. R. (1996) *The Practice of Strategic Environmental Assessment*. London: Earthscan.

Thissen, W. (2000) Strategic environmental assessment at a crossroads. *Impact Assessment and Project Appraisal*, 18(3), 174-6.

UNEP (2001) *Reference Manual for the Integrated Assessment of Trade-Related Policies*. Geneva: UNEP Economics and Trade Unit, Division of Technology, Industry and Economics.

UNEP (2002a) *Integrated Assessment of Trade and Trade-Related Policies. UNEP Country Projects-Round II. A Synthesis Report*. Geneva: UNEP.

UNEP (2002b) *Environmental Impact Assessment Training Resource Manual*. Second Edition. Geneva: UNEP.

Verheem, R. and Tonk, J. (2000) Strategic environmental assessment: one concept, multiple forms. *Impact Assessment and Project Appraisal*, 18(3), 177-82.

World Bank (1991) *Environmental Assessment Sourcebook Vol 1: Policies, Procedures and Cross-Sectoral Issues. Technical Paper Number 139*. Washington DC: World Bank.

World Bank (1999) *Case Studies on Regional and Sectoral EA: An Analysis of Lessons Learned*. Washington DC: World Bank.

World Bank (2002a) *Poverty Reduction Strategy Sourcebook*. Washington DC: World Bank.

World Bank (2002b) *Making Sustainable Commitments*, Washington DC: World Bank.



## Chapter 2: EIA Systems – Legal and Institutional Arrangements

### 2.1 Context and challenges for developing countries and countries in transition

During the past decade, the use of EIA in and by developing countries has become widespread. The EIA procedures for borrowing and recipient countries respectively, established by the development banks and overseas aid agencies, have been influential in this regard. A number of developing countries had already established their own EIA arrangements beginning in the late 1970s and early 1980s, for example in Brazil, China, the Philippines and Malaysia. Post-Rio, the adoption of formalized EIA systems by developing countries has accelerated significantly, notably through the introduction of new legislation and procedures, although EIA practice is still limited in some parts of the developing world, notably Africa. However, this situation is changing as result of both domestic and international requirements and activities to build EIA capacity.

Many developing countries and countries with economies in transition are attempting to strengthen and consolidate their EIA systems (see Lee and George, 2000). These reforms are part of broader trends in EIA, and take place against a background of political and economic change including processes of globalization through which trade, capital and investment flows are integrating national economies into a single world market. Globalization often accelerates economic growth and increases environmental deterioration in developing countries, and thus has important implications for the use and development of EIA. These effects and implications in turn differ across and within developing regions and countries depending on their level of development, dependence on natural resources and other factors.

From the standpoint of sustainable development, the context and challenges confronting developing countries remain the same as those documented in Agenda 21, except that in the ten years since Rio, environmental and social impacts have become more pressing. The global environmental outlook and the disparity between rich and poor countries have worsened; one-quarter of the world's population continues to live in severe poverty, and resource depletion and environmental deterioration are widespread in many developing countries (UNEP, 1999). If present trends continue, the prospects for improving the status of the world's poorest people will be undermined even further. Ways of making better use of EIA as a tool for poverty alleviation are being sought by international agencies (see World Bank, 2001).

In this context, the links between environment, development and poverty emerged as the central theme of the 2002 WSSD held in Johannesburg, which reviewed the progress made on Agenda 21 since Rio. The Summit focused on legal, financial, economic and regulatory mechanisms to accelerate development, improve health and provide better care for the environment. The WSSD Plan of Implementation calls for an integrated approach to EIA, including its growing use as a tool to promote environmentally sustainable development. It calls also for EIA to link better with economic and social appraisal tools on the one hand (prior to a development occurring) and environmental management tools (during the operational phase of development) on the other (Sadler, 2001).

Other initiatives have supported the need for more integrated and effective EIA systems in developing countries. These include the preparation of National Environmental Action Plans and the initiation of the Global Environment Facility (GEF), which assists developing countries to address climate warming, biodiversity loss and other high priority issues.

Despite these changes, the challenge now is to upgrade EIA process and practice to tackle the root causes of environmental decline, which are grounded in poverty, underdevelopment and lack of basic infrastructure. When doing so, other trends that accompany globalization such as increasing democratization, deregulation, privatization and decentralization, need to be taken into account. In response, EIA arrangements may need to become more flexible, less reliant on “command and control” (CAC) measures and open to greater public and stakeholder involvement (Sadler, 1996).

At the same time, many developing countries face financial, structural and resource constraints on introducing and instituting EIA arrangements. The following realities are common, especially among poorer countries:

- limited public involvement in political decision-making;
- restricted access to “central” political decision-making processes, especially for rural/isolated communities;
- little awareness of the importance of environmental management and sustainable development amongst government sectors and the public;
- inadequate institutional and legal framework;
- weak enforcement of laws and regulations; and
- poor coordination between agencies at the national level and between national and local levels.

A systematic, long term commitment will be necessary to overcome the limited EIA capacity of developing countries that have some or all of the characteristics listed above. In the last five years, capacity building programmes for this purpose have increased substantially, becoming more comprehensive and integrated than before (see Box 2.1). However, much remains to be done, especially in poorer countries and regions such as Sub-Saharan Africa where EIA systems remain weak and poorly founded (World Conservation Union [IUCN] and World Bank, 1997). Other regions where EIA systems are well established have different priorities. For example, under the Sofia Initiative (see Box 2.1), emphasis has been given to the development of SEA process and capabilities in Central and Eastern European countries where EIA systems are relatively well established already. In Balkan countries, especially those affected by war and conflict, the concern is to introduce and develop EIA systems to internationally recognised standards, as part of a larger Regional Environmental Reconstruction Programme (REPP).

Each country will have particular needs and realities that must be taken into account in EIA development and capacity building. These requirements are being given increasing attention, although the documentation may not be readily available or accessible. EIA aspects are contained also in environmental profiles and reports on developing countries prepared by or on behalf of international aid agencies. Specific surveys of EIA needs and capacities have been carried out for developing regions and countries. Examples include Asia (Smith and van der Wansem, 1995), the Middle East (George, 2001), Tanzania (Mwalyosi et al., 1995) and Uganda and Vietnam (as part of the pilot testing of the UNEP EIA Training Resource Manual). A larger number of studies of the operation and effectiveness of national EIA systems provide information and conclusions on needed developments (e.g. Bellinger et al., 2000; Lee and George, 2000; Kristoffersen and Tesli, 1996). Further information on EIA capacity assessment and needs-based strategies can be found in the companion UNEP EIA Training Resource Manual (see especially Section B and Topic 1).



### Box 2:1 Some recent trends in EIA capacity development

The need for EIA institution and capacity building in developing countries was a major theme of Agenda 21. UNEP has played a lead role in this area, as described in Chapter I. Other international lending and aid agencies have responded by realigning their strategies and instituting new approaches and activities since Rio. For example, principles for capacity building and the environment were agreed between donor and recipient countries (OECD, 1997). These principles call for partnership, collaboration and greater local ownership of the processes and results of capacity building, ensuring they are responsive to the needs and circumstances of the countries concerned, make use of local expertise and institutions and lead away from dependence towards self-reliance.

Regional initiatives that reflect these principles include:

- *African EIA Capacity Building Action Plan*, which proposes a comprehensive, region-wide programme of EIA training, networking and institution-building to be implemented through coordinated action of donor agencies and international NGOs;
- *Asian Regional Environment Assessment Programme*, which assists participating countries in the use and development of EIA, particularly to implement the provisions of various international agreements on the environment; and
- *EIA and SEA programme of the Sofia Initiative for Central and Eastern Europe*, which emphasises “east-east” cooperation and exchange of information and experience among EIA administrators and practitioners in the region.

## 2.2 Elements of EIA systems

Principle 17 of the Rio Declaration on Environment and Development (1992) refers to EIA as a national instrument which “*shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment*”. EIA is applied by countries with different levels of development, types of government and cultural traditions. The arrangements and practices that are in place in different countries vary, in some cases substantially, as a result of these factors. A general distinction can be made between the characteristics of EIA systems of developed and developing countries. While those of developing countries are less advanced, the EIA process is similar, with common elements, steps and activities. In addition, the same basic principles for EIA good practice apply internationally to both developed and developing countries (EIA Centre, 1995).

Box 2.2 summarizes important elements to be considered when introducing or amending EIA systems. These can be thought of as “foundations or enabling conditions” for EIA good practice and effective performance. An EIA system with the characteristics listed will not necessarily or always achieve those ends, but certainly little will be achieved unless they are in place. When designing and implementing EIA systems, these elements should be considered together as a package. In combination, they provide a set of institutional controls and procedural “checks and balances” that can build quality assurance into the EIA process (see also Sadler, 1996; Sadler and Fuller, 1997). The remainder of this section provides principles and guidance on their development and use, beginning with legal and institutional frameworks.

## Chapter 2

### EIA Systems – Legal and Institutional Arrangements



### Box 2:2 Key elements in the design of EIA systems

Below is a summary of the main factors to be considered when introducing or amending an EIA System:

- political support and commitment;
- legal basis with accompanying regulations and guidelines;
- provision for public involvement;
- coverage of proposed actions likely to have significant environmental effects;
- designated process and procedures, including mechanisms for review of the quality of EIA reports;
- measures to ensure compliance and accountability by competent authorities and decision-making body;
- appropriate role for environmental agency in EIA process administration and decision-making;
- technical and professional capacity to carry out EIA.

These elements are discussed in detail in this chapter.

### *EIA arrangements – trends and status*

*EIA legal and institutional frameworks established by developing countries should conform or correspond to internationally accepted principles and points of reference as described in this section. The specific detail and content of legislation should take account of the policy and institutional values and realities in the country concerned.*

The provision for EIA should be based on legislation which is clear and explicit as to the nature and scope of application and the type of approach to be taken. At a minimum, EIA legislation, together with any supplementary regulations, should specify the following (Sadler, 1998):

- area and aspects to be covered - which proposed actions and impacts shall be assessed?
- requirements and procedures - how shall the EIA process be administered and applied?
- responsibilities and duties - what must or may be done by proponents, competent authorities and decision-making bodies?
- relationship to decision-making — how shall the EIA process be used in approval of proposed actions subject to review?
- compliance and enforcement - what steps and measures are to be taken in the event that due procedure is not followed in carrying out the EIA or implementing terms and conditions of approval?

The EIA systems of many developing countries are based on legislation. A number of countries initially introduced EIA through policy directives and administrative orders (e.g. Malaysia from 1979-1985). Some countries still continue to apply EIA informally under such measures (e.g. Zimbabwe). Other countries have “legalized” initial, policy-based approaches through later laws and regulations (e.g. Nepal) or are in the process of doing so (e.g. Botswana). The majority of developing and transitional countries have enacted their EIA legislation in the period since 1990 in response to the context and challenges described above. Internationally, this trend is impressive and extends to all parts of the developing world, although it is better represented in some areas than others

and there are intra-regional variations (see Box 2.3). For example, EIA legislation is widely in place in Latin America (Brito and Moreira, 1999), uneven across East Asia (Briffett, 1999) and largely absent from west-central Africa (Kakonge, 1999).

The EIA legal arrangements established by individual countries differ in their content and detail, in some cases significantly (see Donnelly et al., 1998). The types of instruments used include:

- Omnibus environmental protection, resource management or physical/spatial planning act that includes provision for EIA (e.g. Vietnam Law on Environmental Protection, 1993);
- EIA specific law that is comprehensive and prescriptive (e.g. Nigerian EIA Decree No. 86 1992, Slovak Act on Environmental Impact Assessment, 1994);
- EIA framework or enabling law (e.g. Belize Environmental Protection Act, 1992; Chile Framework Law on the Environment, 1994);
- Regulations to implement EIA legislation developed under the above instruments, particularly framework laws (e.g. Swaziland Environmental Audit, Assessment and Review Regulations, 1996; issued pursuant to the Environment Authority Act, 1992).

The EIA legal frameworks established by individual countries also differ in their adequacy and integrity as judged against international standards and local needs. Some developing and transitional countries meet most internationally accepted standards and elements (Poland is one example, see Box 2.3). Others do not because of loopholes or omissions in EIA legislation. Commonly cited examples include inadequate specification of implementation, quality control and enforcement procedures, failure to assign responsibilities or lack of provision for meaningful public involvement (Briffett, 1999; Brito and Moreira, 1999; Rukuba-Ngaiza and Bekhechi, 2001). In certain countries, EIA legislation based on an imported framework can be inappropriate and dysfunctional. This is a matter of concern in Africa (see, Kakonge, 1999). More generally, EIA legislation is recognized as needing adaptation for small developing countries, such as the Maldives (Annandale, 2001) and Lesotho (Mokehele and Diab, 2001).

Some critics argue that international EIA systems, based on “western” legal principles and procedures, result in an inflexible, bureaucratic and overly negative approach that is unrelated to the needs of developing countries (e.g. Biswas and Agarwala, 1992). Certainly, EIA is seen by many as being anti-development, because of its focus primarily on adverse biophysical impacts (Campbell, 1993). This is a matter of continuing debate from an international perspective. In practice, developing countries have addressed this issue by referring to internationally accepted legal and administrative frameworks but instituting them in unique national EIA systems, as indicated by the review of Latin American and Caribbean countries conducted for the Inter-American Development Bank (Alzina and Espinoza, 2001).

With appropriate modification, principles and performance criteria for the design of EIA systems can be used to review the EIA arrangements that are in place in a developing country (Wood, 1999; Sadler, 1996). The general questions listed above also can be considered as an *aide-mémoire* for this purpose. In both cases, however, the political, economic and social conditions that apply in a particular developing country will need to be taken into account. The legal and institutional adequacy of EIA systems cannot be divorced from wider issues of governance and the influence of cultural traditions (Boyle, 1998; Menom, 2000).

### Box 2:3 EIA legal developments in transitional countries

Collectively, the transitional countries of Central and Eastern Europe (CEE) and the former Soviet Union have passed more than 100 EIA laws in the last fifteen years. Much of this burst of law making is recent, displays regional trends and differences and offers lessons for other developing regions when introducing and reforming EIA systems.

**Background:** EIA legal reforms in transitional countries have been undertaken in response to the general trends described in section 2.1 and the particular economic, social and political changes that resulted from the break up of the Soviet Union and the move toward market-based economies. Overall, this process has transformed EIA from an element of central planning to a more transparent and free standing procedure. However there have been important variations, notably between CEE countries and the Newly Independent States (NIS) of the former Soviet Union.

**CEE experience:** Eleven CEE countries have some form of EIA legal provision. The most advanced EIA systems are in CEE countries that are scheduled next for accession to the European Union (e.g. Czech Republic, Hungary, Poland). The legal arrangements of all CEE countries have been influenced by the requirements of the EIA Directive (85/337/EEC and 97/11/EC) and by activities undertaken by Parties to the Espoo Convention on transboundary EIA. Now, the Århus Convention on public involvement has come into force it promises to have a similar developmental role. The Polish *Law on Access to Information on the Environment and its Protection and on Assessment of Environmental Impacts* (2000) is notable for having transposed requirements from all three instruments.

**NIS experience:** With certain exceptions (Armenia and Georgia), EIA legislation and procedure in ex-Soviet states differs from international or “western” elements. Instead, the Soviet model of ecological expertise or state environmental review (SER) is applied. Under this procedure, environmental authorities have a primary role and public involvement is limited. In certain countries, EIA elements are carried out under supplementary legislation and applied prior to SER for selected projects. The four NIS countries of central Asia operate SER systems inherited from the USSR with little modification and have no provision for EIA.

**Lessons:** EIA trends in transitional countries emphasize that legislative developments are conditioned by the prevailing political culture, level of socio-economic development and other “governing” factors. Regional differences, particularly between CEE and NIS experience, indicate how these factors influence the pace and scope of EIA reform. Transitional countries that have yet to introduce and/or implement EIA legislation are located in regions of conflict and instability (e.g. south-eastern Europe) and/or relative isolation (e.g. central Asia).

Sources: Cherp (2001); Dusik (ed.) (2001).

### *EIA implementation – factors and capabilities*

*For all countries, the real test of EIA legislation lies in its implementation, how well the requirements and procedures work in practice. In developing countries, particular attention needs to be given to the factors that assist or impede EIA implementation, taking account of those described below.*

Even where EIA legislation and procedure are well founded, it does not ensure effective implementation. For example, EIA systems of Latin American and Caribbean countries are reported to be reasonably sound, reflecting the steps that have been taken recently to strengthen them institutionally (Alzina and Espinoza, 2001). However, EIA implementation in much of the region is at an early stage and can be considered to fall well short of what can be termed as good practice (Brito and Moreira, 1999). These discrepancies have been described for other parts of the developing world (see Petts, 1999) and with regard to the main stages and elements of the EIA process (Lee and George, 2000; Modak and Biswas, 1999).

The issues of EIA implementation are particularly acute in developing countries where EIA institutional and technical capabilities are limited. At a basic level, effective EIA implementation depends on a functioning legal and government system and the availability of people with the necessary expertise. Key factors include:

- high-level political commitment;
- budgetary and resource support;
- public trust and involvement;
- appropriate environmental policy framework;
- institutional arrangements for cross-sector environmental accountability;
- personnel with core managerial and technical competencies to:
  - administer the EIA system;
  - conduct EIA studies;
  - prepare and review EIA reports; and
  - undertake supporting research, training and professional development activities.

Generally, EIA implementation in developing countries appears to work best if legal and institutional arrangements have evolved gradually through an “organic” process, rather than one “imposed” from outside. This approach will be most successful when it is based on pilot testing and experimentation to foster cross-sector familiarity with EIA, initially based on non-statutory procedure. In this way, a locally adapted EIA system can be developed that has support amongst those who will have to implement it. The result is an EIA system that has emerged from the “bottom towards the top” rather than from the “top towards the bottom”. Box 2.4 describes the process followed in Nepal to create both an EIA system and the commitment and capacity to implement it.

In many cases, an intermediate strategy must be devised to institute and implement EIA legislation and procedures, recognizing that time and resources available for this purpose are limited in developing countries. Those who will have to implement the EIA system should be involved as early as possible in legal and regulatory drafting and/or EIA administrative development. Box 2.5 shows how EIA regulations and guidelines were prepared in Swaziland and Zambia. As in the Nepal case, the participatory approach followed in these countries had a number of benefits. It resulted in technical and institutional strengthening of proposed EIA procedures, and facilitated their implementation through an inter-agency process of commenting and review.

If key factors (as described above) are not in place or are inadequate, EIA capacity building will need to be part of a larger process of institution strengthening. No single strategy for this purpose can be appropriate for all developing countries. In each case, the approach must be directed at needs and priorities identified for EIA implementation and fitted to the broader context, as indicated by a country environmental profile, national environmental action plan or similar document. Where the information is insufficient for this purpose, a capacity assessment can be undertaken as outlined in the UNEP EIA Training Resource Manual and having regard to the checklist of factors above. This process may be completed relatively quickly or take longer, depending on the country and the strengths and weaknesses of government systems.

In many developing countries, EIA capacity building also needs to address societal factors including lack of public concern for the environment. Legal and regulatory instruments, by themselves, are insufficient to create the basis for effective EIA implementation. Recently, the World Bank and other international lending and aid agencies have given increasing attention to societal instruments to promote environmental reforms, especially in the EIA process. Box 2.6 illustrates their use and indicates how broadly based public

involvement was both a means and an end of the reform of Mexico's ecology law. In other developing countries, mobilizing public support for and engagement in the EIA process will require a long-term commitment to democratization, better education, empowerment of women and strengthening civil society.

### Box 2:4 Development of the EIA system in Nepal

**Background:** A "graduated" approach to EIA development was followed in Nepal, beginning with the preparation of a National Conservation Strategy in 1987. The Strategy and later the Eighth Five Year Plan (1992-1997) identified the establishing of a national EIA system as a priority. As a first step, the National Planning Commission (NPC), in collaboration with IUCN - The World Conservation Union, prepared comprehensive national and sectoral EIA guidelines. In 1992, the government endorsed the national guidelines, and an EIA requirement was included in the Water Resources and Electricity Acts. The Environmental Protection Act (1996) requires an initial or full EIA for prescribed plans, programmes and projects.

**Approach:** A participatory approach was followed in developing and implementing Nepal's EIA guidelines, recognizing the EIA process is multidisciplinary and demands intersectoral cooperation and coordination. This approach was centred on an Environmental Core Group (ECG), consisting of 110 members representing 17 ministries and departments of government, 10 NGOs, and 7 private sector organizations. Over a four-year period, ECG members participated in intensive workshops, initially to develop national EIA guidelines, and subsequently to develop sectoral guidelines.

**Outcome:** Because EIA guideline drafting was carried out through a participatory process of learning-by-doing, it was effective in raising awareness among the ECG members. Most of those involved in the process have become environmental advocates and administrators in their respective sectors. The way EIA guidelines were developed fostered a sense of collective ownership of them and built the manpower and expertise necessary for their implementation.

**Lessons:** The Nepali approach emphasized minimal dependency on outside experts and ensured that the EIA guidelines were tailored to local needs and conditions. It indicates how a self-supporting pool of indigenous environmental expertise can be built within the existing government, NGO and private sectors. Nepal now has both the technical capacity and commitment to implement EIA legislation, which was one of the end products of the ECG process.

*Source:* Updated from first edition.

### Box 2:5 Preparation of EIA regulations and guidelines in Swaziland and Zambia

EIA regulations (mandatory rules) and guidelines (non-mandatory directions and advisories) are widely used to amplify basic EIA legislation enacted by many developing countries. Their preparation in Swaziland and Zambia are described below to indicate factors that can help lay the ground for successful EIA implementation.

**Background:** Both countries enacted framework or umbrella environmental laws that required EIA but did not establish an administrative EIA system. Initially, individual EIAs were not implemented systematically or consistently in either Swaziland or Zambia. Subsequently, the relevant national environmental agencies (Swaziland Environment Authority and the Environmental Council of Zambia) prepared EIA regulations and accompanying guidelines to establish EIA administrative systems to ensure consistent EIA implementation.

**Approach:** The basic approach followed in the two countries was very similar. An initial draft was prepared internally and then circulated to the stakeholder organizations, which would be responsible for and involved in implementing the EIA system. Their representatives attended a workshop to comment on the draft and to discuss and agree to proposed amendments. In both countries, the stakeholders included: central government ministries and departments; NGOs; parastatals; and the private sector. →



**Outcome:** Following the initial workshop a revised draft was prepared. It went through the same process resulting in an agreed draft, which was sent to the appropriate “legal affairs” department for specialized drafting prior to submission to the Cabinet or authorizing body. External consultants were used to assist key stages of the drafting work. More importantly, the process itself resulted in consensus-based EIA regulations and guidelines.

**Lessons:** Swaziland and Zambian experience underline the importance of formal legal and administrative arrangements for EIA implementation. It also indicates that EIA regulations and guidelines that are developed with the involvement of those responsible for implementing them are likely to be more effective than instruments that are introduced unilaterally.

*Source:* Updated from first version.

### **Box 2:6 How public involvement can support better EIA implementation – an example from Mexico**

**Background:** Agenda 21 calls for broad public involvement combined with greater accountability in environmental and development decision-making. Recently, international agencies and national governments, especially in Latin America and Central and Eastern Europe, have used participatory approaches as an instrument to modernize environmental policy and regulatory systems. These processes work best for countries that have chosen a democratic path, and in Mexico’s case, signing the North American Free Trade Agreement (NAFTA) provided a catalyst for undertaking a substantial programme of legal and political reforms.

**Approach:** Federal provision for EIA in Mexico is made under the *General Law of Ecological Balance and Environmental Protection* (1988). A radical overhaul of the Act was passed in 1996, after a year-long review of the so called Ecology Law. This process was based on extensive public consultations. It went far beyond previous environmental reform initiatives, and reflected both the general trend toward greater public participation in Latin America (as discussed at the Summit of the Americas on Sustainable Development, held in Santa Cruz, Bolivia, 1996) and specific criticisms of the EIA process in relation to meeting NAFTA obligations (as contained in the side agreement on environmental harmonization).

**Outcome:** In 1996, the Mexican Congress passed a series of reforms to the Ecology Law. These include measures to improve accountability and transparency in environmental management, transfer certain decision-making powers to state and local governments and provide for increased access to information and opportunities for citizen participation, especially in the EIA process. As recognized by the World Bank, the Mexican approach is “a prime example” of a “radical law reform”.

**Lessons:** Mexico’s reform indicates how public involvement can be used to upgrade EIA arrangements and, in doing so, helps create both specific measures and general conditions for their effective implementation. In this latter context, public involvement works through its relationship to other social processes, such as learning and transfer of skills and competencies that support citizens and NGO’s to organize, hold government agencies accountable and play constructive roles in the EIA process.

*Source:* World Bank, *Environment Matters* (1997, 14-15).

### 2.3 Approaches for making the EIA process effective

The problems of EIA implementation experienced by both developed and developing countries have drawn increasing attention to the effectiveness of the EIA process and the procedures that are followed when applying it. The term effectiveness refers to whether or not the EIA process and its main components work as intended. In this chapter, the emphasis is on procedural strengths and weaknesses and on the options for improvement. A further distinction can be made between:

- the organizational arrangements that underlie or cut across the EIA process; and
- the main procedural steps and activities of the EIA process, which comprise quality control and assurance mechanisms and are described in the next chapter.

The particular emphasis is on four components that are central to administering and implementing the EIA process, namely:

- Self-directed assessment by development proponents and agencies;
- Oversight of EIA implementation by a designated body;
- Guidance on conducting EIA in accordance with legal and procedural requirements; and
- Public involvement including measures related to availability of information and opportunity to comment on the content of EIA reports and documentation.

In combination, these components comprise what may be termed the administrative machinery for delivering the principles of EIA process design and implementation that have gained a measure of international acceptance. The principles listed in Box 2.7 describe what is sometimes called due process and also comprise attributes of procedural effectiveness for EIA systems (Doyle and Sadler, 1996). Approaches to instituting these principles or attributes are outlined with reference to the four components above. Particular consideration is given to measures that can strengthen these mechanisms immediately and cost effectively. These are understood to be administrative amendments that can be made under the existing EIA legal and regulatory framework.

#### Box 2:7 Guiding principles of due process and EIA administration

**Responsive** - appropriate and timely opportunities for the public to be informed and heard

**Efficient** - minimum time and cost burdens on proponents and participants, consistent with meeting accepted requirements and objectives of EIA

**Equitable** - fair treatment of all participants, without bias toward or against any party

**Transparent** - open and accessible process, with clear, easily understood requirements

**Accountable** - parties are responsible for their actions, in compliance with process requirements

**Certain** - guidelines and timelines followed, with any variance subject to authorisation by the administering body

**Pragmatic** - flexible application of the process, adapting it to the proposal, potential impacts and purpose of decision-making

**Credible** - the process is implemented objectively and administered impartially

*Source:* adapted from Sadler (1996).

### ***Self-directed assessment***

*Self-directed assessment is recognized internationally as an important measure by which private sector proponents and government agencies responsible for development are made accountable for their environmental decisions and actions. They are expected to apply the EIA process with professionalism, in compliance with process requirements and in accordance with the other principles outlined above.*

Although widely instituted, the requirements for self-directed assessment differ among countries and jurisdictions. In essence, self-assessment applies to all stages of the EIA process, beginning with screening to determine whether or not a proposed action shall be subject to EIA. The decisions made at this and subsequent stages should be transparent and defensible, and usually self-assessment will be subject to other checks and balances (described below and in the next chapter). For example, terms of reference relating to the scope of EIA and the factors to be considered may be drawn up with input from or the approval of an environmental agency or other body. In certain cases, provision may be made for information to be reviewed by an independent EIA panel or third party as in the Nigerian EIA system, which is modelled closely on the Canadian Environmental Assessment Act.

Self-assessment is intended to facilitate development proponents and agencies coming to practical grips with its environmental responsibilities, particularly the identification and implementation of EIA-derived mitigation measures and environmental management plans. In practice, however, these aspects of EIA practice are carried out ineffectively in many developing countries, including projects undertaken with international funding and supervision. For example, the *Second Environmental Assessment Review* conducted by the World Bank (1996) indicated that significant difficulties were encountered in implementation of terms and conditions even when EIA preparation was sound. If self-directed assessment is to work as intended, a minimum level of organizational and technical capacity must be in place (as outlined in section 2.2), supported by other administrative measures.

Depending on the particular issues, these measures may be supplemented by additional legal and administrative safeguards on self assessment, including:

- certification or registration of approved consultants (e.g. China, Czech Republic);
- specifying legal conditions on the relationship of proponents and consultants (e.g. Brazil);
- translating EIA-derived requirements for project implementation into bidding and contract documents to ensure obligations are met (World Bank); and
- including enforcement measures and penalties in EIA laws/regulations to deter non-compliance with requirements.

### ***EIA process administration***

*Typically, a separate agency is established or designated to oversee compliance with EIA legal and procedural requirements. This administrative body has an important role in reinforcing accountability and should be fair and consistent in its interpretation of rules and requirements.*

The implementation of EIA in accordance with the arrangements that are in force represents a benchmark of procedural effectiveness. An administrative entity, which operates separately or independently from any other agency, has an important role in this regard. Usually, this will be vested in a national environmental agency that has wider responsibilities (see Box 2.5) and few developing countries appear to have established



EIA-specific administrative bodies (as in Canada). An administrative body's primary responsibility is to ensure the EIA process is carried out in compliance with the provisions made in law and regulation. This oversight role can be demanding. It requires the EIA administrative body to be impartial and even-handed in carrying out its defined functions and duties.

There are a number of "models" for this role, ranging from a low key, "hands off" administrative regime to a "command and control" regulatory system. In certain developing countries with well-established EIA procedures, the "hands off" model may be appropriate. However, this model will be effective only if other controls are in place, including mechanisms for inter-agency cooperation in EIA implementation and experience in their use (see Box 2.4). In many developing countries and some economies in transition, a regulatory-type model may be more appropriate for EIA administration. An interim model entails the "active administration" to promote the conduct of EIA in a manner that is consistent with principles of good practice. This approach will require either an EIA administrative body to have technical knowledge or expert agencies to provide information and advice on request.

Depending on the type of regime, an EIA administrative body can have one or more of the following functions and duties:

- preparation of regulations and guidance;
- ensuring uniform and consistent EIA implementation;
- providing procedural advice and direction including on issue resolution (as in Hong Kong);
- registration of EIA reports and documentation;
- public notification and information related to the EIA process
- issuing or approving terms of reference for EIAs;
- overseeing or facilitating stakeholder involvement, for example formal public hearings on draft/final EIA reports;
- review or approval of EIA reports
- promoting EIA good practice;
- issuing an environmental approval or terms and conditions without which a project cannot proceed;
- supervision or inspection of EIA-derived environmental management plans for project implementation; and
- carrying out EIA audit and follow up studies.

In situations where individual countries generally do not have the critical mass of expertise to guide and review EIA, it might be better for them to "pool resources" and meet the challenge as a region in addition to trying to build in-country capacity. A recent initiative in southern Africa shows how this can work in practice (see Tarr 2001). The non-profit Southern African Institute for Environmental Assessment (SAIEA) was established in 2000, to assist countries in this region to implement EIA more effectively. It provides expert services to governments and a wide range of other clients, including guiding and reviewing EIAs, human capacity building and research and development. The Institute has access to a strong network of local experts and links to various international partners, enabling it to use and build local capacity at the same time as providing a high standard of professional service. Managed and led entirely by southern Africans and with broad-based support in the region, SAIEA is being contracted by international development agencies and donors to provide services in the region on their behalf, as well as assisting clients from SADC countries directly. The SAIEA model is innovative and could easily be replicated in other parts of the world.

## Guidance on EIA implementation

*Practical guidance for conducting EIA can help to promote better procedural compliance and effective process implementation. Normally, guidance will be issued by the responsible EIA administrative or expert body and should provide clear and authoritative interpretation of the actions to be taken and by whom.*

There are many different types of guidelines on how to undertake an EIA or particular steps and elements of the process. As used here, the term refers to official documents that are prepared or issued by an administrative or expert body responsible for either a national EIA system or EIA requirements established for international lending and donor assistance. Generally, this type of guidance is written for those who are responsible for applying EIA legislation and regulations and explain their requirements in relation to actions that must or should be taken. In this context, EIA guidelines have the status of advisory documents. However, in certain countries, EIA guidelines refer to mandatory rules and the term is used interchangeably with regulations.

EIA guidelines vary significantly in their scope and content. The predominant emphasis of EIA guidelines is on procedural compliance by those participating in the EIA process. At a minimum, it is critical to ensure that the implementing agencies clearly understand their responsibilities under EIA legislation and regulations. For example, this can be achieved by clarifying the roles of the different parties, setting out their interactions and describing measures for working cooperatively and efficiently. Basically, guidelines describe what shall or should be done, when it must be done, how specific actions are to be carried out and which decisions are required.

Also, guidelines can refer to use of appropriate methods and tools in relation to key steps in the EIA process. In addition, more detailed, supplementary guidance may be issued on key aspects and issues, such as scoping and public involvement. Other types of semi-official guidance may be used for this purpose, for example the good practice guidelines on EIA of development projects issued by OECD (1992). There are also numerous sectoral guidelines that can be referred to when an EIA is prepared for a particular type of development project, such as irrigation, agriculture and mining (see, Donnelly et al., 1998). More detailed technical information is available from various sources, including the *Environmental Assessment Sourcebook* and subsequent *Updates* issued by the World Bank (1991 et seq.).

In practice, the use of EIA guidelines varies widely from country to country. The reasons for non-implementation include the unsuitability of international EIA guidelines for use in many developing countries, as well as lack of capacity and resources (OECD Development Assistance Committee, 1994). As with legislation and regulations, issues of quality and usage of EIA guidelines can be best addressed through the active involvement of implementing agencies. Experience has shown that there will be a period of adjustment, probably at least five years, in which all parties to the EIA system slowly become accustomed to the procedures and their roles. This is a period of trial and error and experimentation during which an administrative *modus operandi* emerges. An operational review of EIA procedures after a specified period can help to identify problem areas and suggest improved administrative practice (for example, in the European Union there was a “5 year review” of the implementation of the EIA Directive). These aspects can be reflected in revised guidance or, if necessary, amendments to laws and regulations.

*Public involvement and consultation*

*Public involvement is a cornerstone of the EIA process. Appropriate provision should be made for affected and interested parties to comment on a proposal and its impacts.*

Public involvement is a key to achieving both other procedural principles and the substantive objectives of the EIA process. A requirement to make information available to the concerned public and seek their views and comments helps ensure that EIA procedures are implemented in an open, transparent and accountable manner. Public scrutiny also encourages the preparation of robust and defensible EIA studies and reports. In addition, information and inputs from the public have proven useful at various steps in the EIA process, including scoping, impact identification, examination of alternatives and planning of mitigation measures. Finally, the inclusion of public views and comments in the decision-making process promotes equitable and informed choice, leading toward better and more acceptable social and environmental outcomes.

Many developing countries make some type of provision for public involvement in their EIA systems. Generally, these legal and procedural requirements are less advanced than in developed countries (EIA Centre, 1995). In certain developing countries, EIA arrangements for public involvement that are in place elsewhere are not necessarily suited to political and cultural traditions. The following factors can be constraining: limited democracy, cultural traditions, low levels of education and literacy and gender inequality (Hughes, 1998). Also, procedures for public involvement can differ substantially when evaluated against internationally accepted EIA standards as stated in the UNECE (Århus) Convention. For example, all of the transitional countries of Central and Eastern Europe refer to public involvement in their EIA legislation, but in only half of them are the requirements detailed and enforceable (Cherp, 2001).

Multilateral financial institutions require public consultation in the EIAs that are carried out in as part of their lending activities (Kennedy, 1999). These procedures reportedly have influenced EIA arrangements and practices of borrowing countries in many parts of the developing world. For example, the World Bank's Operational Policy (OP/BP/G 4.0) seeks to promote meaningful public consultation in the planning and design of development projects, particularly those with potentially significant environmental impacts. The primary purpose of this provision is to protect the interests of affected communities. Special attention is to be given to the poor and vulnerable, ethnic minorities, indigenous peoples and others "at risk" from environmental change and lifestyle disruption resulting from proposed actions (World Bank, 1999).

At a minimum, the EIA process should provide for public notification, disclosure of information on a proposal, access to EIA documentation and comment by affected and interested parties on scoping and EIA reports. In addition, the procedures for public consultation should allow for all interested and affected parties to express their views. EIA procedures for implementing public involvement in accordance with international good practice will emphasise "active" rather than "passive" engagement of stakeholders, beginning early in the process and continuing throughout. These arrangements may include measures for identification of different stakeholders or interests and ensuring that minority and disadvantaged communities are able to voice their concerns. A fuller discussion of these issues can be found in Chapter 4.

## 2.4 Other institutional aspects and challenges

A number of other institutional aspects and issues present particular challenges for EIA implementation and effectiveness in developing countries. These include the following:

- the relationship between national EIA procedures and requirements and those of multilateral and bilateral agencies;
- obligations under international agreements to which developing countries are signatory;
- EIA transboundary regimes; and
- costs and benefits of EIA.

### *Avoiding overlap and duplication between national and international EIA procedures and requirements*

*In many developing countries, two or more EIA systems may apply to development projects that are undertaken with international financing or assistance. These should be coordinated and harmonized as far as possible to avoid unnecessary overlap, duplication or fragmentation.*

All of the major multilateral financial and bilateral aid agencies apply EIA procedures to their lending activities and projects in developing countries. The operational policies and procedures of the World Bank and regional development banks are particularly important from the perspective of scope of application and influence on different parts of the developing world. Although their requirements vary in certain respects, borrowing countries are responsible in all cases for preparing and submitting an EIA report. This provision creates a number of lender-borrower issues related to carrying out an EIA of a development project that is Bank-financed or co-financed. Similar issues are associated with the bilateral development assistance activities of individual donor countries.

Many developing countries face potential problems of overlap and duplication between the EIA requirements and procedures of international lending and aid agencies and those established under their own national EIA systems. Generally, these agencies apply a relatively standard EIA process to project preparation, approval and implementation, one that follows the stages and activities undertaken in national EIA systems. Even so, usually, there will be certain differences that need to be addressed to avoid wasting time and effort or to avoid an EIA becoming stalled by confusion or controversy. The quality of EIA documentation prepared by borrowing countries and the integrity of review and clearance procedures are reportedly issues that often require close monitoring by the development banks. Other issues in borrower-lender EIA relations include public involvement and consultation requirements, timing of the EIA process and procedures for incorporating EIA findings into project design and implementation (World Bank, 1996).

There are two basic strategies that can be adopted to deal with this situation. First, the most cost-effective approach will be EIA systems that are comparable and satisfy the basic requirements of both parties. This approach will be easiest where a developing country has established EIA procedures that accord with the attributes described above and follow the principles and steps recommended in Chapter 3, or is proposing to strengthen them. Essentially, in these cases, the EIA system of a developing country should be procedurally and operationally compatible with those of a multi- or bilateral agency, and few or no problems should occur in terms of “EIA compatibility”.

Secondly, where there are differences, the best course of action is for a multi- or bilateral agency and a borrowing or recipient country to agree on an approach to an EIA of an individual project that is acceptable to both parties. In addition, both parties should be aware of each other’s EIA procedure and standards, for example related to documentation,

review of information and decision-making. Alternatively, the borrowing or recipient country should consult with the multi or bilateral agency to specify any additional requirements that will be necessary to ensure “immediate” compliance, thereby avoiding the need to change or add items once the EIA is completed or nearly complete. This should be done before EIA work begins and the agreement should be recorded. When there is co-financing, the borrower government should seek and expect agreement amongst the lending agencies on the EIA requirements to be followed.

A particular challenge occurs where the EIA requirements and procedures of borrowing countries and lending agencies are non-compatible or differ substantially. For example, the EIA procedures in certain transitional countries and newly independent states of the former Soviet Union (see Box 2.3) vary considerably from those followed by the World Bank and the European Bank for Reconstruction and Development (EBRD). Also, understanding of how the respective EIA systems operate may be limited. In these circumstances, EIA-related problems and delays in project preparation and approval can be expected and practical measures need to be taken to move toward shared information and greater coordination of approaches (see Box 2.8).

For their part, international lending and aid agencies can best assist by capacity building activities aimed at strengthening EIA arrangements in borrowing countries to ensure the resulting process will meet international requirements. Also, the procedures of these agencies themselves need to be reviewed with a view to greater harmonization. The OECD Development Assistance Committee (1994) has produced guidance to its members, the major bilateral donors, on achieving coherence in EIA requirements when there is more than one donor country. The EIA procedures of the multilateral financial institutions are broadly correspondent but could benefit from further convergence on certain requirements (e.g. for public involvement and consultation). Indeed, a working group, representing the multilaterals, is working currently to prepare a set of common EIA principles to apply to proposed projects. However, these procedures also need to evolve and change periodically in response to new demands and circumstances, and total coherence is neither possible nor desirable.

#### **Box 2:8 Harmonization of EIA requirements and procedures between the World Bank and newly independent states of the former Soviet Union**

The newly independent states (NIS) of the former Soviet Union have expressed interest in taking account and, where appropriate, harmonizing their EIA requirements and procedures with the World Bank. A Bank review indicated the factors and issues that need to be taken into account.

**Background:** Four sets of factors drive NIS and Bank interest in EIA harmonization:

- economic – potential investors are discouraged by complexity and lack of transparency of EIA arrangements in NIS;
- political - closer alignment with western countries is a stated objective of many NIS;
- environmental - relevant concerns include past industrial pollution, health “black spots” and transboundary transfer of hazardous wastes; and
- operational - a number of EIA shortcomings in many NISs has hindered Bank lending.

**EIA concerns:** Specific shortcomings identified by the World Bank include: insufficient knowledge about Bank EIA policy and procedures; NIS legal and institutional frameworks are in a fluid state and differ significantly from Bank requirements; many NIS have insufficient resources and limited technical capacity for EIA implementation; and national commitment to EIA and interagency coordination are weak.





Review of Russian EIA system: A recent review by the World Bank indicated:

- There is a lack of integration of two sub-systems – (a) the EIA prepared by the proponent, and (b) the state environment review (SER) conducted by the authorized federal agency. This has hampered EA implementation and effectiveness, as exemplified by reports that do not address core environmental issues.
- Institutional capacity has declined as a result of ongoing restructuring and downsizing of the federal EA system and SER expertise. A new Law on Environmental Protection (2002) opens up the possibility of selective delegation of SER functions from the federal to regional authorities, but so far this has not happened.

Source: World Bank (1996); von Ritter and Tsirkunov (2002).

### *EIA implications of international environmental law and policy*

*Principles and substantive aspects of international environmental laws and policies may be reflected in or applied by national EIA procedures, including those of developing countries. These aspects should be identified and appropriate action taken, where necessary with support from international agencies.*

International environmental laws and policies have implications for the EIA systems of countries that sign or endorse them. The relevant instruments in this context fall into two main categories. First, there are non-binding instruments, such as the Rio Declaration on Environment and Development, which establish important principles and aspects that may need to be reflected in EIA arrangements and approaches. Second, there are legal conventions and treaties related to environmental protection at the global or regional level. These carry various obligations for signatory countries that may be implemented, *inter alia*, through EIA arrangements.

Several of the principles contained in the Rio Declaration are relevant to or can be reflected in EIA procedures. These include the following:

- EIA, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment (Principle 17);
- Each individual shall have the opportunity to participate in decision-making processes, facilitated by the widespread availability of information (Principle 10)
- The precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Principle 15).

EIA can be specified or used by countries as a mechanism to implement substantive provisions of legally binding international environmental agreements. These include agreements related to conservation of nature and natural resources and to prevention and control of pollution (see Box 2.9). The Conventions on Climate Change and Biological Change are “flagship” agreements because of their global scope, the importance of the issues that are addressed and their ratification by a large number of countries. EIA is specified as a mechanism for implementing certain aspects of both agreements (Articles 4.1f and 14.1 respectively). More generally, EIA should ensure that the proposed actions of signatory countries are in compliance with these and other international environmental agreements listed in Box 2.9. Such compliance is a requirement for projects financed by the World Bank, which assists developing countries to meet their commitments through the Global Environmental Facility (GEF). Ratification of the relevant convention by the applicant country is a pre-requisite for GEF-supported projects.

## Box 2:9 International environmental agreements relevant to EIA

### Agreements related to the conservation of nature and natural resources include:

- *Convention on Biological Diversity* (1992; entered into force 1993)
- *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (1973, entered into force in 1975)
- *Convention on Wetlands of International Importance Especially in Waterfowl Habitat* (1971, entered into force 1973).

### Agreements related to the prevention and control of pollution include:

- *Framework Convention on Climate Change* (1992, entered into force 1994)
- *Convention for the Protection of the Ozone Layer* (1985, entered into force 1988) including the *Protocol on Substances that Deplete the Ozone layer* (Montreal 1995)
- *Convention on Control of Transboundary Movements of Hazardous Wastes and Their Disposal* (1989, entered into force in 1992)

### Agreements that apply only or particularly to specific regions include:

- *Convention to Combat Desertification in those Countries Experiencing Drought and/or Desertification, Particularly in Africa* (1994)
- *ASEAN Agreement on the Conservation of Nature and Natural Resources* (1985).

## Multilateral EIA transboundary and participatory regimes

*Two UN Economic Commission for Europe (UNECE) Conventions apply respectively to the EIA procedures and to the provision for public involvement and consultation. These instruments have direct relevance to transitional countries and should be of interest to other developing countries for reference purposes and possibly future ratification.*

International conventions with specific application to EIA and public involvement and consultation are a significant development, indicative of increasing acceptance of these processes and future directions in their regional harmonization. The UNECE (Espoo) *Convention on Environmental Impact Assessment in a Transboundary Context* was adopted in 1991 and entered into force in 1997. It stipulates the responsibilities of signatory countries with regard to proposals that have transboundary impacts, describes the principles, provisions and procedures to be followed in this context, and lists the activities, content of documentation and criteria of significance that are to apply (see, Schrage, 1999). The UNECE (Århus) *Convention on Access to Information, Public Participation in Decision-making and Access to Justice in International Environmental Matters* was adopted 1998 and entered into force in 2001. It establishes rules for informing and involving the public in environmental decision-making and backs these up with rights with regard to enforcement of the provisions of the Convention and environmental law in general (see Stec and Casey-Lefkowitz, 2000).

The Espoo and Århus Conventions are regional in scope and apply to member countries of the UNECE region, comprising Europe, North America and Central Asian republics of the former Soviet Union in Central Asia. However, the Conventions are of wider importance for a number of reasons. First, they set international legal precedents with regard to procedures for EIA and public involvement respectively. Secondly, the provisions and principles of the Conventions can be endorsed or adopted by developing countries. The Espoo Convention is open to ratification by other non-UNECE countries but none has yet done so. The Parties to the Århus Convention have sought to share their experience with a view to promoting a similar instrument in other regions.

The Espoo Convention primarily establishes a transboundary regime that can apply when a project in one country is likely to have a significant impact on the environment of another country. By doing so, the Convention also sets standards for national EIA systems of signatory countries and encourages good practice internationally. It is reported by Rzeszot (1999) to have been important in introducing and strengthening EIA in signatory countries of Central and Eastern Europe. This process is expected to continue and to be broadened with the pending attachment of an SEA Protocol, which has been adopted recently in draft form (see Chapter 5).

The Århus Convention is based on the three pillars of information, public involvement and consultation, participation and access to justice. It sets out rights of the public and obligations of authorities with respect to these elements and identifies minimum procedures for informing and involving the public in project and strategic level decision-making. These are detailed and legally binding with respect to the project level and draw on the provisions and procedure contained in the European EIA Directive<sup>6</sup> (although the Convention does not refer specifically to EIA). Internationally, the Århus Convention is of interest because the large majority of signatory Parties are transitional countries. Looking ahead, activities to implement the Convention are likely to emphasize capacity building and help to disseminate information on public participation to other developing regions.

### ***Costs and benefits of EIA***

*What are the costs and benefits of EIA and how are they distributed? These are pressing concerns, particularly in developing countries and cost-effectiveness should be an important consideration both for established and newly introduced EIA systems.*

There is no doubt that carrying out an EIA and preparing a report costs money. Usually, this cost is borne by the proponent under the self-assessment process (see above). Self-assessment is considered appropriate because it is the proponent that benefits from a proposed development action and, therefore, should accept the cost in accordance with the “polluter pays principle” (PPP). Experience has shown that the cost of preparing EIA reports falls within the range of 0.01 per cent to 1 per cent of capital cost (depending on the type of project and its location). Once a development action is authorized, the cost of implementing an impact management plan may add from 1 to 15 per cent to the capital cost.

On the other hand, EIAs have resulted in design and site changes that have reduced costs and saved proponents’ time and money. In addition, there is little evidence that EIA-related costs have “stopped” projects or prevented proponents from implementing them. There is a cost also to government in administering an EIA system, particularly in relation to public involvement and consultation, review, follow-up and enforcement. Governments may recover some (or all) of the costs by charging fees, for example to review an EIA report and to issue approvals or related permit and licenses. This can be done through a standard charge.

Although it is important to be realistic about EIA costs, the benefits may be overlooked. The benefits of EIA tend to be long-term and generalized, whereas the costs tend to be immediate or short-term and are borne by specific proponents and organizations.

<sup>6</sup> The requirements of the EC Directive are also reflected in the EIA legislation, policy and institutional arrangements of countries beyond the boundaries of the European Union, notably by applicant countries of Central and Eastern Europe (CEE), which are bringing their own EIA systems into line with the Directive. In addition, the Directive can be expected to influence EIA law making in other CEE countries in transition and NISs of the former Soviet Union.



The benefits to a country are based on the prevention of environmental damage (which might need to be repaired by the public sector at a later date) and the move toward sustainability created by effective EIA implementation. Economic performance can be enhanced (benefiting both proponents and the country) by:

- reduced delays in approval procedures; and
- better designed projects which are made more economically efficient by
  - provision of cleaner working environments leading to enhanced worker productivity
  - use of recovery and recycling in managing wastes avoiding environmental changes that affect project performance, and
  - financial institution acceptance of the project.

### KEY POINTS : Summary of Chapter 2

#### Background and context

During the last decade, EIA systems became widely institutionalized in developing countries and countries with economies in transition. This process has extended and rounded out earlier stages of the adoption of EIA internationally. At the same time, a further stage began in the evolution of the field with the provision for applying SEA to policy, plans and programmes (see also Chapter 5) and further integration with other tools and processes on a number of levels (see also Chapter 6). Of particular importance for developing countries, there has been a significant increase in EIA capacity building and training programmes.

#### Innovations

The main innovations have been in:

- EIA law and procedure, particularly the adoption of EIA-specific international regimes and national EIA systems by many developing and transitional countries;
- Expansion in the scope of application of EIA, particularly the focus on new aspects and areas of emphasis such as biodiversity and sustainability;
- New strategies for EIA cooperation and partnership between international development agencies and recipient countries, as emphasized at the WSSD.

#### Challenges

Three main challenges are:

- Development and implementation of more effective EIA systems consistent with internationally accepted standards, particularly in the poorer developing countries;
- Building environmental and social safeguard measures into the EIA process, backed by legal and regulatory mechanisms for their compliance and enforcement;
- Upgrading EIA systems to address root causes of environmental decline and linkages among issues consistent with the holistic, integrated approach to implement sustainable development recommended by the WSSD Plan of Implementation.

#### References

- Alzina, V. and Espinoza, G. (2001) *Results of the environmental impact assessment systems review in Latin America and Caribbean countries*. Paper presented at IAIA 2001, Cartagena, Colombia.
- Annandale, D. (2001) Developing and evaluating environmental impact assessment systems for small developing countries, *Impact Assessment and Project Appraisal*, 19(3): 187-193.
- Bellinger, E., Lee, N., George, C. and Paduret, C. (eds.) (2000) *Environmental Assessment in Countries in Transition*. Central European University, Budapest.

- Biswas, A. and Agarwala, S.B.C. (eds.) (1992) *Environmental Impact Assessment for Developing Countries*. Oxford: Butterworth - Heinemann Ltd.
- Briffett, C. (1999) Environmental Impact Assessment in East Asia, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment*, Volume 2 (pp.143-167), Blackwell Scientific, Oxford, UK.
- Brito, E. and Moreira, I. V. (1999) Environmental Impact Assessment in South and Central America, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment*, Volume 2 (pp.183-202), Blackwell Scientific, Oxford, UK.
- Boyle, J. (1998) Cultural influences on implementing EIA: insights from Thailand, Indonesia and Malaysia, *EIA Review*, 18(2) 95-116.
- Campbell, K. (1993) The Future of EIA in Developing Countries. Discussion paper presented at the UNEP Consultative Meeting, Paris, 27-28 October 1993.
- Cherp, A. (2001) Strategic environmental assessment in newly independent states of the former Soviet Union, in Dusik, J. (ed.) *Proceedings of International Workshop on Public Participation and Health Aspects of Strategic Environmental Assessment in the UN/ECE Region* (pp. 57-67), Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.
- Donnelly, A., Dalal-Clayton, B. and Hughes, R. (1998) *A Directory of Impact Assessment Guidelines*, (Second Edition), International Institute for Environment and Development (IIED), Russell Press, Nottingham, UK.
- Doyle, D. and Sadler, B. (1996) *Environmental Assessment in Canada: Frameworks, Procedures and Attributes of Effectiveness*. Ottawa: Canadian Environmental Assessment Agency.
- Dusik, J., Sadler, B. and Mikulic, N. (2001) Developments in strategic environmental assessment in Central and Eastern Europe, in Dusik, J. (ed.) *Proceedings of International Workshop on Public Participation and Health Aspects of Strategic Environmental Assessment in the UN/ECE Region* (pp. 49-55), Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.
- EIA Centre (1995) *EIA in Developing Countries* (EIA Leaflet Series L15), EIA Centre, University of Manchester, Manchester, UK.
- George, C. (2001) Institutional strengthening for EIA in North Africa, the Middle East and the Balkans, *Environmental Assessment Yearbook* (pp. 85-86), EIA Centre, University of Manchester and Institute of Environmental Management and Assessment, Lincoln, UK.
- Kennedy, W. (1999) Environmental impact assessment and multilateral financial institutions, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment*, Volume 2 (pp.97-120), Blackwell Scientific, Oxford, UK.
- Kakonge, J. (1999) Environmental impact assessment in Africa, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment*, Volume 2 (pp. 168-182), Blackwell Scientific, Oxford, UK.
- Kristoffersen, H. and Tesli, A. (eds.) (1996) *Environmental Impact Assessment in the Baltic Countries and Poland*. Nordic Council of Ministers, Copenhagen.
- Lee, N. and George, C. (eds.) (2000) *Environmental Assessment in Developing and Transitional Countries*. John Wiley, Chichester, UK.
- Menom, A. (2000) Devolution of environmental regulation: environmental impact assessment in Malaysia, *Impact Assessment and Project Appraisal*, 18(4): 283-293.

- Modak, P. and Biswas, A. (1999) *Conducting Environmental Impact Assessment for Developing Countries*. United Nations University Press, Tokyo.
- Mokhehele, L. and Diab, R. (2001) Evolution of environmental impact assessment in a small developing country: a review of Lesotho case studies from 1980 to 1999, *Impact Assessment and Project Appraisal*, 19(1): 9-18.
- Moosa, M. (2001) Johannesburg 2002 about people, planet and prosperity, in *Environment Matters*. World Bank Group, Washington DC.
- Mwalyosi, R. Mohammed, S. Hughes R. and Dalal-Clayton, B. (1995) *Environmental Assessment in Tanzania: A Needs Assessment for Training*. International Institute for Environment and Development, London.
- OECD (1992) *Good Practices for Environmental Impact Assessment of Development Projects*, OECD Development Assistance Committee, Guidelines on Environment and Aid No 1, Paris.
- OECD Development Assistance Committee Task Force (1994) *Towards Coherence in Environmental Assessment*, 3 vols., Canadian International Development Agency, Ottawa.
- OECD (1997) *Capacity Development in Environment*, OECD Publications, Paris.
- Petts, J. (ed.) (1999) *Handbook of Environmental Impact Assessment* (2 Vols.), Blackwell Scientific, Oxford, UK.
- Rukuba-Ngaiza, N. and Bekhechi, M. (2001) *The right to participate in environmental decision-making: public participation in the environmental assessment process in East Africa*. Paper presented at the IAIA 2001, Cartagena, Colombia.
- Rzeszot, U. (1999) Environmental impact assessment in Central and Eastern Europe in Petts, J. (ed.) *Handbook of Environmental Impact Assessment*, Vol. 2 (pp.123-142), Blackwell Scientific, Oxford, UK.
- Sadler, B. (1996) *Environmental Assessment in a Changing World: Evaluation Practice to Improve Performance*, (Final Report of the International Study of the Effectiveness of Environmental Assessment), Canadian Environmental Assessment Agency and International Association for Impact Assessment, Ottawa, Canada.
- Sadler, B. and Fuller, K. (1997) Quality assurance in environmental assessment, *Environmental Assessment*, 5,1: 13-16.
- Sadler, B. (1998) Ex-post evaluation of the effectiveness of environmental assessment, in Porter, A. and Fittipladi, J. (eds.) *Environmental Methods Review: Retooling Impact Assessment for the New Century* (pp. 30-40), The Press Club, Fargo, ND, USA.
- Sadler, B. (2001) EIA reconsidered, *Environmental Assessment Yearbook* (pp.8-12), EIA Centre, University of Manchester and Institute of Environmental Management and Assessment, Lincoln, UK.
- Schrage, W. (1999) The Convention on Environmental Impact Assessment in a Transboundary Context, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment*, Volume 2 (pp.85-97), Blackwell Scientific, Oxford, UK.
- Stec, S. and Casey-Lefkowitz, S. (2000) *The Aarhus Convention: An Implementation Guide*, United Nations, New York.
- Smith, D. and van der Wansem, M. (1995) *Strengthening EIA Capacity in Asia*, World Resources Institute, Washington DC.

Tarr, P. (2001) Southern African Institute for Environmental Assessment, in *Environmental Assessment Yearbook 2001*, Institute of Environmental Assessment and Management, Lincoln, and EIA Centre, University of Manchester

von Ritter, K. and Tsirkunov, V. (2002) Review of Environmental Assessment in the Russian Federation, World Bank, Washington DC.

UNEP (1999) *Global Environmental Outlook – GEO 2000*, UNEP, Nairobi.

Wood, C. (1999) Comparative evaluation of environmental impact assessment systems, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment*, Volume 2 (pp.10-34), Blackwell Scientific, Oxford, UK.

World Bank (1991 et seq.) *Environmental Assessment Sourcebook* (3 Vols., various updates), Environment Department, World Bank, Washington DC.

World Bank (1996) *The Impact of Impact Assessment. Second Environmental Assessment Review*, Environment Department, World Bank, Washington DC.

World Bank (1997) *Environment Matters*, Environment Department, World Bank, Washington DC.

World Bank (1999) *Case Studies on Regional and Sectoral EA: An Analysis of Lessons Learned*. World Bank, Washington DC.

World Bank (2001) *Environment Matters*, Environment Department, World Bank, Washington DC.

World Conservation Union (IUCN) and the World Bank (1997) *Expanding Environmental Assessment Capacity in Sub-Saharan Africa: Issues and Options*, Discussion Paper distributed by IUCN and the World Bank.



## Chapter 3: Principles and Elements of EIA Good Practice

*This chapter provides guidance on EIA good practice. It comprises a framework of aims, principles, elements and criteria for implementing EIA systems in accordance with international standards, which themselves are evolving. A generic approach is outlined below, which can be adapted to the situation in developing and transitional countries including those where EIA experience either is limited or changing in response to new requirements for borrowing countries. Much of the information in this chapter is based on previous version of this volume, with updates and supplementary material from various sources.*

### 3.1 Introduction

Marked differences occur in the level and quality of EIA practice between and among countries. These differences reflect, *inter alia*, the type of EIA arrangements and procedures that are in place, and the capacity of practitioners to implement and apply them (as discussed in Chapter 2). Except for the poorest countries, the capacity-related problem appears to lie as much in the under-utilization of knowledge and skills as it does in their shortage (IUCN and World Bank, 1997). This is recognized, for example, in the *Communiqué* of the African High-Level Ministerial Meeting on EIA in Africa, which called for EIA capacity building to be based primarily on the use of African expertise and institutions (UNEP, 1995). Other UNEP-sponsored initiatives in the region have sought to build an EIA framework, in which African values and elements are integrated with international EIA aims and principles (see Box 3.1).

In the remainder of this chapter, the focus is on basic aims, principles and elements of EIA good practice, which are generic or widely applicable. EIA practitioners and experts in developing regions and countries are best placed to adapt these to the needs, priorities and circumstances of their situation. Recently, increasing attention has been given to developing principles, guidelines and standards of EIA “good practice”, based on international reviews and comparisons of experience in different countries (e.g. Sadler, 1996; Sadler and Ashe, 1997; Petts, 1999). The previous edition of this volume described general and specific principles of EIA and their relation to trends and issues in the field. Nearly all of this material remains current, and, with minor updating, forms the basis of the following review of EIA good practice. In addition, recent information from other sources has been included to provide an up-to-date picture.

For example, the International Association for Impact Assessment (IAIA) and the UK Institute of Environmental Management and Assessment (IEMA) have issued principles of EIA best practice for reference and use by their members (IAIA and IEMA, 1999). This framework draws on the results of the international study of EA effectiveness, which used a series of measures to “benchmark” EIA good practice (Sadler, 1996). A “hierarchy of guidance” is outlined, comprising different levels of direction and detail. These include:

- main aims and core values that represent the purpose of EIA;
- basic or general principles for the development and implementation of EIA systems (see Chapter 2);
- operational principles to indicate how EIA steps and activities should be carried out;
- effectiveness and performance criteria to identify, respectively, expected standards and outcomes of EIA practice; and
- “success factors” and lessons of experience when using EIA procedures and methods to meet these standards.

The discussion that follows is organized generally on the basis of the items listed above. In practice, however, the different aspects of guidance are overlapping and interrelated, rather than separable as listed. For example, the attainment of EIA good practice is dependent upon the institutional and procedural foundations described in Chapter 2. Also, certain elements are dealt with in greater detail elsewhere because of their particular importance in relation to EIA good practice in developing and transitional countries (notably public involvement in Chapter 4). Wherever possible, in this context, reference is made to issues and examples of EIA practice. In addition to following up these sources, readers might want to consult the UNEP companion volume on *Case Studies of EIA Practice in Developing Countries*. Although this is addressed primarily to those using the EIA Training Resource Manual, the materials may be of interest to EIA practitioners as well.

### **Box 3:1 Proposed EIA framework for Africa**

This framework was developed by African participants who attended an EIA workshop, held in Livingstone, Zambia, 1994, in order “to capture those elements peculiar to Africa”, including:

- relatively high fragility and variability of ecosystems;
- dependence on the resource-base for creation of national wealth;
- direct use and dependence on the resource-base by the majority of people;
- active role of traditional values, institutions and knowledge in managing the resource-base;
- the imperative of popular participation; and
- insufficient mobilization of the available human resources.

*Source: UNEP (1995).*

## **3.2 Aims/objectives of EIA**

*Usually, the purpose and objectives of the EIA process will be contained in legislation. This statement of aims varies from country to country, but generally includes instrumental ends relating to sound decision-making, and substantive ends relating to protection of the environment.*

The main purpose of EIA is to facilitate the systematic consideration of environmental issues as part of development decision-making. It does so primarily by assembling and analysing information on the potential environmental effects of specific development proposals and how they can be best prevented or mitigated. EIA takes place before major decisions are taken and, ideally, while feasible alternatives and options to a proposed action are still open. In this context, the decision-making process extends from project initiation to implementation. Thus, there are a number of key stages at which EIA can build environmental considerations into project planning and design.

Most attention, however, is given to the final decision. With few exceptions, proposed developments that have undergone EIA are subject to formal approval or authorization by the competent authority or other official body. Depending on the EIA system, the approval process may be linked to regulatory authorization, including the issuance of permits and licenses without which a project may not proceed. Typically, the approval process includes deciding whether or not the proposal is acceptable, and if so, setting environmental terms and conditions for project implementation. When making that decision, the approval body takes a variety of factors into account, including the information provided by an EIA.



In addition to EIA, other studies on financial, economic and technical aspects of the project will be undertaken. By the time a project proponent or initiator applies for an approval, a series of “internal” decisions will have been taken. At each point, an explicit or implicit decision will be made on whether a proposal should be abandoned, amended or proceed directly to the next stage. It is important that environmental issues are considered fully and appropriately at these stages. Preferably, EIA should begin before site location and project design have become “fixed”. Otherwise, a project may have to be altered or even abandoned, if an EIA shows that significant adverse impacts will occur and cannot be mitigated to make them acceptable. This is a waste of time and money for all concerned.

EIA, therefore, is a **process** rather than a one-time activity. It should extend throughout and be integrated with the project planning and decision-making process, so that EIA influences many stages over a considerable period of time and is **not** aimed only at producing a report for the final approval stage (see next section for critical decision points). However, the approval stage is still of critical importance. As noted earlier, the EIA report summarizes the results of this process and provides information that relates to project design, condition-setting and, in certain systems, permitting and other types of authorization. In addition, the extent to which EIA-derived information is taken into account and influences project approval or regulatory decisions determines what happens “on the ground” during project construction and operation. The actions taken at these stages are instrumental to realizing substantive benefits from the use of EIA, particularly protecting the environment and avoiding disruption of local communities affected by a project.

The overall effectiveness of EIA in meeting its aims and objectives can be improved by applying the process in accordance with the principles and guidelines described below. In particular, better delivery of substantive environmental and social benefits can be promoted by the systematic analysis of reasonable alternatives. Often, development objectives can be achieved in a number of ways. For the present purposes, two types of alternatives can be distinguished, although the difference between them is not always clear. First, there are alternatives to a proposed action, for example, a coal-fired versus a hydropower generating station, changing the site of a proposed dam or, in the case of a flood-control proposal, structural and non-structural options. Additionally, there are alternatives within a proposed action, such as alternative processes, layouts on site or other design aspects. Finally, and with particular reference to EIA, the “no-action” option should be included to provide an objective baseline against which the other alternatives can be measured and compared.

### 3.3 General and specific principles of EIA application

*The general and specific principles for EIA good practice as described below, follow from and extend those identified by the international study of EA effectiveness and the IAIA/IEMA (see above). Specifically, an introduction is given to practical guidelines for carrying out EIA in accordance with international standards and recognizing the realities encountered in applying them in developing and transitional countries.*

Nine **general principles** of EIA application are listed below. They are broadly correspondent to the basic principles issued by the effectiveness study and IAIA/IEMA (1999), but also include aspects of what are called operational principles in these statements. Other source documents used in drafting the principles, include the UNEP *EIA Training Resource Manual* (Sadler and McCabe, 2002) and the *Environmental Assessment Sourcebook and Updates* (World Bank (1991, *et seq.*). These volumes can be consulted to gain further introductory information on EIA procedure and methodology, respectively.



More detailed guidance can be obtained from the list of references contained at the end of this volume.

In that regard, the **general principles** are intended to be a first step toward, rather than the final word in EIA good practice. Also, they are best applied as a “package”, recognizing the whole is greater than the sum of the following parts:

- *EIA should be applied as a tool to help achieve sustainable development;*
- *EIA should be integrated into existing development planning and approval processes so that:*
  - minimum disruption is caused to existing institutional arrangements; and
  - maximum effectiveness for EIA is achieved by identifying the appropriate “time/locations” for EIA to be linked to decision-making;
- *EIA should be applied as a tool to implement environmental management, rather than as a report to gain project approvals;*
- *EIA should be integrated into the project life-cycle to ensure that environmental information is provided at the appropriate decision points and the correct time. There must be constant interaction and feedback between the EIA team and project designers and the proponent to ensure that design/location changes can be implemented to avoid or minimize adverse impacts to the maximum extent possible;*
- *EIA should be applied to all proposed actions that are likely to have a significant adverse effect on the environment and human health. In a social context, particular attention should be given to vulnerable groups, such as indigenous peoples, and local communities who depend upon the resource base for their sustenance or lifestyle;*
- *EIA should include an analysis of feasible alternatives to the proposed action. The process should be applied early in project development at a stage when these alternatives are still practicable;*
- *EIA should include meaningful opportunities for public involvement. These should occur throughout the EIA process, using mechanisms that are appropriate to stakeholders. Key stages for involvement include:*
  - scoping;
  - interim reports (if prepared);
  - draft/final report;
  - decision-making; and
  - post-decision stage;
- *EIA should be carried out in a multi- or inter-disciplinary manner, using best-practicable science; and*
- *EIA should integrate information on social, economic and biophysical impacts to the maximum extent possible. An integrated approach can be applied as part of an EIA study or carried out as part of report preparation and synthesis.*

The general principles can be complemented by **seven specific** principles of EIA application, as outlined below. They are broadly correspondent to the operating principles issued by IAIA/HEMA, and refer to key steps and actions that are taken in the EIA process. As such, the specific principles should be considered as an initial framework for EIA good practice, recognizing the limitations of time and resources that apply in many developing countries. The following guidelines are intended to provide a minimum approach (which is elaborated further in the next section):

- *EIA should be initiated through a screening procedure to identify which projects will be subject to EIA, and which projects require less detailed environmental study or no*

additional study beyond the screening decision. Appropriate techniques for this purpose include:

- project lists (with thresholds);
  - sensitive area criteria;
  - checklist of environmental impacts
  - preliminary or initial EIAs; and
  - combinations of these techniques.
- *Terms of reference (ToRs) for EIAs should be prepared, incorporating the results of a scoping process and specifying:*
    - likely significant impacts to be identified, predicted, evaluated, mitigated (to extent feasible) and monitored;
    - alternative designs/locations to be assessed; and
    - work plan for EIA study and schedule of consultations;
  - *EIAs should be carried out in accordance with the ToR , and having regard to:*
    - baseline studies focused only on impacts being investigated;
    - use of “a moving” baseline to take account of other projects likely to be implemented before the project subject to EIA;
    - quantitative predictions of impact magnitude and area/people affected;
    - description of impact characteristics and probability of occurrence;
    - evaluation of significance of impacts, from each alternative, based on clear criteria;
    - comparison of environmental impacts of each alternative and selection of least environmentally damaging option using agreed sustainability indicators; and
    - preparation of an impact management plan containing mitigation measures (with estimate of likely effects), monitoring schemes (technical and institutional aspects) and, possibly, community liaison committees;
  - *EIA reports should provide the information necessary for decision-making (possibly within page limits). They should contain:*
    - an executive summary;
    - results from EIA studies;
    - information on data gaps and major sources of uncertainties;
    - technical appendices; and
    - visual aids and easy-to-read text.
  - *EIA reports should be reviewed against ToR to check they are of acceptable quality. This requires:*
    - criteria for review;
    - identification of reviewers; and
    - mechanisms for EIA reports to be amended;
  - *The information in an EIA report should be taken into account in “final” decision-making. For this purpose, the report should contain:*
    - records of decisions made to that point;
    - statements of commitment of various parties regarding impact management; and
    - allocation of accountability for post-approval impact management;
  - *EIA should include a post-decision stage of impact management and other follow up actions. These should include:*
    - surveillance or supervision of mitigation;

- monitoring/auditing of impacts and mitigating measures;
- system of information flow between site engineers, environmental consultants and control authority;
- community liaison; and
- institutional strengthening and training.

### **3.4 EIA practice step by step**

*The EIA process itself, is a primary mechanism for quality control and assurance. A comprehensive, step-by-step approach to EIA good practice is described below, focusing on the actions to be taken from initiation to completion of the process.*

A “whole process” approach to EIA good practice is based on the generic steps that are followed by many, if not all countries. The EIA process should be carried out in an iterative and self-reinforcing manner. Each step needs to be applied satisfactorily in order for the next one to be taken confidently. In practice, particular attention should be given to the procedural steps and activities that are found wanting in national EIA systems. For reference, areas of critical weakness that are common to many countries include:

- scoping and preparation of ToRs;
- evaluation of significance;
- review of the quality of EIA reports; and
- post-approval follow-up and review.

These four activities were identified as priorities for improvement by the international study of EA effectiveness (Sadler, 1996). Figure 3.1 illustrates their particular role and contribution to better EIA practice. Other success factors and lessons of experience are summarized in Box 3.2 and are described below in more detail. However, it must be emphasized that not every EIA process necessarily goes through each of the steps identified. In that context, the preliminary stage of EIA, based on screening and scoping procedure, is the cornerstone for identifying the steps and activities that are commensurate with the potential impact of each project.

### **3.5 Screening and preliminary EIA studies**

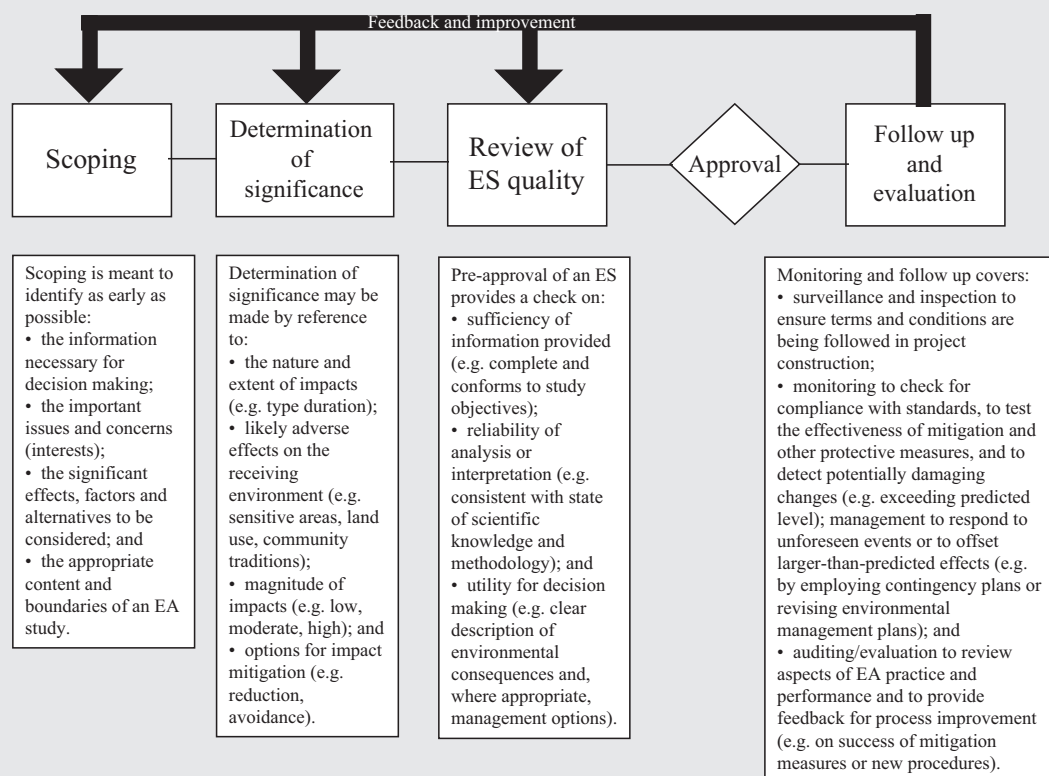
*Screening is the initial step of the EIA process. It identifies proposals that require an EIA and excludes those that do not.*

All proposed projects should be screened to determine whether or not they must be subject to an EIA. Ideally, screening also should identify what level or extent of EIA is warranted. This process brings clarity and certainty to EIA implementation, ensuring that it neither entails excessive review nor overlooks proposals that warrant examination. A common approach (e. g. the World Bank uses a similar version of this approach) is to classify projects into different types of impact category, such as:

- Category 1 - projects not expected to result in any significant adverse impacts and which do not require additional environmental study.
- Category 2 - projects which are likely to cause a limited number of significant adverse impacts unless appropriate mitigation action is taken. These impacts and the means of mitigating them are reasonably well understood and it is expected that such projects will require only limited environmental study and the preparation of an appropriate mitigation plan.
- Category 3 - projects likely to cause a range of significant adverse impacts, the extent and magnitude of which cannot be determined without a detailed study.

Similarly, appropriate mitigation measures cannot be devised until the results of this study have been obtained.

**Figure 3.1 Four priorities for better EIA practice**



Source: Sadler and Fuller (1997).

### Box 3:2 Some success factors for EIA good practice

- Screening – determine if a proposal is subject to EIA as early as possible;
- Scoping – identify priority issues and impacts to focus the EIA study;
- Terms of Reference (ToR) – establish clear requirements and timelines for an EIA;
- Public consultation – provide suitable opportunities for stakeholders to express their views;
- Impact analysis – use best practicable methods;
- Mitigation – identify appropriate measures to avoid, minimize or offset impacts;
- Significance – evaluate the likelihood, range and severity of residual effects;
- Preparation of EIA report – write in plain English to ensure decision makers and others understand the main issues and impacts and how they can be mitigated;
- Review of EIA quality – determine if the report meets the ToR and the information is sufficient for decision-making;
- Impact management and follow up – carry out, as necessary and appropriate, the following steps:
  - inspection/surveillance to check terms and conditions are implemented
  - effects monitoring to determine if impacts are as predicted
  - spot checks and audits to identify and address unanticipated problems
  - performance review of EIA outcomes and experience.

Source: Sadler (1996).

In most countries, a designated screening procedure is followed to identify projects subject to EIA and, if appropriate, to assign them to a type of category as described above. An introduction to screening procedure and methods is given in the *UNEP EIA Training Resource Manual* (see also Jones, 1999). These include lists of projects, with size thresholds, to which EIA must be applied automatically, and more flexible approaches, including case-by-case screening of all projects and activities or those identified on a second, non-mandatory list. As a general rule, screening decisions can and should identify the type of EIA study needed as quickly and as early as possible. This will facilitate efficient processing and authorization of the proposal. Quick and early screening is easiest when mandatory lists are used. A proponent usually knows immediately whether or not EIA applies. Most other screening decisions also should be relatively simple and straightforward, and do not require assembling large amounts of information. It is important, however, that these decisions are open to public scrutiny and subject to independent oversight by a designated agency.

Screening of proposed projects with environmental objectives, such as reforestation schemes or installation of a wastewater treatment plant, is not always straightforward. Although such “green” projects may be environmentally beneficial overall, adverse impacts can occur that require appropriate mitigation measures. When screening these projects, the scale and range of likely impacts should be considered, rather than being an automatic allocation to Category 1. Similar considerations apply where a number of small, related activities will be undertaken, especially if these will be carried out in an environmentally sensitive region or they have the potential for cumulative effects in association with other projects taking place or proposed for an area.

Environmental criteria can be used to assist case-by-case screening of projects that may have potentially significant effects and may require an EIA or further study. Some important aspects and issues to be taken into account include:

- sensitivity of location (for example, proximity of a project to a protected area, a wetland, a flood plain, or an area rich in cultural resources);
- sensitivity of potential impact receptors (for example, valuable crop-producing fields, water supplies, hospitals);
- possible duration and reversibility of the impacts; and
- likelihood of associated or secondary development (such as new access roads, aggregate extraction).

Certain proposals require an extended screening process which in effect becomes a preliminary EIA approximate to a Category 2 study. Also called initial environmental evaluation (IEE), this process is used when the requirement for EIA cannot be reasonably determined by the application of the screening procedures described previously. For example, an IEE may be required for a proposal that involves use of a new technology or discharge of substances that are hazardous to human health. Often, this process itself will be sufficient to complete the requirement for EIA established by a particular country. A screening report should describe the results and identify any mitigation measures or recommended actions that need to be taken.

In other cases, where the extended screening or IEE indicates that a full EIA is necessary, terms of reference may be developed directly from the preliminary study, which then replaces scoping. For full equivalence, the preliminary study or IEE process must provide for an appropriate level of public consultation. Much of the guidance given below in relation to full or comprehensive EIAs, including that referring to technical issues and public involvement, is relevant to preliminary EIA of Category 2 projects. However, the advice needs to be related to the scale of issues.

### 3.6 Scoping and preparation of terms of reference

*Scoping provides the foundation for an effective and efficient EIA. It identifies the issues and impacts that matter and eliminates those that do not, resulting in the preparation of focused ToRs that ensure time and money are not wasted on unnecessary studies and investigations.*

Once screening has determined that a proposal is subject to EIA or further study, the main issues and impacts to be analysed must be identified and agreed as early as possible. This process, called scoping, is widely acknowledged as a key to appropriate and cost-effective EIA of a specific proposal. Scoping is carried out through an open and interactive process, designed to establish the information that is necessary for project decision-making. This stage of the EIA process provides a critical opportunity for early and constructive public involvement in setting the focus and boundaries of the EIA study. Public input helps to ensure that important issues and alternatives are not overlooked when preparing ToRs and initiating detailed EIA studies.

Scoping may be carried out as a formal or informal process. The procedure and requirements for this purpose vary from country to country. For example, scoping is a discretionary activity under the amended European EIA Directive (97/11/EEC). Although arrangements differ, basic principles and elements of approach are common to many countries. Guidelines on scoping issued by the US Council on Environmental Quality are summarized in Box 3.3. These have been a central feature of NEPA from an early stage, and are widely credited as a key to effective practice (Canter and Clark, 1997). Further guidance can be found from lessons of international experience (Ashe and Sadler, 1997), aspects of which are incorporated below.

Generally, internationally accepted principles of EIA good practice call for scoping to:

- inform and involve the stakeholders who are affected by or interested in the proposal;
- define the important issues and impacts that need to be studied further;
- identify the alternatives to the proposed action; and
- establish ToRs for carrying out an EIA study as described below.

#### Box 3:3 Guidance for carrying out scoping

- Scoping is a process not an activity or event;
- Design the scoping process for each proposal;
- Start early as soon as information permits;
- Prepare information package on what is expected;
- Specify the role of the public in decision-making;
- Approach should be systematic; implementation should be flexible;
- Document the results to guide preparation of EIA (ToR);
- Respond to new information and issues as necessary;

*Source: adapted from US Council on Environmental Quality (1986).*

The range of individuals, agencies and organizations to be involved in scoping should include as a minimum:

- national government ministries likely to have their areas of responsibilities affected by the proposal (for example, ministries concerned with agriculture, natural resources, transport, health and social welfare);



- local government bodies responsible for the area where a project is proposed or which it is likely to affect;
- “traditional” decision-making bodies (councils of elders etc);
- private sector organizations, such as trade associations and chambers of commerce;
- local communities and NGOs; and
- members of the public likely to be affected by the proposal.

An important preparatory step in scoping involves identification of those who are likely to be directly affected by a proposal. Special attention will need to be given to gaining their views and concerns. All stakeholders should be provided with preliminary information on the proposal and its alternatives early in the scoping process. This should be in sufficient detail to enable them to indicate aspects and issues that concern them. However, it is important that the information provided at the scoping stage is non-technical, easy-to-understand and consistent with the purpose of engaging all stakeholders. Where minorities or other non-mainstream groups are affected by a proposal, the proponent or EIA administering agency must ensure the information and opportunities to respond are appropriate.

There are many ways of obtaining responses from those consulted during scoping. In the case of governmental agencies and NGOs, responses may be requested in writing, with meetings held only when necessary. Such meetings may take place “behind closed doors” and involve the proponent and a number of responsible agencies or concerned groups. The type of discussion may be most productive if it is held after wider comments have been received and in order to clarify issues (see below). In other cases, for example, under the provisions of the amended European EIA Directive (97/11/EEC) the proponent may ask the responsible authority for guidance on the scope of the EIA.

The options available for public involvement in the EIA process are described in Chapter 4. At the scoping stage, use can be made of one or more of the following measures:

- public notification and call for written comments on preliminary documentation;
- survey of a group of individuals who are representative of the various interests which are affected by a proposal;
- consultation with the local community/communities in the impact zone;
- workshops or focus groups to identify issues specific to certain stakeholders; and
- public meetings or hearings, which are open to all interested groups and individuals to attend and state their opinion/comment.

A systematic approach to scoping is described in Box 3.4. This is based on the results of the international study of EA effectiveness. In addition, the study identified “success factors” that contribute to cost-effective scoping. A major issue in this respect is “closing the scoping diamond”, i.e. narrowing down a broad range of concerns and considerations to centre on the main impacts that require detailed study. This filtration of views and inputs is a demanding task. Unless it is robust and transparent, the scoping process will not appear credible or defensible to the key stakeholders or to a responsible or overseeing authority.

Of course, other elements of approach or different combinations may be used.

For example, a technical approach may be emphasized. Typically, simple EIA methods, such as checklists and matrices, are applied to scoping. More interactive and advanced methods, such as impact modelling and hypotheses setting and testing, may be necessary for complex and controversial proposals.

Usually, the preparation of the ToR is the responsibility of the proponent, or in some cases the responsible authority. Often, the proponent will deputize the task to consultants responsible for carrying out the EIA study, although there is no reason why this cannot be done “in-house”. As far as possible, a ToR should be a consensus document, reflecting an agreement among the main stakeholders, including the public, on the matters to be assessed. If this is not possible, the next best outcome will be a ToR that is based on a systematic and transparent scoping process.

The ToR is an important guidance document. It will determine the relevance and utility of the EIA work for project design and management, and for final decision-making. The components of ToRs differ both with the requirements that are in place in different countries and from proposal to proposal. Generally, the following will be included:

- the proposal and its practicable and reasonable alternatives (including the “no action” option);
- the significant issues and impacts to be investigated;
- the type of information to be collected and/or studies to be carried out (e.g. baseline study); and
- the requirements and timelines for completion and submission of the report.

The ToR should not be considered a “fixed” or rigid document. It may be necessary to change the orientation of work as EIA studies progress and new information becomes available on the likely impact of a proposal. Provision for amending a ToR should be included as part of its preparation. For example, this might entail the negotiation of a new agreement between the proponent and an approval body or environmental agency.

### 3.7 EIA work and impact studies

*Impact prediction and evaluation are the technical heart of the EIA process. A large kit of tools is available to carry out EIA work and several methods will be used in a typical impact study.*

#### Box 3:4 A step-by-step approach to scoping

- First, identify the full range of public concerns and technical inputs on the proposal under review (**compile a long list**). At this stage, no attempt should be made to screen out or pre-judge the validity of issues raised.
- Second, evaluate the list to identify significant issues and to eliminate concerns that do not warrant further investigation (**derive a short list**). This evaluation should be carried out against pre-determined criteria (e.g. differentiating potential but uncertain impacts from known risks that can be mitigated).
- Third, organize and prioritize the significant issues with reference to information that is critical for decision-making (**draw up a study list**). This classification should be the basis for drafting or finalizing a ToR.

*Source:* Adapted from Everett (1995), Ashe and Sadler (1997).

EIA technical work is concentrated on prediction and evaluation of the impacts of a proposal and its main alternatives as identified in the ToR. Normally, impact prediction is undertaken against an environmental baseline, delineated by selected indices and indicators such as air/water quality, ecological sensitivity, biodiversity, etc. This gives a forecast of each impact in terms of its main characteristics (e.g. magnitude, extent, duration, etc.) and provides information that is used to identify appropriate mitigation



measures (see next section). After mitigation has been taken into account, the likely significance of a residual impact can be evaluated. This determination provides an indicator to decision makers of the environmental acceptability of a proposal.

Numerous methods can be used to predict and evaluate the environmental impact of proposed actions. There is a considerable literature on EIA methods and their functions, strengths and weaknesses and relative usage. A review of their application with reference to developing countries can be found in Bisset (2000). Various surveys indicate that EIA practitioners still rely heavily on simple predictive and evaluative methods (e.g. checklists, matrices and expert opinion). Often, these are used in combination, with each other or more complex methods, to cover the nature and range of impacts addressed in typical EIA studies (Canter and Sadler, 1997). Further guidance on choice of EIA methods is summarized in Box 3.5.

### **Box 3:5 Choice of EIA method**

It is not the intention here to provide detailed technical advice on EIA methodology and approaches. Rather, the focus is on issues that relate to EIA good practice and that are likely to be encountered often, particularly in developing countries. Choice depends on:

- the size and complexity of the proposal and main alternatives;
- the range and interrelationship of the likely impacts ;
- the availability of appropriate methods ;
- the experience of the EIA team with their use;
- the resources available - cost, information, time, personnel;
- the use of simple methods is indicated if:
  - proposal is non-controversial
  - data available from comparable cases
  - impacts are direct, site-specific
  - time is short/ budget is low
- the use of advanced methods is indicated if:
  - proposal is complex and controversial
  - few comparable cases
  - large amount of data assembled
  - impacts are interrelated, potential cumulative effects.

### ***Establishing an environmental baseline***

*As the reference point for impact prediction and evaluation, baseline information has a critical role in the technical quality of EIA work.*

Baseline data can be collected through field surveys or from secondary sources. This phase, in particular, may be limited by the time and resource constraints that are placed on many EIA studies. In these circumstances, it is important to both begin as early as possible (e.g. during screening) and assemble only the baseline information necessary (as identified by a ToR). Some EIA studies run into problems because the baseline is too superficial and inadequate to the task of prediction; other studies gather too much information that is not relevant to the task at hand. A balance can be struck by reference to the ToR, and baseline information. The role of the baseline environment in impact prediction should be clearly understood. Specific attention should be given to trend and

other data that will be necessary to estimate the future state of the environmental baseline (its state when a project is likely to be implemented) as compared to present conditions. This difference can be important for certain projects, notably those with long lead times for implementation and construction (e.g. dams, offshore oil and gas developments).

### ***Review of alternatives***

*The identification and comparison of alternatives are central to the application of EIA as a creative, problem-solving process.*

A review of alternatives to a proposed action is a basis for EIA good practice. This element is mandatory in some EIA systems and discretionary in others. It is applied primarily to find better ways to avoid and minimize adverse impacts while still realizing project objectives. Also, the consideration of alternatives can point to creative opportunities for environmental enhancement, community development and project savings. However, review of alternatives is poorly represented or inadequately carried out in many countries. The identification of a reasonable range of alternatives begins during scoping (useful guidance can be found in van Eck et al., 1994).

Generally, no more than five and often fewer alternatives, including a no action alternative, are reviewed in a typical EIA. Each one is assessed to determine a best practicable environmental option, which combines the lowest impact consistent with projected benefits. This process helps to facilitate project planning and design, as well as clarify the issues at stake for decision-making. For example, relatively early in the EIA, certain alternatives may be abandoned as being too environmentally damaging or actions taken to “design out” or reduce impacts. The option identified in the final submission to an approval body may or may not be the alternative finally selected (see decision-making section below).

### ***Environment/project interactions***

*The primary focus of EIA is on predicting project/ environment relationships in terms of cause and effect. Other aspects of this relationship should not be overlooked.*

The aim of EIA is to assess the impacts of a proposed development. In certain cases, the environment can affect the construction or operation of a project. Where applicable, such “reverse” constraints also need to be taken into account in an EIA. They are most evident in extreme and hazard-prone areas, where climate and geophysical risks, such as floods and earthquakes, need to be factored into project engineering and contingency planning. Elsewhere, the environmental and social impacts of a project may need to be considered in terms of its operation and cost-effectiveness. For example, the construction of a dam/reservoir may involve resettlement of people and, if this is not well planned, then experience shows that those displaced often return to land near their original homes. In turn, this may result in unforeseen agricultural and other activities on the margins of the reservoir, with consequent vegetation removal, soil erosion and sediment input to the reservoir. Sediment input can shorten the operational life-span of a reservoir, adversely affecting its socio-economic objectives. In most cases, these “rebound” impacts will be minimal, but they should be addressed, as necessary, by taking a holistic perspective on environment/project interactions.

### *Social/environmental interactions*

*People are an integral part of the environment, and the significant social impacts of a proposal always should be analysed as an integral part of an EIA study (or a companion report).*

All proposals that are subject to an EIA are likely to have social, economic or health impacts. In EIA these impacts should be predicted and evaluated either in their own right or as environmentally-related change (arrangements differ by country). Social or health impacts can be particularly important in developing countries. Often, the costs of proposed developments are imposed on local people who are dependent on the resource base for their livelihood. World Bank environmental assessment procedures give particular attention to the impact of proposed developments on indigenous peoples and other vulnerable ethnic and cultural groups whose lifestyle, values and tenure system may be disrupted or lost.

In EIA, specific consideration should be given to social, economic or health impacts that may cause further, secondary, environmental impacts (see example in Box 1.2). For example, well-known health risks are associated with certain types of projects in developing countries. These include water infrastructure and irrigation projects, which can create habitat conditions that extend or intensify disease vectors, such as mosquitoes (malaria) or water snails (schistosomiasis). To date, insufficient attention has been given to health impacts in comparison to coverage given to biophysical or even other social impacts. In many cases, overlooking health or social impacts has resulted in significant additional and unanticipated costs, which, if accounted, might have altered the initial decision on project feasibility. Specific guidance on these types of impacts and their linkages can be found in the previous version of this volume (UNEP, 1996). An example of the social/environmental interaction can be seen in the water resource initiative described in Box 1.2.

### *Associated developments and secondary/cumulative effects*

*An EIA study should include all significant impacts and interactions. Particular care may need to be taken in identifying associated developments and secondary and cumulative effects.*

Some projects are accompanied by one or more associated developments – for example, a quarry, site infrastructure and access roads. EIA studies should consider the impact of the “main” project proposal and any associated developments. These developments need to be considered as components of a single, overall, or combined proposal. Certain types of projects are known to have a range of off-site and transport-related impacts – for example, major earth extraction and trucking of fill to construct dams or dredging and disposal to operate ports. In addition, other projects may induce further but unrelated developments with consequent environmental and social impacts - for example, a new mine and access road opening an undeveloped area to agriculture, other forms of resource use or permanent settlement. These issues can be investigated by examining experiences from similar proposed projects in similar locations.

A particularly difficult issue in EIA of an individual development proposal involves addressing its potential cumulative effects in relation to other projects and activities. Cumulative effects can result from a number of sources and processes taking place within a natural system, such as a water catchment, airshed or coastal zone. These include changes introduced by a large number of small projects, which are individually minor, but collectively significant; or by a major new development combined with similar or unrelated activities over a certain time period. For example, a significant cumulative

effect can result when the effluent from a new industrial plant, added to existing discharges, exceeds the assimilative capacity of a river or lake system or when the functions of a salt marsh are incrementally, but irreversibly depleted by drainage schemes, port and industrial facilities. Proponents cannot be expected to take responsibility for the total impact but they should consider the cumulative effect of their development, taking into account other past, present and reasonably foreseeable activities that are proximate in time and space, using tools that are available for this purpose (Canter and Sadler, 1997).

### ***Coping with uncertainty and determining risk***

*Impact prediction is made in the context of uncertainty and risk. These characteristics need to be understood in order to frame the approach to EIA.*

EIA is based on the premise that project-related environmental impacts can be predicted. In reality, scientific understanding of cause-effect relationships is insufficient or imprecise. This does not invalidate the predictive approach but an explicit attempt must be made to cope with uncertainty. A precautionary approach should be taken in situations where the likely impacts of a proposal are unknown or uncertain. This approach can be applied in EIA work through risk-based methods to qualitatively determine the relative or comparative effects of a proposal, including the possibility of irreversible or serious resource loss or ecological deterioration. Especially if uncertainty is high, the confidence limit or margin of error of EIA predictions should be indicated and emphasis given to monitoring impacts and other follow up actions.

Risk assessment also can be used to determine the probability and severity of the potential consequences of a wide range of activities on the environment and human health impacts. Traditionally, quantitative risk assessments have been undertaken for proposals for potentially hazardous facilities, such as those storing, manufacturing or transporting toxic chemicals or dangerous products, which pose a threat to public or workforce health and safety. Increasing emphasis is now being placed on ecological risk assessment, where numerical thresholds or indicators of adverse effects are more difficult to establish and vary with target species (see Gabocoy and Ross, 1998).

A four-step methodology can be followed to determine and address health and ecological risks:

- hazard identification to determine if an action or substance harms health or damages the environment;
- estimate the severity and likelihood of harm or damage (carried out through source-release, exposure and dose-response assessments);
- statement of the statistical probability (or best-estimate) of harm or damage occurring; and
- identification of options and measures for risk management (elimination or reduction of risk or reversibility of the damage).

### ***Evaluation of impact significance***

*Evaluation of the significance of potential impacts takes place throughout the EIA process, beginning with screening. Also, it should be applied as a formal test of the residual impact once mitigation has been taken into account.*

Experience in a number of countries indicates that evaluation of impact significance is one of the more problematic areas of EIA practice. This process determines the relative importance of an impact. Ultimately, it calls for a subjective judgement to be made,

which often has a major bearing on project approval and condition setting. A systematic approach should be followed, using procedure and criteria established for this purpose by the EIA system of a country or, where these measures are not in place, by reference to internationally accepted frameworks. Guidance on EIA good practice when evaluating significance can be found in the UNEP *EIA Training Resource Manual* and other sources (e.g. Sippe, 1999). Key aspects are summarized in Figure 3.1.

A review of international experience indicates that different approaches can be used to evaluate impact significance, depending on the issues and the criteria that apply. Generally, this process works best when easy-to-use and widely agreed scientific criteria can be used to determine significance. Examples include air and water quality standards, public health and safety standards for exposure to toxic pollutants or threats to rare and endangered species or protected areas. Where there is a high degree of uncertainty and/or controversy regarding potential impacts, a negotiation-based procedure may be more suitable to attribute significance (Hilden, 1997). This approach usually involves technical experts but can be extended to other parties or even affected or interested stakeholders (as suggested by the World Commission on Dams, 2001).

A final determination of significance should be made only when there is reasonably complete information about the likely magnitude and characteristics of impacts. This requires first distinguishing between “as predicted” and “after-mitigation” (or residual) impacts, and then attaching a value or rating to them. Guidelines or rules of thumb that can be used for this purpose are summarized in Box 3.6. These can be applied systematically by asking three questions:

- are there likely to be residual environmental impacts?
- if yes, are these likely to be significant or not?
- if yes, how likely are these significant effects (high, moderate or low probability)?

### **Box 3:6 Guidance on impact significance**

Impacts are likely to be significant if they are:

- extensive over space or time;
- intensive in relation to assimilative capacity;
- above or close to environmental standards or thresholds;
- non-compliant with environmental policies, land use plans, sustainability strategy;
- likely to threaten public health or safety;
- likely to limit agriculture, wood gathering or resource uses on which people rely for subsistence;
- likely to deplete or damage resources that are commercially exploited;
- likely to affect protected or ecologically sensitive areas, rare or endangered species or heritage resources; and
- likely to disrupt the lifestyle of large numbers of people or that of vulnerable minorities.

*Source: Ashe and Sadler (1997).*

### 3.8 Mitigation and the environmental management plan

*Mitigation is the practical phase of the EIA process. It is concerned with preventing or remedying the adverse impacts and optimising the environmental and social benefits of a proposal.*

The aim of mitigation should be to deal first with significant adverse impacts and to realize opportunities for environmental gains and benefits. Once these have been addressed, attention can be turned to impacts that are adverse but not considered to be significant. Some of these may be mitigated easily; others may not. It is not possible to give firm guidance on the extent to which adverse impacts should be mitigated. Good practice in mitigation requires a relevant technical understanding of the impacts and the measures that work in local circumstances. These aspects will be project-specific and must take account of various issues and considerations, such as practicality, cost-effectiveness, views of stakeholders, and policy and regulatory guidance.

Throughout EIA work, early and continuing interaction should take place between the project designers and the EIA team. As soon as significant adverse impacts are identified, the emphasis should be on trying to “design out” through review of alternatives and changes in project design, location or operation. However, certain impacts can be mitigated only by actions taken during the construction and operation of a project. Such measures can be divided into the following main types:

- preventing or minimizing impacts before they occur by limiting the extent or timing of an action and its implementation;
- eliminating or reducing an actual impact over time by maintenance or contingency planning operations during the life of the project;
- rectifying an impact by repairing, rehabilitating or restoring the affected environment;
- compensating for an impact by in-kind, comparable or equivalent replacement of the resource or environmental loss; and
- optimising beneficial effects through specific additional actions.

EIA good practice principles related to mitigation call for measures to be identified for each major adverse impact. These should be organized into a hierarchy of actions, with the highest priority given to preventing or avoiding adverse impacts, then minimizing or reducing remaining impacts to “as low as practicable” levels and finally offsetting residual impacts through rehabilitation and compensation. Increasingly, governments are imposing stricter requirements to mitigate impacts and keep them within acceptable levels. Approval of the decision-making body is the ultimate test of proposed mitigation measures and a proponent may want to seek to eliminate or narrow disagreements with stakeholders over their likely effectiveness (Marshall , 2001). The basis for this interaction is a sound technical approach based on the considerations summarized above.

The mitigation measures identified should be described in an environment management plan (EMP), with details of how they will be implemented for each impact “targeted”. The following information should be included in the Plan (see also next section):

- description of the mitigation action;
- time/place for implementation;
- expected results;
- responsibility for implementation (named individual(s) in operator’s organization or in other linked entity);
- monitoring strategy needed to check on implementation and level of performance success; and



- reporting procedures within operator's organization and to a control authority and community liaison committee (if formed).

Impact mitigation is consistent with the polluter pays principle (PPP), which places a responsibility of proponents to "internalize" the full environmental costs of development proposals. Often, this responsibility is interpreted narrowly to mean only compliance with environmental standards and EIA requirements. Under the sustainability agenda, however, this principle may be interpreted broadly, encouraging a proponent to voluntarily meet higher standards of environmental performance, such as compensating for all residual impacts (see Chapter 6). In this context, mitigation should be seen as an opportunity to realize competitive advantage, as well as a necessary cost of doing business. Good project design and impact management can result in significant cost savings and improved stakeholder relations. For example, treatment of waste and effluent streams can be a basis for recycling and recovery operations (with possibly a marketable by-product) and pollution controls can be equated with a safer and healthier workplace (with possibly higher levels of productivity).

### **3.9 The EIA report**

*The EIA report (termed a "Statement" in certain countries) is a critical document, which assembles the information to be submitted to the decision-making body responsible for project approval.*

The EIA report is prepared by or on behalf of the proponent who is responsible for ensuring that it meets the requirements and guidelines established for this purpose by a country or international agency. The EIA report should contain the information specified in the ToR or described in legislation or regulation (as in the European EIA Directive). The aim of the EIA report is to provide the decision-making body or competent authority with sufficient information on which to approve or refuse a proposal on environmental grounds, and what conditions must be attached to an authorization, permit or license. Additionally, the EIA report is a public document, which describes the findings on the impact of the proposal to all stakeholders (including the individuals and communities who are directly affected) prior to the final decision on a project.

Unlike other technical reports and studies, an EIA report is subject to public review and comment. This aspect places particular responsibilities on those preparing it. An EIA report should be well organized and clearly written. It should both communicate effectively with non-experts and meet appropriate technical standards. This means the report should be reasonably concise, with an Executive Summary and the full report limited to a maximum of 200 pages and with more detailed information relegated to technical appendices. It should be objective, factual and internally consistent. Other key qualities include use of plain language, minimizing technical terminology, avoiding jargon and summarizing data in good quality maps, charts, diagrams and other visual aids.

The structure and contents of a typical EIA report are described in Box 3.7. The report provides the information necessary for decision makers and stakeholders to understand:

- proposal and its rationale (need, objectives, alternatives, policy deliverables);
- environment and people affected (critical resources, key stakeholders);
- views of those who have been consulted (responsible agencies, people affected, experts).
- likely impacts and their significance (adverse and positive effects of each alternative); and
- proposed mitigation and follow up measures (the environmental management plan).



The EIA report must contain an Executive Summary - a short, non-technical presentation of the main conclusions and recommendations for decision-making. No attempt should be made to summarize all the contents of the EIA report – instead the summary must contain only key information pertinent to the decision. Except for very large and complex proposals, the Executive Summary should be no more than 7 pages and preferably less. Often, the Executive Summary is the only part of the report that decision makers and most people will read. It should be written as a memorandum to describe the consequences of the proposal, the options and measure to address them and the reasons for choosing a course of action. The Executive Summary can also be distributed separately as an information brochure for the public at large.

### Box 3:7 The EIA report

- executive or non-technical summary;
- introduction;
- policy, legal and administrative framework;
- statement of project aims and characteristics;
- discussion of the relationship of the proposed project to policies and plans for current land-use and developments in the area likely to be affected;
- description of the proposed project and alternatives (including no development), which should be brief and focus on their major differences;
- description of expected environmental conditions at the time of probable project implementation (biophysical, socio-economic etc);
- inter-agency and public/NGO involvement (summary of the views and concerns of those who were consulted);
- evaluation of the impacts of each alternative, including the criteria used to assign significance and describing the characteristics of each impact;
- comparison of alternatives, covering significant adverse and beneficial impacts, mitigation and monitoring measures and identification of the environmentally preferred option (if possible using sustainability criteria);
- environmental management plan;
- discussion of uncertainties in interpreting results obtained from use of predictive methods and description of gaps in baseline and other data used in the EIA;
- appendices – include all technical information and description of approaches/methods used to provide conclusions in the EIA report but not suitable for the main text, together with:
  - a glossary
  - an explanation of acronyms
  - a full list of all reference material used
  - a list of the names of members of the EIA team
- ToRs for the EIA and for individual specialists investigating specific impacts.

Source: Based on World Bank (1991).

### 3.10 Review of EIA report

*A review of an EIA report is intended to ensure that it contains the information necessary for decision-making purposes. This check should draw attention to any deficiencies and indicate ways of improving the quality of the report.*

Review of the EIA report prior to its submission to the decision-making body is one of the key checks and balances built into the EIA process as it allows a separate check to be made of the proponent's own assessment of a proposal. Review may be applied to an

interim draft as well as a final report. In many EIA systems, review is a formal procedure, which may be undertaken by the responsible authority, an environmental agency, inter-governmental committee or an independent body (see Scholten, 1997). The aim in all cases is to assure the completeness of the information gathered in an EIA and its adequacy for the purpose of decision-making. As and when necessary, the proponent may be required to submit additional information before the report can go forward as part of an application for project approval.

Public comment on the EIA report is an integral part of the review process in many countries. The procedures for this purpose vary, and range from notification to interested parties to making written submissions to public hearings and other meetings that are open to all. More extensive forms of public and stakeholder involvement will be preferable when there are significant impacts on a local community, or people will be displaced by a proposal (further information on public involvement can be found in Chapter 4). The views expressed by the public should be included in the EIA report, together with the proponent's response indicating how they have been addressed. These views are considered along with technical review by the environmental agency and other bodies, which also decide if specific expertise is required to assist with the review.

The review should be carried out in accordance with the procedure and criteria established by a country or international agency. If these are not in place, a number of "review packages" can be used instead (e.g. Lee and Colley, 1992). However, the review must focus on what was required by the ToR, not what ideally should have been done. This means taking a ToR as given unless they are seriously flawed, although some flexibility will be necessary, for example where changes have been made to take account of new information or to address potential environmental impacts that were unanticipated at the scoping stage. At a minimum, a review should give practical consideration to whether or not the information in the EIA report is reasonably complete with respect to the significant impacts and other factors listed above. Further guidance on the aspects of the EIA report that should be considered as part of a thorough review can be found in Box 3.8 taking account of the context and realities of the proposal.

#### **Box 3:8 Review of the EIA report**

The review should examine critically whether the following criteria are met:

- full response to the ToR, noting any later amendments made during the course of the EIA;
- executive or non-technical summary is included;
- the "no-project" baseline situation is adequately described;
- the policy/ planning context for the proposal/ location is described;
- significant adverse and beneficial impacts are identified and described;
- justification for the "significance" decision is provided;
- alternatives have been assessed equally and comparatively;
- the environmentally preferred alternative is identified with reasons for the choice;
- views and comments of stakeholders involved in the EIA process are summarized;
- data sources are properly identified and referenced, and
- specific methods/techniques used to predict and evaluate impacts are described and data and methodological limitations noted.

### 3.11 Impact management and monitoring

*Impact management is the process of implementing mitigation measures in accordance with the schedule of actions contained in the EMP, together with any necessary adjustments to respond to unforeseen impacts or other changes. This process, backed by monitoring, encompasses practical steps and actions to control adverse environmental impacts during project implementation.*

Impact management can occur throughout project construction and continue into the operational and decommissioning phases when, typically, it will become merged into a larger facility-based Environmental Management System (see Chapter 6). This process may be in operation for a considerable period of time (up to 50 or more years), but with varying emphases and intensity of application and revision. During the initial post-approval stage, impact management forms part of a larger process of EIA follow up. Other follow-up components and tools also support impact management - monitoring in particular provides information that is important for this purpose. As described in section 3.8, the requirements relating to mitigation, impact management, monitoring and other follow-up measures should be described in an environmental management plan (EMP). Once approved, the EMP becomes the basis for impact management, together with any other terms and conditions established by the decision-making body.

#### *Elements of impact management*

A clear agreed plan in writing is essential to guide the impact management work, including coping with unforeseen events or unexpected results. Knowledge of development/environment interactions is not yet sufficient to ensure that EIA predictions will be accurate in many cases or at all times (see section 3.7). It is important in this context to pay close attention to the prevention or “control” of impacts as they happen. This process of impact management has three main phases: implementation of mitigation measures, monitoring and evaluating the results and revising the EMP when necessary. Lessons from EIA good practice include:

- implement mitigation measures at the correct time in the correct way and at the correct place;
- monitor the impacts that are predicted to be potentially significant or particularly uncertain;
- evaluate the effectiveness of mitigation measures paying particular attention to untried actions or new technology;
- take immediate action when impacts are higher than forecast and threaten to breach environmental standards, to impair protected or designated areas, etc.; and
- otherwise, periodically update the EMP using the results from monitoring and evaluation.

The EMP, as updated, provides direction to the proponent/operator and a reference point by which the environmental, regulatory or competent authority can oversee the process. Some or all of the following elements need to be in place in order to manage unanticipated impacts:

- appropriate inspection and enforcement of mitigation and control measures;
- contingency and emergency plans (e.g. in case of uncontrolled discharge of pollutants);
- liaison arrangements with the statutory agency for pollution control, line ministry and representatives of local communities; and
- implementation, when considered necessary, of an Environmental Management System (see Chapter 6).

Impact management has been a relatively neglected element of EIA practice. Together with other follow-up measures, increasing attention is now being given to impact management. Also, it is acknowledged that the focus of impact management must incorporate not only actions to mitigate adverse effects of a project on the surrounding environment, but also measures to compensate fully for residual damage. These may need to take place at locations that, in some cases, are distant from a development site, for example enhancement of another wetland as replacement for on-site losses. However, most attention will focus on management of impacts directly caused by a proposed development, taking the actions necessary to ensure that no unavoidable or unacceptable impacts occur.

### *Elements of monitoring*

Monitoring provides information that is critical to impact management, as well as to making improvements to EIA practice. There are here three main types of monitoring which can be undertaken for a project:

- compliance monitoring (amount/content of waste or effluent streams);
- mitigation monitoring (whether mitigation actions have been implemented in accordance with an agreed schedule and are working as expected); and
- impact monitoring (scale and extent of impacts caused by the project).

Usually some form of monitoring will be necessary for large, complex projects, since there will be considerable uncertainty concerning the scale and significance of one or more adverse impacts. Also, monitoring is important for purposes of “risk assurance” where local people may be concerned about the impacts of a project on a local economically important resource – for example, a fishery. In such situations, agreement to implement and fund a monitoring programme can be important in reducing public fears and hostility regarding a proposed project, even if EIA work has indicated that no significant impact is likely. Above all, monitoring data functions as an “early-warning” system indicating any trends that are likely to result in an unanticipated and unacceptable impact in the near future, and ideally allowing action to be taken in advance, for example before standards are breached.

Monitoring recommendations need to be carefully formulated. A monitoring programme can be expensive, particularly for ecological impacts. In these circumstances, consultations with interested groups/agencies and, when appropriate, representatives of the public can be helpful to scope and focus monitoring. Important issues to be considered include:

- identification of impacts to be monitored in priority order;
- design of an appropriate monitoring programme for each identified impact (this may need additional expert advice, for example from a bio-statistician in relation to ecological or health impacts);
- likely duration of the individual monitoring programmes;
- the institutional system by which monitoring data will be collected, collated, analysed, interpreted and action taken, if necessary, to prevent or reduce unwanted impacts;
- an action response programme should monitoring results exceed prescribed levels; and
- cost of implementing a recommended monitoring programme.

The last two issues are of particular importance. To be cost-effective, monitoring needs to be carried out as part of an institutional framework, which makes use of and acts upon the data. No purpose is served by collecting data that is “shelved” and not used, either because it is not the right information required for impact management or because there

are no institutional arrangements in place for taking action. In general terms, the cost of monitoring will depend on:

- the number of impacts to be monitored;
- the nature of the individual monitoring schemes; and
- their duration and the type of institutional system needed to manage the data.

Impact monitoring must be a technically sound and scientifically defensible exercise based on periodic repetitive measurements of environmental change that allow comparison between the pre- and post project situation. A common issue in all situations is how to differentiate the change attributable to a project from the variability that characterizes all biophysical or socio-economic systems. In many cases, cause-effect relationships are difficult to separate from the interaction of other factors. Establishing “impact” and “control” monitoring stations is the key to designing and conducting a successful monitoring programme. For example, an impact site would be a water sampling station located downstream from project that will discharge effluent; a control site would be located upstream of the outfall. “With project versus without project” comparisons then can be made for both sites to detect the change or impact that is attributable to the project.

In this context, it is helpful to keep in mind the direct and clear relationship between baseline data collection (through monitoring of selected impact-related parameters) and impact monitoring programmes. In most cases, monitoring to establish baseline conditions at the beginning of EIA work can be continued as part of impact monitoring. For example, establishing the baseline water quality of a river and the nature of its biota for a pulp mill, EIA may require a monitoring programme. If the project is approved, it is likely that the terms and conditions of authorization will require the monitoring of the impact of an effluent discharge on water quality. Provided the principles described above have been followed in baseline monitoring, the programme could be continued throughout the construction phase and into the operational phase for specified period of time (sufficient to determine the actual nature and severity of impact).

Monitoring and impact management are undertaken to protect the environment and the interests of local people. It is increasingly important that these programmes are socially responsive and credible to the public. The results of monitoring, together with any management actions that are initiated, should be reported and address any specific public concerns. It is useful to have a forum whereby the local community is informed of the results of monitoring activities, or interacts more directly with the project operator and the relevant control agencies, for example by jointly reviewing the results of monitoring, identifying any outstanding issues and agreeing on possible “solutions”. Community liaison arrangements are needed perhaps for only the most controversial proposals, but there should be a consideration on a case-by-case basis of whether such a system is needed.

### 3.12 Final note on the importance of EIA follow-up and evaluation of performance

*EIA follow-up studies provide information and feedback necessary to improve future applications of EIA practice, procedure and methods. Monitoring, auditing and other evaluation tools are used to “close the loop” on impact predictions, building continuity into the EIA process.*

Despite its importance, EIA follow-up is still a relatively neglected element of the EIA process. The information from monitoring and impact management is critical for this purpose. Other components and tools of EIA follow-up include:

- auditing – to verify the accuracy of the EIA predictions and the effectiveness of mitigation and impact management;
- ex-post evaluation – to review the effectiveness and performance of the EIA process as applied to a specific project; and

- post-project analysis – to evaluate the overall results of project development and to draw lessons for the future.

As implied above, EIA follow-up and review can be undertaken on a number of levels. These studies form part of a continuum, which are undertaken at different stages of project implementation (see Au and Sanvicens, 1997). In the initial period, EIA follow-up and impact management are not clearly separable activities, for example an EIA audit can serve both purposes. By comparison, evaluation and post-project analysis occur later when there is sufficient information to permit an evaluation of performance results. This can be undertaken with reference to the effectiveness and performance of a specific EIA process or of an EIA system, as exemplified by the three-year reviews of experience at the World Bank (Green and Raphael, 2002).

The emphasis in EIA evaluation is on what was achieved and which elements contributed to success, with a view to making future improvements to practice, procedure, methodology or process design. One measure of effectiveness is whether or not an EIA process or system has contributed to decision-making, as indicated by the quality of information contained in EIA reports or the degree of influence on approval and condition setting. Much more difficult to clearly determine is the extent to which EIA resulted in environmental benefits or positive outcomes, for example as indicated by the record of impact mitigation. The process and results of EIA follow-up and evaluation can be integrated with facility-based Environmental Management Systems, established for operating facility and extending over the whole life cycle of the project.

### **KEY POINTS : Summary of Chapter 3**

#### **Background and context**

The principles and elements of EIA are now well understood. Many of these date back to the introduction of this process and have been tried and tested over thirty years of practical experience. Recently there have been attempts to systematize EIA aims, principles and standards of “good practice” in international law and policy, the guidance issued by national and international agencies, and the activities of professional bodies to define acceptable codes of conduct for their members. When combined, these document performance criteria for the main steps and elements of the EIA process.

#### **Innovations**

The main innovations have been to EIA methodology and professional specialization to meet evolving demands and requirements described in the previous chapter. A more integrated, “total” approach is taken to EIA application, recognizing the interrelationships and iterations that are necessary among the main stages of the EIA process beginning with early screening and ending with any necessary follow up activities. In addition, the EIA process has become more multi-disciplinary and demands new skills and areas of expertise. Social, health and other factors, including aspects of economic and fiscal impact, are included within national EIA systems to different degrees. They now comprise separate domains of impact assessment but need to be widely understood in relation to EIA work and process management.

#### **Challenges**

Three main challenges are:

- Achieving quality control and assurance in applying the EIA process, particularly with regard to certain activities and the conduct of SIA, public involvement and other “participative” aspects;
- Improving performance of key stages of the EIA process, particularly implementation, enforcement and follow-up to the terms and conditions of project approval; and
- Using EIA as a tool for environmental management, focusing on a combination of alternatives, process re-design and mitigation to reduce impacts and risks to as low as reasonably practicable levels.



## References

- Ashe, J. and Sadler, B. (1997) Conclusions and recommendations, in *Report of the EIA Process Strengthening Workshop*, Environment Protection Agency, Canberra.
- Au, E. and Sanvicens, G. (1997) EIA follow up monitoring and management, in *Report of the EIA Process Strengthening Workshop*, Environment Protection Agency, Canberra.
- Bisset, R. (2000) Consultation and Public Participation, in Lee, N. and George, C. (eds.) *Environmental Assessment in Developing and Transitional Countries*. Chichester: John Wiley & Sons.
- Canter, L. and Clark, R. (1997) Scoping in the EIA process in the United States, in *Report of the EIA Process Strengthening Workshop*, Environment Protection Agency, Canberra.
- Canter, L. and Sadler, B. (1997) *Methods for Effective EIA Practice – A Tool Kit Approach*, Environment and Ground Water Institute, University of Oklahoma, Norman OK, USA.
- Everitt, R. (1995) Scoping of environmental impact assessment, paper to the EIA Process Strengthening Workshop, Canberra.
- Gabocy, T. and Ross, T. (1998) Ecological and human health risk assessment: a guideline comparison and review, in A. Porter and J. Fittipaldi (eds.) *Environmental Methods Review: Retooling Impact Assessment for the New Century*, International Association for Impact Assessment, Fargo, North Dakota, USA.
- Green, K. and Raphael, A. (2002) *Third Environmental Assessment Review (FY 96-00)*, Environment Department, World Bank, Washington DC.
- Hilden, M. (1997) Evaluation of the significance of environmental impacts, in *Report of the EIA Process Strengthening Workshop*, Environment Protection Agency, Canberra.
- IAIA (International Association for Impact Assessment) and the UK Institute of Environmental Management and Assessment (1999) *Principles of EIA best practice*. IAIA, Fargo, North Dakota, USA.
- IUCN (World Conservation Union) and the World Bank (1997) *Expanding Environmental Assessment Capacity in Sub-Saharan Africa: Issues and Options*, A Discussion Paper distributed by IUCN and the World Bank.
- Jones, C. (1999) in Petts, J. (ed.) (1999) *Handbook of Environmental Impact Assessment* (2 Vols.), Blackwell Scientific, Oxford, UK.
- Lee, N. and Colley, R. (1992) *Reviewing the Quality of Environmental Statements*. Occasional Paper Number 24, EIA Centre, University of Manchester.
- Marshall, R. (2001) Improving mitigation performance: the Scottish Power experience, in *Environmental Assessment Yearbook 2001*, Institute of Environmental Management and Assessment and EIA Centre, Lincoln, UK.
- Petts, J. (ed.) (1999) *Handbook of Environmental Impact Assessment* (2 Volumes), Blackwell Scientific, Oxford, UK.
- Sadler, B. (1996) *Environmental Assessment in a Changing World* (Final Report of the International Study of the Effectiveness of Environmental Assessment), Canadian Environmental Assessment Agency and International Association for Impact Assessment, Ottawa.
- Sadler, B. and McCabe, M. (eds.) (2002) *UNEP EIA Training Resource Manual*, UNEP, Geneva.



## Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach

- Sadler, B. and Fuller, K. (1997) Quality assurance in environmental assessment, *Environmental Assessment*, 5,1: 13-16.
- Scholten, J. (1997) Reviewing EISs/EIA reports, in *Report of the EIA Process Strengthening Workshop*, Environment Protection Agency, Canberra.
- Sippe, R. (1999) Criteria and standards for assessing significant impact, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment* (Volume 1), Blackwell Scientific, Oxford, UK.
- UNEP (1995) *Communique, African High-Level Ministerial Meeting on EIA*, UNEP, Nairobi.
- US Council on Environmental Quality (1981) *Memorandum: Scoping Guidance*, Washington DC.
- World Bank (1991, *et seq*) *Environmental Assessment Sourcebook* (3 Vols.) and *Updates* (1-26), Environment Department, World Bank, Washington DC.
- World Commission on Dams (2001) *Dams and Development: A New Framework for Decision-making*, Earthscan, London.
- van Eck, M., Scholten, J. and Morel, S. (1994) EIA-methodology: scoping of alternatives, in *EIA Methodology in the Netherlands, Views of the Commission for EIA*, Netherlands Commission for Environmental Impact Assessment Secretariat, Utrecht.

## Chapter 4: Public Involvement and Consultation

### 4.1 Introduction

Bisset (2000) presents a variety of reasons for the increasing spread of requirements for public involvement and consultation in the development process. First, there are reasons arising from political and policy changes at global and national levels; secondly, there are those that result from the evolving policies of the multi- and bilateral agencies and finally, lessons learned from policy, programme and project evaluations (see Box 4.1).

Probably, the trends at global political level and in the policies of the multi- and bilaterals have been more influential than the lessons learned from evaluations. The overall implications of all these factors have been to move public involvement and consultation closer and closer to a central role in the development process.

Increasingly, it is normal practice to involve the public in the design, delivery and evaluation of government activities. The UNEP-supported in-country studies of trade impacts are an important example of how governments have incorporated consultation and participatory approaches in national-level decision-making. The important role of public involvement and consultation in EIAs/SEAs is a reflection of this wider socio-political context. Of course, practice varies considerably, and successful, consistent, integration of public involvement and consultation with development-related decision-making has still not been achieved. Below, the focus will be on the role of public involvement and consultation in EIA/SEA.

#### Box 4:1 Reasons for increasing use of public involvement and consultation

At the global level there have been a number of important political and policy trends and changes:

- increase in the number of countries with “western-style”, representative democratic forms of government (with a tradition of public involvement and consultation, to varying degrees, in policy and project-related decision-making);
- trend in certain countries toward decentralization of decision-making;
- trend toward reduction in the influence of the public sector with an increase in privatization; and
- growth in influence of Non-Governmental Organizations (NGOs).

The policies of the most influential multi- and bilateral agencies have encouraged public involvement and consultation by:

- promotion of good governance;
- emphasis on poverty alleviation and gender sensitivity; and
- promotion of environmental capacity development to improve governmental capacity to make more effective decisions.

Evaluations of policy, programmes and projects, once implemented, have shown the following lessons:

- early and planned public involvement and consultation encourages better designed policies, programmes and projects;
- policies, programmes and projects with public involvement and consultation are often more likely to achieve their objectives;
- policies, programmes and projects with public involvement and consultation are more likely to avoid costly delays in appraisal and difficulties in obtaining needed permits or licences.

Basically, policies, programmes and projects are less likely to fail if the public is involved.

## **4.2 Background to use of public involvement and consultation in EIA/SEA**

There is no doubt that public involvement and consultation is a vital component of both successful EIA/SEA systems and specific EIA/SEA studies. It has been an integral part of EIA practice since 1970, but its use in SEA is less formal and systematic. Timely, well-planned and implemented public involvement and consultation programmes will contribute to the successful design, implementation, operation and management of proposal actions. It also enhances the effectiveness of the EIA/SEA process. Specifically, public involvement and consultation provides a valuable source of information on key impacts, potential mitigation measures and the identification and selection of alternatives. No less important, public involvement and consultation ensures the EIA/SEA process is open, transparent, and robust, and also that individual EIAs/SEAs are founded on justifiable and defensible analyses.

Nearly all EIA/SEA systems make provision for some type of public involvement and consultation (there are, however, a few countries e.g. Thailand with no public involvement and consultation provisions for EIA). This activity includes public participation, which is a more interactive and intensive process of involving representatives of the public. Most EIA/SEA processes are undertaken through consultation rather than participation. At a minimum, public involvement and consultation must provide an opportunity for those directly affected by a proposal to express their views regarding the proposal and its environmental and social impacts. These issues are discussed in more depth in section 4.7, *Types of public involvement and consultation*.

## **4.3 Aims and objectives of public involvement and consultation**

The aims and objectives of public involvement and consultation include:

- allowing the public to express its view on the scope and content of an EIA (and the proposed development action);
- obtaining local and traditional knowledge (corrective and creative) before decision-making;
- allowing more sensitive consideration of alternatives, mitigation measures and trade-offs;
- ensuring that important impacts are not overlooked and benefits are maximized;
- reducing conflict through the early identification of contentious issues;
- influencing project design in a positive manner (thereby creating a sense of ownership of the proposal);
- improving transparency and accountability of decision-making; and
- increasing public confidence in the EIA/SEA process.

Experience indicates that public involvement and consultation provides a wide range of such benefits for all participants in EIA/SEAs. Many benefits are concrete, such as improvements to project design. Other benefits are intangible and incidental and flow from taking part in the process. For example, as participants see their ideas are helping to improve proposals, they gain confidence and self-esteem.

## **4.4 Recent legal and institutional changes affecting role of public involvement and consultation**

The only international comprehensive legal instrument relating to public involvement and consultation is the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in International Environmental Matters (1998), known as the Århus Convention. The Århus Convention has yet to enter

into force as it has not been ratified by a sufficient number of signatory countries. However, it is only a matter of time before it does so and it requires countries to bring their legal, policy and institutional arrangements, for making decisions on certain types of action that might affect the environment, into line with the principles and provisions of the Convention. As these arrangements usually include EIA/SEA procedures, then countries are ensuring that the EIA/SEA public involvement and consultation procedures are compatible with the requirements of the Convention. A number of countries, and the European Commission, have begun preparations to do so already.

The main Convention text indicates that public involvement and consultation should be timely, effective, adequate, formal, and provide for information, notification, dialogue, consideration and response. Proponents and public authorities with decision-making responsibilities must supply appropriate environmental information to enable effective public involvement and consultation to occur. There is provision for some information to be withheld from the public, but only in specifically defined circumstances. The presumption is that information will be made available unless the proponent and/or public authority can demonstrate that its provision would be detrimental to their own interests or that of the nation. The public involvement and consultation provisions of the Convention are divided into three parts according to the focus of decision-making:

- Article 6 refers to decisions on specific activities with a potential significant effect on the environment, for example decisions on proposed projects that are subject to EIA;
- Article 7 refers to the development of plans, programmes and policies relating to the environment, aspects of which are or may become subject to SEA; and
- Article 8 refers to the preparation of regulations and other legally binding instruments that may significantly affect the environment. At present, most countries do not subject to drafts of such proposed actions to SEA, or make significant provision for public input into their formulation.

#### **4.5 Public involvement in SEA (differences from EIA)**

As indicated above, the basic principles of public involvement and consultation apply equally to EIA and SEA. However, it is realized that the special characteristics of SEA (see Chapter 5) means that, in certain circumstances, the conduct of public involvement and consultation might vary. There is a view that SEA is basically EIA “writ large”. This may be true for some fundamental aspects of overall EIA approach (scoping, baseline studies, impact prediction etc.), but it is not true of aspects of administrative procedure.

The scale, scope and range of some SEAs make them significantly different from EIAs with accompanying implications for public involvement and consultation. For example, some SEAs are increasingly likely to become continuous processes since they will be integral parts of the policy programme and plan life-cycle, from initial design through implementation and evaluation to re-design. Such SEAs are less likely to produce specific written outputs comparable in status to EIA reports. In such a situation, the focus of public involvement and consultation is more diffuse as there is no single report or event that acts as the “trigger” for involvement and consultation. The type of public involvement and consultation in such contexts will be inevitably different from typical EIA situations. Indeed, some governments may not welcome public involvement and consultation at certain early stages of policy formulation.

First, the continuing nature of public involvement and consultation means that it will probably be impractical to involve a full range of stakeholders using all techniques for involvement and consultation. The cost in resources and time would probably not make

the SEA cost-effective. Instead, it might be appropriate to use selected “focus groups” of representatives of key stakeholders to provide public input on a continual basis. There are possible implications to such an approach as these representatives may become “co-opted” in the SEA process and their public scrutiny role may become diluted. Basically, there is a need to devise mechanisms and principles for public involvement and consultation for such SEAs that maintain the balance between scrutiny and input to the SEA. This is an important challenge for SEA practice in the next few years.

In many SEAs it can be more important to divide the stakeholders into those that are internal and external to the decision-making process. SEA in a national policy context is likely to be a more internalized activity compared to an EIA done for an industrial developer needing a permit from a local government entity. Internal stakeholders are those individuals and groups that are either making decisions (politicians or Cabinets) or are providing support to decision makers (ministry staff). External stakeholders are those with interests that may be affected by a proposed initiative such as a policy change. The importance of the external stakeholders in such situations becomes critical in ensuring external input and scrutiny.

Monnikhof and Edelenbos (2001) provide guidance on basic features of public involvement and consultation in the context of SEA. They stress that stakeholders should include commercial interests and not just representatives of the public such as NGOs and other civil society groups and associations. Also, they consider that it is important that the stakeholders be given sufficient opportunities to:

- be involved in the creative process of defining or redefining the problem (if that is the starting point of the SEA) and offering alternatives;
- look after their interests and be enabled to enter into negotiations and bargaining about solutions such as “win-win” packages or benefits that can be maximized; and
- be involved in all small-scale, incremental decisions in the SEA - not just any final “go or no go” decision.

These principles go beyond public involvement and consultation and their application in EIA is problematic because of the diversity of individual EIAs and the extent to which practice has become entrenched and hence, to some extent, resistant to innovation. SEA is more recent and less “controlled” by precedent and regulations. Hence, the principles outlined above may be more easily put into effect in the context of many SEAs. However, there may be a problem in implementing the principle relating to the stakeholder role in defining the problem to be addressed by a proposed action and in decision-making.

The boundaries of decision-making responsibilities will need to be defined clearly. Many elected decision makers may not be very content to see their decision-making prerogatives diluted by the inclusion of non-elected individuals no matter who they may claim to represent.

Another issue may become more important as the number and variety of SEAs increases, for example into trade policy formulation and national fiscal policy-making. SEAs in these contexts might involve consideration of information that must be kept confidential for national security, financial or commercial reasons. Such SEAs may use a more restricted form of public involvement and consultation, perhaps with the use of selected NGOs instead of consultation with the wider public. Commercial confidentiality is an issue in EIA, but its importance is relatively low with few instances where an EIA process for a specific project has been amended because of such considerations.

#### 4.6 Role of stakeholders in public involvement and consultation

In EIA/SEA it is not possible to consult everybody that might be considered to constitute the public. Current practice refers to identifying stakeholders who collectively can be taken to represent the public. Who are stakeholders? Basically, they are individuals and groups who have a “stake” or an “interest” that may be affected by a decision on a proposed policy, plan or project.

Often, when stakeholders are being identified, certain broad categories are defined and individual stakeholders are assigned to one of the categories. One of the most common divisions is that between primary and secondary stakeholders. The former consist of those whose interests would be affected directly by a decision on a proposed initiative (examples are local communities living in the area in which a project will be located). Secondary stakeholders consist of those not directly affected but who may be indirectly affected and/or who have an ability to influence the decision (examples might be international conservation NGOs or local/national media). Another categorization divides stakeholders into internal and external groups. The former are those involved in the decision-making and the latter are those with interests that may be directly or indirectly affected. This “internal/external” distinction is not in common use and is perhaps more relevant to SEAs (see below).

In most EIA/SEA contexts typical stakeholders will be:

- local people (individuals) and communities (for example, villages) likely to be affected by a project. Traditional leaders or representatives on community-level bodies such as ward councils can be consulted to obtain a community viewpoint;
- non-resident social groups who may use local resources, either regularly or intermittently, for example pastoralists;
- selected social categories, for example women, the elderly and the poorest people (a current concern of international financial institutions and bilateral donors);
- religious leaders;
- politicians;
- NGOs and voluntary organizations such as local community development or resource user’s groups, gender-based groups, labour unions and cooperatives;
- private sector bodies such as professional societies, trade associations and chambers of commerce;
- the different media (newspapers, radio, television); and
- national and local government ministries, departments and statutory agencies whose remit and responsibilities includes areas and sectors likely to be affected (such as health, natural resources and land use).

Such individuals, groups or organizations probably represent the minimum “search category” for those planning public involvement and consultation in an EIA/SEA. Not all may be involved in every EIA/SEA. Often, EIA/SEAs provide an opportunity for others to be involved – for example, research scientists who may be experts on aspects of a locality to be affected. There may be other stakeholders that need to be included in certain circumstances, for example, the project, programme or plan beneficiaries (may or may not be local) and perhaps the interested “public” in the country of any external financing agency(ies). With reference to NGOs, it can be difficult to decide which NGOs are stakeholders as many are international in focus and may have no local or even national presence.



#### 4.7 Types of public involvement and consultation

There are basically three main ways in which stakeholders can be involved in EIA/SEA. First, there is information dissemination. When this occurs, the proponent provides information to the stakeholders on a proposal, once only or at regular intervals. The flow of information is “one-way” and there is no provision for responses to be taken into consideration.

Secondly, there are consultations involving information exchange between the proponent and stakeholders in a two-way process. Also, during consultations there are opportunities for the stakeholders to express their views on issues related to the proposal. The proponent and/or authorizing agency is not bound, however, to take account of such views in decision-making, although they may do so if they consider it to be appropriate. Although often not required formally, consultations can include mechanisms for feedback between a proponent/agency and stakeholders so the latter may learn the extent to which their views have been taken into account in decision-making.

Next, there is participation. As the term indicates, this requires shared involvement and responsibility. Basically, it implies an element of joint analysis and control over decisions and their implementation. In participatory decision-making there is no single source of ultimate control or authority. The participating parties must discuss and reach a decision by means of an agreed process – for example, by mediation and consensus-building. The partnership can extend to the design and implementation of the proposal.

Finally, there is the situation of local empowerment and control - likely to be only relevant for EIAs, as SEAs will be too extensive in area covered to identify a local “locus” for such control. Here control over the scope, form and content of an EIA is given to the local community(ies) and it is exercised usually through community representatives. This “type” of EIA is uncommon.

Globally, the role of stakeholders in EIA/SEA is expanding and over the past few years there has been a momentum from consultation towards participation. For example, the World Bank (*EA Update* No. 5, 1995) desired participation in special EIA circumstances. Basically, many parties to EIA/SEA have increasingly come to see that there is a “middle ground” between these two positions in which dialogue and discussion can result in an increase of shared decisions to the benefit of the parties and the likely success of the proposed action. Interestingly, recently, the World Bank (*EA Update* No. 26, 1999 replacing No. 5) focuses almost entirely on consultation and virtually ignores participation. The implications of this change of emphasis remain to be seen for the direction of public involvement and consultation in developing countries and countries in economic transition.

Whether or not participation is the aim for public involvement and consultation, governments should identify and encourage decision makers to explore the opportunities between consultation and participation in individual EIA/SEAs. Such forms of public involvement and consultation should be institutionalized when countries are introducing, or amending, EIA procedures. Examples of different approaches to public involvement and consultation in EIA are shown in Box 4.2.



## Box 4:2 Public involvement and consultation in EIA procedures in Moldova and Zimbabwe

### Moldova

In Moldova, the public can undertake its own assessment of the documentation (including the EIA Report if one has been prepared) relating to a proposed project under the Ecological Expertise system, but only if individuals form an association which has to meet certain criteria (for certain types of projects the association has to include at least 100 people) before obligatory registration with a local government entity. NGOs can constitute such an association. Individual citizens may send written comments and/or objections to the authorities that should be taken into account in decision-making, but at the discretion of the competent authorities. National and local government organizations, also, are consulted. In Moldova, public involvement and consultation is restricted to commenting on documents, usually produced as a result of an assessment, and apart from provision of written comments from individuals, public involvement and consultation is restricted to approved associations and government bodies.

### Zimbabwe

Public involvement and consultation requirements vary with the scale of a project and its location. Minimum requirements are specified, but the Zimbabwe EIA Policy indicates that, "...more problematic activities should involve more extensive consultation". Public involvement and consultation should encompass all stakeholders and, according to the accompanying EIA Guidelines, be initiated as early as possible in the project cycle and occur at the following main stages:

- scoping and preparation of the EIA Terms of Reference;
- preparation of the EIA Report;
- government review of the EIA Report; and
- the preparation of terms and conditions for EIA Acceptance (conditions attached to a permit).

The results of the public involvement and consultation must be documented in the EIA Report, but the proponent and competent government authorities are not under any obligation to take account of them in decision-making.

*Source: Bisset (2000).*

## 4.8 Improving practice in stakeholder involvement in EIA/SEA

Given that public involvement and consultation is considered essential in EIA/SEA, how can it be improved? The difficulties and constraints that occur in many countries are well known. These are:

- identification and then inclusion of all interested and affected parties in EIA/SEAs;
- linguistic and cultural diversity making mutually intelligible communications problematic;
- illiteracy;
- lack of local knowledge and comprehension regarding the scale and nature of certain types of development projects;
- unequal access to public involvement and consultation (for example women); and
- time/cost implications of dealing with these difficulties.

There are other difficulties, for example in some communities there is a poor understanding of EIA and it can be difficult to focus discussions within an EIA "frame". Also, consultations always occur within a local historical context in which past and current events affect the views of consultees and can affect the progress of consultations. Finally, a proposed project can be a political "symbol" and consultees respond to questions, from outsiders, in a purely political way. Careful selection of stakeholders, "triangulation" or cross-checking

of answers from stakeholders and, of course, patience and culturally sensitive persistence can all help to overcome these problems.

Due to these difficulties, it has been easier to involve NGOs than local communities, and therefore involvement and consultation has been, in many cases, dominated by such organizations acting as substitutes for local people. Although convenient, there are two major drawbacks to an over-reliance on NGOs. First, they may not always accurately represent the views of local people. Secondly, continuing involvement in EIA/SEAs can divert scarce resources away from their remit and day-to-day activities.

Stakeholder involvement and consultation can play an important part in ensuring the success of a proposed development initiative, even if an EIA/SEA is not undertaken. It is most beneficial if it occurs at the time of identification. This is of particular relevance if a government decision has been made to assist the overall socio-economic development of a particular area. A government may have some specific projects in mind and can proceed on that basis. Alternatively, it can ascertain whether local communities/organizations have their own ideas for development initiatives and act accordingly. Involvement at the identification stage is actively encouraged by many lending and donor institutions and can be extremely beneficial in the context of government or public sector initiatives. In terms of the private sector, there is much less opportunity for such involvement because of the overriding need for confidentiality and profitability. Future EIA/SEA work can be made easier and more effective if stakeholder involvement has occurred earlier at the stage of identifying initiatives.

Once an initiative has been identified and an EIA/SEA is to be implemented, involvement can occur at various stages. The nature and timing varies from country to country. Increasingly, the first stage is undertaken during scoping and prior to the preparation of a ToR for the EIA/SEA.

It is very important that a plan or framework for stakeholder involvement is prepared before EIA work begins. It is essential to have such a framework or plan because there is an understandable tendency for EIA practitioners to focus their attention on the technical aspects of the EIA work to the detriment of the consultative process. Indeed, certain multilateral lenders such as the International Finance Corporation and the European Bank for Reconstruction and Development (both primarily focused on the private sector) require preparation of *Public Consultation and Disclosure Plans*.

Thus it is preferable if such a plan is an integral component of the ToR. In this way the EIA/SEA can benefit from involvement, at specific times, and those involved can be kept informed of progress and the ways in which their concerns and views have been considered and dealt with in the EIA/SEA. If it is not possible to integrate a plan for involvement into the ToR then it is best to prepare a separate document, which is based on the ToR, outlining the programme for involvement. Preparation of this document is the responsibility of the organization requiring an EIA - usually the task is delegated to specialists with knowledge of local cultures and techniques of stakeholder involvement. By this means the likelihood of cost-effective involvement is increased substantially.

Box 4.3 presents an example of a stakeholder involvement and consultation programme as part of an SEA. The SEA was implemented to predict the impact of alternative development scenarios on an area within a 30km radius of the Victoria Falls on the border between Zimbabwe and Zambia. This programme had both consultative and participatory elements as many of the results determined the direction and scope of the SEA work. It shows the stakeholders identified and the techniques to be used to obtain their views. It is presented as an indication of the type of overall approach that can be

used for stakeholder involvement and consultation (it is perhaps a little more complex than would be normally expected because of the transboundary aspects!).

To prepare a plan for involvement will require consideration of the following aspects:

- objectives of the EIA/SEA;
- identification of stakeholders and, if any are transhumant<sup>7</sup> or pastoral, mapping of their routes in time/space;
- budgetary/time constraints and opportunities;
- identification of appropriate techniques to involve stakeholders;
- traditional authority structures and decision-making processes;
- identification of approaches to ensure “feedback” to stakeholders;
- identification of mechanisms to ensure consideration of stakeholders’ views/opinions/suggestions by the study team; and
- need to guide involvement to focus on issues.

It is very important to formulate a strategy to maintain a continuing interest on the part of stakeholders, in particularly lengthy EIA/SEAs. In the context of project EIAs, it may be that local people will rapidly lose interest if they feel that there are few visible benefits for their communities from their involvement in the EIA.

There are numerous techniques that can be used to involve stakeholders, especially the public, in EIA/SEA. These include:

- public meetings (these are “open” with no restriction as to who may attend);
- advisory panels (a group of individuals, chosen to represent stakeholder groups, which meets periodically to assess work done/results obtained and to advise on future work);
- open houses (a manned facility in an accessible local location which contains an information display on the project and the study. Members of the public can go in to obtain information and make their concerns/views known);
- interviews (a structured series of open-ended interviews with selected community representatives to obtain information/concerns/views);
- questionnaires (a written, structured series of questions issued to a sample of local people to identify concerns/views/opinions. No interviewing may be involved); and
- participatory appraisal techniques (a systematic approach to appraisal based on group inquiry and analysis and, therefore, multiple and varied inputs. It may be assisted, but not controlled or directed, by external specialists).

<sup>7</sup> Seasonal movement of livestock and especially sheep between mountain and lowland pastures either under the care of herders or in company with the owners.

### **Box 4:3 Stakeholder involvement programme: Victoria Falls SEA and Master Plan**

The objectives of the stakeholder involvement programme were to:

- inform them of the SEA study, its objectives, work to be done, timing and outputs (SEA report and outline Master Plan);
- obtain their views on important issues and concerns to be investigated in the SEA;
- obtain their views on future actions which could be taken to manage the Falls area;
- keep them informed of the progress of the SEA and Master Plan preparation actions and the manner in which their concerns/recommendations were considered in preparing the Master Plan.

This programme of involvement was aimed, primarily, at local residents (in their various communities and groups), NGOs with a local base, also the private sector, tourist visitors and local and national government agencies.

#### **Approach**

First, those groups likely to be most affected by expected economic and environmental changes in the Falls area were identified. Two anthropologists with local knowledge of conditions in the study area and who spoke the main local languages in addition to English were responsible, with the team leader, for identifying the groups and the appropriate involvement techniques.

There were four broad categories of residents and interest groups each needing special techniques. First, there were the indigenous communities, mostly village-based under traditional authority, with well-established institutions and customary decision-making processes. These were used as a mechanism to involve local people. It was not possible to consult all villagers; therefore, a representative sample of villages was identified and involvement undertaken via the chiefs or headmen. In a number of cases open public meetings were arranged to allow individuals to participate. It was expected that both genders would have equal access to the involvement process as a number of communities are matrilineal and women have a respected status.

Secondly, there were residents not part of traditional settlements, including most of the residents of Victoria Falls and Livingstone towns and the ZESCO township near the Falls in Zambia. Such communities have many diverse interests and their social organization is correspondingly more complex. Views were obtained via a range of voluntary organizations and other groupings selected to represent a cross-section of interests. For each selected organization, two or three representatives were interviewed in a semi-structured way. Organizations consulted included community development and resource user groups (for example, the curio sellers in Zambia), neighbourhood and/or residents' associations, company settlements (ZESCO), co-operatives and church- and gender-based groups.

Two open public meetings and a series of open houses were held in Victoria Falls town and Livingstone to provide a further opportunity for local opinions to be obtained. The anthropologists ensured that the views of the urban "poor" were consulted. This was achieved by a series of interviews with residents in high-density housing areas or "informal" settlements.

Another important social category included those closely linked to and dependent on the private sector. In Zimbabwe, companies and individuals prominent in the provision of accommodation (hotels, lodges and camp areas) and activity-based pursuits (safari operators, tour companies), dominate this sector. In Zambia, the situation is more complex. Livingstone is an important regional economic centre with parastatal and private sector industries. In Zimbabwe the views of the private sector on the main issues facing the Falls area are well-known. The Zimbabwe Council for Tourism has conducted its own studies and monitors the views of visitors on a continuing basis. The opinions of the private sector in Zambia were less well-known and special effort was needed to ensure that they were obtained. This involved identification of trade associations and organizations such as Chambers of Commerce and conducting semi-structured interviews with relevant individuals. The views of visitors to the Falls area, also, were obtained by a structured questionnaire administered on a random basis by trained interviewers.

These activities were supplemented by a media campaign involving the local press, radio and TV to raise general public awareness of the study and its aims.

*Source: IUCN (1996).*

There are a number of basic principles to be followed when undertaking stakeholder involvement:

- sufficient relevant information must be provided in a form which is easily understood by non-experts;
- sufficient time must be allowed to individuals to read, discuss and consider the information and its implications;
- sufficient time must be allowed to enable views and opinions to be presented;
- a response must be provided to issues/problems raised or comments made by individuals (this feedback is very important if public confidence in the involvement process and the EIA system is to be maintained); and
- selection and timing of venues or contexts must encourage the maximum attendance and free exchange of views (including attendance of those who may feel less confident about expressing their views, such as women and older people).

The main challenge is to identify and involve individuals and groups likely to be affected but whose interests are not necessarily reflected by local/national government organizations or NGOs. It is essential to identify representatives for such affected individuals and groups and to obtain their input. Examples of such representatives are:

- traditional authorities such as village headmen, tribal elders, and religious leaders;
- voluntary organizations such as local community development or users' groups, kinship societies, recreational groups, neighbourhood associations, labour unions, gender groups, ethnic organizations, and cooperatives; and
- private sector representatives such as private business interest groups, trade associations, or professional societies.

In many situations it is very important to obtain the views of women because of their varied social and economic roles. Special efforts need to be made to identify the best means of obtaining their views. It can be useful to divide stakeholders into primary and secondary stakeholders as discussed above. Additionally, it can be helpful to describe each stakeholder in terms of their importance and ability to influence key decisions (sometimes referred to as undertaking a stakeholder "force field" analysis).

It is relatively easy to identify those stakeholders who have a formal responsibility for the management of natural resources and human welfare. Usually, there will be local or provincial government entities (for example, town or district councils) and perhaps local outstations of national government ministries, departments or agencies. Of particular relevance will be those concerned with:

- land use planning and/or management;
- natural resources (water, minerals);
- cultural heritage;
- health;
- social infrastructure (for example, education);
- transport;
- agriculture/forestry; and
- wildlife.

This list is not exhaustive and the appropriate ministries and departments should be identified for each EIA/SEA. In some countries there will be a need to involve relevant parastatals such as those concerned with water supply, power generation and transmission and tourism if their interests may be affected by a proposal.

Similarly, it is relatively simple to identify NGOs. Those active in local community and/or economic development are likely to have a local presence or office. In many cases it may be necessary to contact a national office, likely to be located in the capital city. Sometimes it is necessary to determine who has “standing” *vis-à-vis* an EIA/SEA. For example, an international environmental NGO may have a national presence, but not be working in the study area. The question then arises whether or not it should be involved. There is no simple, correct answer. It will depend on specific local/national circumstances. International NGOs should never be used as a substitute for a local entity.

There is no single correct approach to stakeholder involvement. The choice of techniques and the mix employed will depend very much on the circumstances of each EIA/SEA and the results of any analysis of stakeholder influence (force field) that may have been done. For all EIAs and some SEAs it is imperative that the advice of an anthropologist/rural sociologist (with local knowledge if at all possible) is used and a stakeholder involvement plan is prepared. Further, it is very helpful if widespread publicity regarding the EIA/SEA and the programme for stakeholder involvement can be generated through the media, especially via radio and newspapers.

Once the plan for involvement has been prepared, the EIA/SEA work can begin. Below, the discussion focuses on EIAs and those SEAs that are similar in terms of timing and reporting. There are some SEAs, whose numbers are likely to increase in the future, that do not fit the typical EIA template (see above).

Current EIA/SEA practice shows two main stages at which involvement occurs: scoping/preparation of ToR and on the release of the draft/final EIA/SEA report. However, depending on circumstances and opportunities it is possible to be more innovative and extend involvement to additional EIA/SEA phases. The possibilities and benefits are outlined briefly below. The context of specific EIA/SEAs will determine the scale, timing and nature of involvement, but it is useful to consider the implications of all options before selecting a preferred involvement strategy that suits a particular EIA/SEA.

The stages at which public involvement and consultation may occur are:

- *Design and authorization decision;*
  - **scoping** to prepare the ToR for an EIA/SEA; and
  - **appraisal** of proposed action (during conduct of the EIA/SEA/feasibility studies) at release of preliminary/interim report and/or the draft/final report.

In both cases the consideration of alternatives is important.

- *Implementation phase*
  - **implementation** of the action (application of EIA/SEA recommendations); and
  - **evaluation** of the action and its performance (extent to which an action has achieved its objectives).

In both cases scrutiny of the actual environmental is the outcome.

Public involvement and consultation at these different stages may have a variety of objectives and requires appropriate approaches and strategies. Also, the extent to which the involvement and consultation becomes participatory – that is, when stakeholders are able to influence or control decision-making – will vary according to the phase or stage of the involvement and consultation process, as discussed in the following.



### *Scoping*

Scoping is the term used to describe the process undertaken prior to preparation of ToRs, which has the following objectives (these expand on those provided in Chapter 3):

- inform participants of the EIA/SEA and its objectives;
- define time/space boundaries for the EIA/SEA;
- identify feasible alternative designs and locations;
- provide guidance on the nature and scale of the issues, especially likely significant impacts, to be examined;
- obtain local knowledge on the characteristics of the local area; and
- define the essential components of a plan for public involvement and consultation.

Scoping can be undertaken in a number of different ways. It may involve a meeting or series of meetings “behind closed doors” involving only the proponent and a number of concerned agencies. Alternatively, it may be “open” with public meetings (open to all local interested people and groups) or organized by means of a workshop or seminar to which stakeholders are invited.

Of course, the selection of participants is a crucial factor in determining the representativeness of any scoping activity. Scoping exercises involving a workshop or similar meeting, require careful preparatory work and planning covering:

- background information to be provided to participants;
- organization of sessions during the workshop/seminar;
- expected outputs; and
- provision of a workshop/seminar organizer.

### *Appraisal and EIA/SEA report preparation*

One option for initiating involvement during appraisal is to prepare an early preliminary or interim report that describes the results obtained to date, and whether any new issues have been identified. This report can be a focus for involvement and shows stakeholders, who may be unfamiliar with EIA/SEA, the type of work done and the nature of the output. This can be beneficial as it allows an additional opportunity for informing stakeholders of the aims of the EIA/SEA and to increase their understanding of EIA/SEA work. An enhanced appreciation of the contribution of EIA/SEA to social welfare improvement and environmental protection may lead to the identification of further issues which should be investigated in an EIA/SEA. If there is no opportunity for such involvement until much later, at the draft/final report stage, then scope for meaningful involvement may be seriously constrained by lack of time and financial resources. It is better to incorporate public involvement and consultation earlier rather than later in the period between scoping and release of a draft EIA/SEA report.

At the stage when a draft or final EIA/SEA report is available, there are two main issues and the authorizing agency reserves the right to consider such representations but not necessarily to base a decision on them. It can be useful at this stage, whether or not involvement has been participatory, if a plan incorporating participation is devised for project implementation and evaluation activities.

### *Implementation*

During implementation, (e.g. construction and operation of a facility), EIA/SEA recommendations on mitigation and monitoring should be implemented and, if necessary,



developed further. Increasingly, consultative and participatory processes are established to “manage” development-environment interactions, for example by means of liaison committees. Again, participation is increasingly seen as essential to create favourable social conditions to help ensure the eventual success of a project. In the case of the Dahanu power station near Mumbai (Bombay), India, local people and NGOs had little faith in the ability of the State Pollution Control Board to monitor the effects of air pollution on crops. One possible strategy, which was the focus for discussions, would have enabled local NGOs to monitor the emissions.

### *Evaluation*

A related but distinct exercise is to evaluate the extent to which an action achieves its objectives (economic, social and environmental). It is useful to incorporate the views of stakeholders in such evaluations; obtaining multiple perspectives on success can identify social/organizational sectors which may feel that an action has either not been a success or is, in fact, harming their interests. Such views may, if not addressed, lead to increasing local disaffection or even alienation from the action, thus helping to ensure that it fails. If participatory involvement is undertaken on a regular basis, such feelings can be identified and remedial actions formulated and implemented.

In some specific cases, involvement may be restricted by the need for confidentiality. Certain information may need to be kept apart from involvement processes because its wider availability may threaten national interests (for example, defence projects) or commercial advantages in the case of private sector operations in a competitive situation. Any restrictions on involvement will relate to specific data on raw material inputs, processes and outputs and not to the range of stakeholders involved or the extent, type and nature of their involvement. International EIA/SEA practice is based on the need for confidentiality to be demonstrated (see discussion of the Århus Convention above) before restrictions on information disclosure can be applied. Generally, very few project EIAs raise issues of confidentiality.

## **4.9 Costs**

Adequate consultation takes time and resources and costs money. This is especially true for EIA/SEAs that include analysis of impacts in remote locations with cultural diversity. Proper provisions have to be made in the budget to meet the costs. Also, sufficient time has to be allocated within the EIA/SEA timeframe, to enable the consultation results to be analysed, used in the EIA/SEA, and feedback provided to the stakeholders. Issues which need careful consideration include:

- EIA/SEA team time, travel and accommodation costs to support the work (especially the data collection, analysis and reporting work which is time-consuming and often neglected);
- hiring of social scientists with local knowledge and experience;
- travel costs and “sitting allowances” to enable certain individuals to attend meetings;
- preparation of materials in local languages; and
- management of media publicity.

In a few countries (e.g. Canada), funding has been available to support stakeholders especially sparsely populated areas. This practice uses public funds and is unlikely to be used in many developing and transitional countries. Occasionally, large externally-funded projects may have monies available for such “intervener” support, but it is not likely to occur very often.

Since stakeholder involvement and consultation means additional expenditure it is important to find the most cost-effective and efficient means of integrating it in EIA/SEAs. This is especially true as there is increasing role for stakeholders in overall identification, design, appraisal and implementation of proposed actions (whether or not they might be subject to EIA/SEA). There is a potential for confusion, “stakeholder fatigue”, and unnecessary expenditures if this issue is not considered carefully in the future. Separate and unrelated stakeholder involvement processes, ultimately, will be detrimental to effective planning and implementation of many needed initiatives. The need to avoid this potential problem makes the case even stronger for comprehensive integration of EIA/SEA in identification of initiatives and throughout its subsequent project life-cycle.

#### 4.10 Future trends

To summarize, the increasingly important role of public involvement and consultation is in accordance with global trends in democratization, increasing accountability and the emphasis on “good governance”. As well as leading to better identification, preparation and implementation of selected actions, it also has positive effects on their eventual success through encouraging social commitment and ownership.

There are three main trends that are likely to be increasingly influential in the future, but not necessarily everywhere and at the same time. These trends are use of mediation in conflict resolution, use of traditional knowledge and the increasing role of participatory approaches in EIA/SEA.

##### *Use of mediation in conflict resolution*

An increase in the number of public involvement and consultation processes that are moving towards participation may in some contexts lead to increasing conflicts between the different stakeholders (including the proponent and government). This has been an issue in certain developed, high-consumption countries. Purely consultative processes cause conflict, but decision makers have more opportunities to ignore it. In many cases the conflict is channelled into existing political debate and, if it is not, then direct action can be taken, by aggrieved parties, through such activities as non-cooperation with authorities and other obstructive tactics. Conflict has led to the development of mediation as a means of increasing consensus on contentious issues. Mediation involves:

- joint fact-finding;
- informed dialogue; and
- joint and creative problem-solving.

Mediation is a voluntary, collaborative process in which mutually acceptable solutions are derived through face-to-face dialogue and negotiation between representatives of the key stakeholders who must be accountable to their constituents. A mediator who must be acceptable to all parties and retain independence and impartiality, throughout the entire mediation process, assists the process. It is important that all parties have equal access to information and are able to withdraw at any time. No party is forced to accept an agreement. There is no guarantee that consensus will be attained, but experience has shown that mediation can be beneficial when the issues refer to value differences (not moral beliefs of right and wrong) and where the problematic areas are discrete, well defined and not open-ended.

A skilled mediator may be able to assist stakeholders in finding common ground. In most cases, however, the range of interests and the different values of the participants will

mean that consensus is unlikely. The focus of attention then should be on minimizing the areas of dispute, and narrowing it to those key issues that cannot be resolved and leaving it to the decision-making process to arbitrate among the different positions (i.e. determining the “winners” and “losers”).

Mediation, as described above, is a product of high income and consumption countries and its applicability in other socio-political and cultural settings is not yet known.

It assumes not only equal access to information, but also an equal ability to use it.

This ability depends on a certain educational level among the participants, something that may be difficult to ensure in many localities. It might be possible to overcome this difficulty with technical advisors working on behalf of disadvantaged stakeholders, but this would add to the expense of the exercise.

Mediation assumes, also, that it is possible for all stakeholders to agree the selection of representatives who understand the role of a “representative” in such decision-making actions. More fundamentally, it may be necessary to limit the number of stakeholders to make mediation manageable. Thus, the selection of key stakeholders, and their representatives, will be a major issue - which stakeholders/representatives should be selected and using what criteria? Despite potential difficulties it is certainly worth attempting to use the current mediation model and test its effectiveness before amending or replacing it with an alternative approach.

The use of mediation is most likely in localities with cultural and socio-economic diversity where multiple interests exist. In other situations, for example, rural areas with considerable cultural homogeneity, the diversity of interests will be less and traditional decision-making for a, such as the Batswana *khotla*,<sup>8</sup> may be able to present or reach a consensus position. Of course, the policies of external financing agencies will need to be taken into account, for example, ensuring that the interests of women have been effectively incorporated into any consensus position adopted by a traditional forum. Such issues require careful handling.

Conflict management and dispute resolution approaches are beginning to be applied in a number of EIA/SEA processes. As recognized by the World Bank and other international agencies, the use of these approaches in developing countries must be consistent with local practices. The objective is to define traditional mechanisms for making agreements, for negotiations, and for managing conflict in affected communities. Understanding and working within cultural expectations and practices may enhance consultation and participation processes, especially in projects where there are multiple and competing stakeholders or where disputes or conflict are evident (World Bank, 1995).

Principles which will help minimize conflict, particularly if applied consistently from the earliest stages of the planning of the initiative, include:

- involving all those likely to be affected, or have a stake in the matter;
- initiating involvement and consultation as early as possible (but care is needed to have design information sufficiently advanced to be able to respond meaningfully to questions. Lack of project-related information that can be transmitted to stakeholders can be seen by some stakeholders as a sign of being unprepared and lead to accusations of “wasting their time”);
- treating people honestly and fairly, establishing trust through a consistency of behaviour;

<sup>8</sup> The *khotla* is a local-level/village consultative forum in Batswana political decision-making, Botswana.

- being empathetic, putting yourself in the position of the other party, and looking at the area of dispute from their perspective;
- being flexible in the way alternatives are considered, and amending the design of the initiative wherever possible to better suit the interests of other parties;
- where others' interests cannot be accommodated, mitigating impacts to the greatest extent possible and looking for ways to compensate for loss and damage;
- establishing and maintaining open two-way channels of communication throughout the planning phase, and beyond into implementation; and
- acknowledging the concerns and suggestions of others, and providing feedback on the way these matters have been followed up and evaluated.

Where conflict arises, it should be defused as early as possible. The use of an independent, mutually acceptable third party as the convenor of discussions between disputants can improve the chances of satisfactory outcomes. It is desirable for that third party to be trained in the principles of negotiation or mediation, and to be able to assist the parties in dealing with the feelings, facts and process issues associated with the dispute.

### *Traditional knowledge*

Traditional knowledge tends to be associated with indigenous peoples. Such peoples are difficult to define, but the following definition (Canadian International Development Agency, 1999) can be used;

*"indigenous peoples are self-identifiable as a people, wholly or partially self-governed, and live within a larger nation".*

They are not necessarily the same as local communities. Many local communities are part of a dominant national culture.

It is estimated that there are approximately 300 million indigenous peoples worldwide. Many initiatives in developed and developing countries can affect such peoples. Traditional knowledge applies also to non-indigenous peoples, but in EIA/SEA there has been a tendency to use the dominant knowledge system (e.g. modern "western" scientific knowledge) as the basis and format for identification and description of environmental impacts. Indigenous traditional knowledge is by definition non-dominant and has a different perspective on local environmental conditions, causes and results of environmental change, wildlife and social-environmental interactions including appropriate natural resource management regimes.

Indigenous traditional environmental knowledge is a body of knowledge and beliefs transmitted orally and via shared understanding of first-hand observation. It includes a system of classification of natural phenomena, a set of empirical observations about the local environment and a system of self-management governing resource use. Such knowledge is not equally shared amongst community members, but varies according to gender, age, social status and profession (e.g. healer or hunter). Indigenous traditional environmental knowledge represents a specific cultural interpretation of reality in which the sacred and the secular are interlinked. It can be considered as a worldview upon which collective and individual behaviour can be founded.

Although traditional knowledge tends to be associated with indigenous peoples there exists specific knowledge and expertise amongst groups and communities that exist in "peripheral" areas of industrialized countries. An example might be the knowledge of artisanal fishermen in the Mediterranean compared to the knowledge of professional marine and fisheries biologists.

There are a number of reasons for trying to incorporate traditional environmental knowledge into EIA/SEAs. First, to improve the information base for the EIA/SEA. Secondly, to help improve the identification and prediction of impacts, and thirdly to help design an initiative and apply mitigation measures that help protect the indigenous peoples while helping to ensure the initiative achieves its objectives. Such incorporation of traditional environmental knowledge can also help to obtain local support for the initiative. Basically, such activities involve an adaptation of EIA/SEA to incorporate traditional environmental knowledge, but only under the overall framework of the dominant knowledge system.

A more radical approach involves the production of EIA/SEA reports that present multiple impact scenarios. One of these will be based on the application of the “western” scientific model. However, it will be accompanied by other impact scenarios based on traditional environmental knowledge perspectives. These versions of the same “reality”, it is thought, will assist all stakeholders better understand the range of issues and concerns and thus contribute to public/political debate and eventual decision-making.

There is the future possibility of some EIA/SEAs (probably mostly EIAs) being produced by indigenous peoples ensuring that their worldview is an input to decisions, or in certain circumstances being *the* environmental basis for decisions. In such situations where an EIA/SEA is under indigenous control, then participation merges with the EIA/SEA work and the two become virtually indistinguishable (always providing that intra-cultural stakeholders are identified and included in the study given that indigenous communities are also heterogeneous). Examples of this type of EIA/SEA are very rare. There are some interesting cases from countries such as Australia, Canada and the USA, which have a long history of EIA and substantial and increasingly vocal populations of indigenous and culturally distinct peoples that may point the way to future EIA/SEA practice. It may not be too long before the concept of pluralistic EIA/SEAs is debated in the literature and eventually practised in specific contexts (Mulvihill and Jacobs, 1998).

It is possible to consider this approach as a viable option for extensive EIA/SEAs of large-scale, resource-based projects in countries such as Canada where, compared with other countries, there are numerous members of indigenous communities with educational attainments enabling them to play a full role in such EIA/SEAs. Unfortunately, this situation does not pertain among most indigenous peoples, and indeed most rural populations throughout huge areas of Africa, Latin America and Asia. Attempting participatory and pluralistic EIA/SEAs may not be feasible in the short to medium term for both practical and financial reasons, but in the longer term they may become a reality, although probably only on a periodic rather than a regular basis.

## Key Points: Summary of Chapter 4

### Background and context

The evolution of EIA/SEA is being accompanied by an ever-expanding emphasis on public involvement and consultation. The preferred term is “stakeholder” rather than “public”, and involvement and consultation is dependent on information disclosure in a form that can be used by the stakeholders. The Århus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters is an important driver for better (and more extensive) stakeholder involvement and consultation.

### Innovations

The main innovations have been the clarification of types of stakeholder involvement and consultation and the means of implementing them effectively. It is realized that there may be differences in the way stakeholder involvement and consultation is used in SEA as compared with EIA because of political sensitivities that may apply to government policies and programmes. The two main innovations are; use of mediation (albeit mostly confined to developed countries) and the recognition of the role of traditional and indigenous knowledge (relevant particularly, but not exclusively, in developing and transitional countries and developed countries with first nation populations).

### Challenges

The main challenges are:

- Ensuring that the principle of stakeholder involvement and consultation is applied more widely; and
- Ensuring that the “spirit” of the principle of stakeholder involvement and consultation is applied effectively (this is the MAJOR challenge) as well as the specifics required by regulations and guidelines.

### References

- Bisset, R. (2000) Consultation and Public Participation, in Lee, N. and George, C. (eds.) *Environmental Assessment in Developing and Transitional Countries*. Chichester: John Wiley & Sons.
- Canadian International Development Agency (1999) *Handbook of CIDA Project Planning and Indigenous Traditional Knowledge*. Draft 1. Hull, Quebec: Canadian International Development Agency.
- IUCN (1996) Strategic Environmental Assessment of Development Around Victoria Falls, IUCN-ROSA, Harare, Zimbabwe.
- Monnikhof, R. A. H. and Edelenbos, J. (2001) Into the Fog? Stakeholder Input in Participatory Impact Assessment. *Impact Assessment and Project Appraisal* 19 (1), 29-39.
- Mulvihill, P. R. and Jacobs, P. (1998) Using Scoping as a Design Process. *Environmental Impact Assessment Review* 18(4), 351- 369.
- Richardson, T. et al. (1998) Parallel Public Participation: An Answer to Inertia in Decision-Making. *Environmental Impact Assessment Review*, 18, 201-216.
- World Bank (1995) Public Involvement in Environmental Assessment: Requirements, Opportunities and Issues. EA Update No. 5. Washington DC: World Bank.
- World Bank (1999) *Public Consultation in the EA Process: A Strategic Approach*. EA Update No. 26. Washington DC: World Bank.





## Chapter 5: Strategic Environmental Assessment

*This chapter provides information and guidance on arrangements for introducing and implementing strategic environmental assessment (SEA). In addition, major aims, principles and elements of SEA are described. These are based upon international experience and must be adapted to the situation in developing and transitional countries, where SEA practice is still limited or absent.*

### 5.1 Context and challenges

Strategic environmental assessment (SEA) is widely recognized as a promising approach to take account of the environmental effects of policy, plans and programmes. Although relatively new, its development and adoption in the last decade has been impressive. Formal provision for SEA has been made by a number of countries, mainly in Europe and North America, but with some notable examples elsewhere. The arrangements and procedures for SEA are relatively diverse, although some degree of standardisation likely will take place when the European Directive on SEA comes into force in 2004. An increasing number of countries in transition now have some type of provision for SEA processes or elements but the use of SEA is still limited in many developing countries, except when borrowing countries are required to carry out sector or regional assessments for World Bank financed programmes. However, there are increasing demands for information on and training in SEA from developing and transitional countries.

Use of SEA in developing and transitional countries is promoted for a number of reasons. Because of its requirements, this approach can help to strengthen openness and transparency in decision-making processes. It also can be a step toward more proactive, integrative approaches to impact assessment and environmental management, as emphasized in discussions at WSSD, and the resulting Plan of Implementation. Particular stress is placed on the need for such an approach to promote sustainable development, for example by reviewing macroeconomic policies, investment, trade and development programmes, and energy, transport and other sector plans that are known to have a significant impact on the environment. In addition, SEA must be focused on the issues that matter most to developing and transitional countries, as indicated by the MDGs and the WSSD Plan of Implementation, which emphasise the linkages of poverty, environment and development.

This approach is broadly consistent with the strategy of the World Bank and other international development agencies of “mainstreaming” the environment in all aspects of their activities. In this regard, it is now a Bank priority to “use environmental assessments more strategically” (World Bank, 2000, 2002; Kjørven and Lindhjem, 2002). If experience with EIA is any guide, Bank policy can be expected to promote the introduction of SEA in developing countries. However, the appropriate form and scope of SEA when developing countries propose to establish their own system is open to debate (Dalal-Clayton and Sadler, 1998a,b). Institutional pre-conditions and arrangements are one of the hurdles to the introduction of SEA. This process is more differentiated than EIA, and the same procedure may not necessarily apply to policies as compared to plans or programmes. Also, there are concerns that SEA may be time-consuming and expensive, especially for the poorer developing and transitional countries, requiring development of cost-effective, easy to apply procedures (Naim, 2002).

In this chapter, the focus will be on the arrangements, procedures and methods that can be used by developing and transitional countries to introduce and implement SEA, bearing in mind the concerns and considerations noted above. The main forms of SEA

and their application to the policy, plan and programme level of decision-making are described, backed by examples from, or relevant to, developing and transitional countries. Also, a framework for SEA good practice is outlined with reference to aims, principles and elements of approach, which are internationally accepted and potentially applicable by all countries. Finally, some of the methods that can be used to carry out SEA are illustrated.

## **5.2 Background**

*This section provides a brief orientation to SEA by reference to three commonly asked questions. A large body of literature on SEA is available, only a small fraction of which is cited here. Those interested in further information on SEA can refer to the following volumes (Therivel and Partidario, 1996; Petts, 1999; and the special edition of the journal "Impact Assessment and Project Appraisal" on SEA published in 2000).*

### **What is SEA?**

The term (SEA) is variously defined and understood. However, many definitions have common or overlapping aspects. Put simply, SEA refers to a formal, systematic process to analyse and address the environmental effects of policies, plans and programmes and other strategic initiatives. This process applies primarily to development-related initiatives that are known or likely to have significant environmental effects, notably those initiated individually in sectors, such as transport and energy, or collectively through spatial or land use change. As with EIA, SEA can and should be interpreted broadly, for example to include social, health and other consequences of a proposed action and their relationship to sustainable development concepts and strategies.

The terms "policy", "plan" and "programme" also mean different things in different countries. Even within the same country, the terms can be used flexibly or interchangeably in the case of plans and programmes. Generally, policy is understood to be an overall directive which outlines, guides or sets a context for the proposed action(s) a government or organization intends to take. It may take the form of a law, document, statement or precedent. Typically, policy is implemented by plans and programmes, which set out actions, options and measures to be carried out in a sector or area. For practical purposes, developing countries and those transitional countries that are not in accession to the European Union can move forward by subjecting whatever is normally understood to be a policy, plan or programme to SEA.

### **Why is SEA important?**

SEA extends the aims and principles of EIA to the higher levels of decision-making when major alternatives are still open and there is far greater scope than at the project level to integrate environmental considerations into development goals and objectives. It allows problems of environmental deterioration to be addressed at their "upstream source" in policy and plan-making processes, rather than mitigating their "downstream symptoms" or project-level impacts. As such, SEA directly responded to what the World Commission on Environment and Development (1987) called "*the chief institutional challenge of the 1990s*".

In addition, SEA can provide early warning of large-scale and cumulative effects, including those resulting from a number of smaller-scale projects that individually would fall under thresholds for triggering a project EIA. When applied systematically, this process affords a means of environmental clearance of key issues related to whether,

where and what forms of development are environmentally sound and appropriate. By doing so, SEA facilitates and contributes to sustainability assurance, for example by evaluating the effect of a national transport plan or programme, *inter alia*, against CO<sub>2</sub> emission commitments made by a country under the Kyoto Protocol.

#### *How does SEA compare to or differ from EIA?*

SEA of policy, plans and programmes differs from EIA of projects in certain respects in addition to those aspects emphasized above, which relate to the higher level of application to decision-making, the broader range of alternatives open to consideration and the greater opportunity to achieve environmental objectives. Some of the distinctive characteristics of SEA compared to EIA, include:

- greater uncertainty about the effects of a policy (general directive) as compared to a project (concrete actions);
- broader range of environmental consequences to be considered (from implications to impacts);
- wider set of linkages and trade-offs with economic and social issues (e.g. a national energy policy or plan compared to a power station); and
- larger scale/ longer time frames to take account of environmental effects and consequences (e.g. implications of CO<sub>2</sub> emissions for climate change).

Yet SEA and EIA also have many similarities and a common foundation. SEA has developed largely as a response to the levels and types of decision-making not covered by EIA. In doing so, SEA has derived, adapted and implemented EIA arrangements, procedure and methodology, particularly at the plan and programme level. Other process models also have been adapted, particularly at the policy level where integrative appraisal and environmental “tests” compress the basic steps followed in EIA, such as screening and reporting.

### **5.3 SEA trends and current “take-up”**

*Although still at a relatively early stage, SEA process development and take-up has been rapid in the past few years and further changes are pending. These trends are briefly described in this section with reference to their implications for developing and transitional countries.*

In broad outline, the path of SEA development can be divided into two main phases, with a new one about to begin (Sadler, 2001):

- *Formative stage* (1970-1989) when certain legal and policy precedents for SEA were established under EIA frameworks. Generally, SEA was limited in its role and scope, and only the USA applied EIA formally to plans or programmes under NEPA and state laws, such as the California Environmental Quality Act (1970).
- *Formalization stage* (1990-2001) when provision for SEA was made by an increasing number of countries, including transitional countries of Central and Eastern Europe and newly Independent States (NIS). This process also became increasingly diversified in relation to EIA arrangements as described later.
- *Extension stage* (2001-onward) when SEA is on the threshold of widespread adoption and further consolidation as a result of international legal and policy developments. These include the European Directive on SEA, which will come into force in 2004 in member states and the SEA Protocol to the UNECE Convention on Transboundary EIA. Together, these frameworks possibly will triple the number of developed and transitional countries, including NIS, that make provision for SEA over the next decade.

In other parts of the world, a small number of countries have SEA processes or elements in place already (e.g. Brazil, Chile, South Africa) and recently China passed a new EIA law that includes provision for SEA of plans and programmes. Also, greater emphasis being given to sector and regional assessment by the World Bank, which promises to introduce SEA processes and elements more widely (see next section). So far, borrowing countries have made limited use of these instruments (which are described later) and also there are regional differences in their application. Other multilateral financial and international assistance agencies use SEA-type instruments and requirements (e.g. Asia Development Bank, European Commission) or are considering their introduction to promote environmentally sound lending and development (e.g. EBRD, 2002<sup>9</sup>).

#### **5.4 SEA arrangements and procedures**

*This section provides a brief introduction to institutional frameworks for SEA. It focuses on the arrangements and procedures that are in place in countries where SEA is relatively well established, and on institutional requirements and instruments that can be expected to influence or be of interest to developing and transitional countries.*

To date, there are only a limited number of fully operational SEA systems from which lessons of implementation can be drawn. For example, many NIS have SEA provisions but do not necessarily implement them (Cherp, 2001). Although still limited to certain countries, SEA practice extends across an increasing number of sectors and areas of application. Examples of SEA systems that have been implemented for some time are summarized in Box 5.1. The list is illustrative of the range and type of institutional arrangements that are in force. In addition, the EC Directive is included for comparison. There are also other countries, international organizations and state/provincial jurisdictions that have comparable levels of process development or SEA practice that will be of interest to developing countries. These include Czech Republic, Hong Kong SAR, Slovakia and South Africa.

As indicated in Box 5.1, formal provision for SEA can be made under EIA or other legislation, or separate administrative order or policy guidelines. Generally, SEA systems that apply to plans and programmes are based or modelled on EIA legislation, and follow the same or comparable requirements and procedure. In contrast, SEA systems that apply only or primarily to policy or legal acts are based on non-statutory provision and procedure. These systems either operate similarly, but separately from the EIA process (e.g. Canada, Denmark) or use a comparable process of policy appraisal, which integrates environmental with other factors (e.g. UK, Netherlands E-test). A less formal, minimum procedure provides for greater flexibility in introducing and implementing SEA to complement the way the law or policy-making process works. However, non-statutory SEA frameworks also lack rigour, transparency and consistency of application, and what constitutes appropriate provision and procedure in relation to policy and legal acts is open to argument.

<sup>9</sup> See the draft revised environmental policy of EBRD. It is available in English and Russian at [www.ebrd.com](http://www.ebrd.com). This policy is expected to be in force in 2003.

Certain transitional countries have enacted comprehensive EIA legislation that applies to policies, plans and programmes as well as projects (Czech Republic, Slovakia and Poland). Further particulars can be found in Box 5.2. The Czech Republic *EIA Act No 244/1992* applies to concepts submitted and approved in defined fields. It has been applied to a number of proposed actions, including energy and transport policy and to the National Development Plan for 2000-2006. Under the Czech Act, SEA can be implemented through either traditional EIA or appraisal-based procedure, and both approaches have been used (Dusik, 2001). (Provision for a modified procedure for SEA of policy, plans or programmes is contained in Australia's *Environment Protection and Biodiversity Conservation Act*, 1999).

The European Commission SEA Directive (2001/42/EC) must be transposed into legislation by member states and implemented by 2004. It is modelled very closely on procedural requirements set out in the earlier EIA Directive (97/11/EC) and applies to certain plans and programmes that set the framework for consent of projects subject to EIA. Key provisions relate to the information to be included in the environmental report (the written output of an SEA), public involvement, review of alternatives and factors to be considered in decision-making (see Box 5.3). The Directive is important internationally because it will influence non-member states, notably accession and other transitional countries of Central and Eastern Europe that are required or wish to bring their legislation into line with the European Union. In addition, the SEA Protocol to the UNECE Convention on Transboundary EIA follows closely the provisions and requirements of the Directive and may extend them to Caucasian and Central Asian newly independent states that were party to the negotiation process.

For other developing countries, recent policy and institutional developments at the World Bank have implications for future use of SEA. As part of the new environmental strategy, increasing use is being made of strategic assessment of structural and sector adjustment lending activities (World Bank, 1999, 2000). Regional and sector assessment of Bank financed developments by borrowing countries now take place alongside and often support what the Bank calls "targeted environmental interventions", for example to implement national environmental action plans, promote biodiversity conservation and ecosystem management and build EA and management capacity. In addition, SEA is identified as a key means of moving environmental and social safeguard policies "upstream" to ensure compliance of national, regional and sectoral programmes (Mercier, 2001). Other multilateral and bilateral agencies appear to be moving in a similar direction (Inter-American Development Bank, Canadian International Development Agency).

*Note:* The World Bank recently established a structured learning programme on SEA, which can be accessed via [www.worldbank.org/environment](http://www.worldbank.org/environment).

**Box 5:1 Examples of institutional frameworks for SEA**

Country/ Organization	Provision	Scope and relation- ship to decision- making	Elements of process and procedure
Canada	Cabinet Directive 1990, (amended 1999)	Policy, plan and pro- gramme proposals submitted to Cabinet	Informal procedure, separate from project EIA
Denmark	Prime Minister's Office circular (1993, amended 1995 & 1998 — when requirement became legally binding)	Bills and other Government proposals sent to Parliament or on which Parliament must be consulted	Minimum procedure, separate from project EIA
The Netherlands	<i>Environmental Impact Assessment Decree</i> (1987, amended 1994)  Cabinet Order (1995)	Listed plans and pro- grammes (strategic EIA)  Draft regulations and (potentially) other policy intentions sent to Cabinet (Environmental -test)	EIA procedure applies in full  Minimum, separate procedure, linked to business and regulatory tests
New Zealand	<i>Resource Management Act</i> (1991)	SEA elements provided by policy statements, regional and district plans, which govern resource consents	No definable procedure; part of "effects-based" policy and plan-making
United Kingdom	Guidance on Policy Appraisal and the Environment (1991; amended 1997)  Planning and Guidance Note 12 (1992; amended 1998) to local authorities  Draft Guidance on application of SEA to land use planning (2002)	Policies, plans and programmes developed by central government agencies  Development plans prepared under town and country planning regulations  Attempts to integrate SEA with existing practice of sustainability appraisal of land use plans	Internal procedure of environmental cost- benefit appraisal  Non-prescriptive proce- dure of environmental appraisal  Implementation of the European Commission SEA Directive
USA	<i>National Environmental Policy Act</i> (1969) and <i>Regulations</i> (1978)	Legislation and pro- grammes – actions that can be grouped geo- graphically, generically or by technology	NEPA process applies; specific guidance on preparing generic and programmatic EISs
European Community	Council Directive on the assessment of certain plans and programmes (2001/42/EC). Member states must be in compli- ance by 2004	Plans and programmes in defined areas, includ- ing sectors and land use	Framework law, specifies minimum procedure to be followed by member states
World Bank	Operational Directive on Environmental Assessment (OD 4.00, Annex A, 1989; amended as OD 4.01, 1991, becom- ing OP/BP/GP, 1999)	Bank financed plan or programme (encompass- ing series of sub-projects) for a particular sector or region	Policy encourages use of sector and regional EA by borrowing country

Source: Sadler and Verheem (1996) (updated and amended).



## Box 5:2 SEA arrangements of selected transitional countries

### 1992

Czech Republic EIA Act No. 244 – applies to “concepts” submitted and approved by central state agencies in the energy, transport, agriculture, waste treatment, mining and minerals processing, recreation and tourism sectors (Art. 14, became SEA Act 2002 with all functions transferred to new EIA Act)

### 1994

Slovakia EIA Act – contains requirement to assess basic development policies, territorial plans in selected areas and any legislative proposal that may have an adverse impact on the environment (Art. 35)

### 1998

Polish *Act on Access to Information on the Environment and its Protection and on Assessment of Environmental Impacts* applies to policies, plans and programmes that are required under legislation (came into force in 2000)

## Box 5:3 Summary of information required under the European Commission SEA Directive

- (a) an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;
- (b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;
- (c) the environmental characteristics of areas likely to be significantly affected;
- (d) any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance,
- (e) the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;
- (f) the likely significant effects (1) on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;
- (g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;
- (h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;
- (i) a description of the measures envisaged concerning monitoring;
- (j) a non-technical summary of the information provided under the above headings.

*Source:* European Commission (2001/42/EC) directive on assessment of the effects of certain plans and programmes on the environment.

## 5.5 SEA aims, principles and elements of approach

*EIA aims and principles (described in Chapter 3) also apply to SEA. However, they also require further interpretation and elaboration for SEA. Guidance on SEA aims and principles are described below, with particular reference to the different types and elements of approach that require consideration when introducing this process.*

The aims of SEA can be summarized into two main categories (Sadler and Brook, 1998):

- promote environmentally and socially sustainable development (ESSD) by:
  - anticipating and preventing adverse effects at source;
  - considering and identifying best practicable environmental options;
  - ensuring policies and plans are consistent with ESSD goals and safeguards.
- strengthen and streamline project EIA by:
  - environmental “clearance” of policy and planning issues that are addressed either ineffectively or not at all by EIA (need, justification and major alternatives);
  - early warning of cumulative effects from programmatic or other, spatially related actions;
  - pre-examination of potentially significant effects of specific proposals, thereby reducing the time and effort necessary for EIA (when it can be tiered to SEA as described later).

In addition, the aims of SEA can encompass a “long term” strategy to realize policy and institutional benefits (Sadler, 2001). These derive from what the World Bank calls “mainstreaming” the environment, the use of SEA to integrate ESSD considerations across all sectors of decision-making. Over time, the presumption is that this process will lead to changes in the culture of decision-making, making the environment part of the mandates and actions of sector agencies. In some cases, SEA may be part of a strategy to restructure policy and plan-making or used to institute a more integrative approach. For example, integrated policy appraisal is intended to contribute to a new, evidence-based approach to policy-making in the UK (DTLR, 2002).

Eight guiding principles for SEA process design and implementation are listed below. These should be read in conjunction with EIA principles described in Chapter 3 and also should be applied as a package. Additionally, the following core principles offer indicative guidance on the appropriate scope, orientation and content of the SEA process (Sadler and Verheem, 1996; Sadler and Brook, 1998).

- Fit-for-purpose — the SEA process should be customised to the context and characteristics of policy and plan making;
- Objectives-led — the SEA process should be undertaken with reference to environmental goals and priorities;
- Sustainability-driven — the SEA process should identify how development options and proposals contribute to environmentally and socially sustainable development;
- Comprehensive scope — the SEA process should cover all levels and types of decision-making likely to have significant environmental effects;
- Decision-centred — the SEA process should provide sound information in a form appropriate to the level of decision-making (e.g. statement of implications, issues and/or impacts);
- Integrative — the SEA process should include consideration of social, health and other effects as necessary;
- Participative — the SEA process should provide an opportunity for public involvement, which is appropriate to the level and issues of decision-making;

- Cost-effective — the SEA process should achieve its purpose in a timely and expeditious manner, including, as practicable, setting a context for project EIA.

Closely related to the above principles are SEA performance criteria issued by the International Association for Impact Assessment (IAIA) for use by its members and others (see Box 5.4). The criteria are intended to provide procedural guidance on what constitutes an effective or good quality SEA process. This process is defined by IAIA (2002) as one that informs planners, decision makers and affected public on the sustainability aspects of strategic decisions, facilitates the search for the best alternative, ensures democratic and credible decision-making and leads to more cost and time effective EIA at the project level. In addition, these aspects are suggestive of further performance criteria by which the effectiveness of an operational SEA process can be evaluated against expected outcomes as well as procedural standards.

Principles and guidelines have been issued as a step towards the development of SEA in South Africa (DEAT and CSIR, 2000). These are broadly similar to and elaborate those described above. Certain aspects of the approach recommended for South Africa deserve to be underlined because of their potential importance for many developing countries. A proactive and iterative SEA process is promoted, one which is applied voluntarily and is flexibly integrated with plan and programme processes, rather applied separately and retroactively to review the impacts of their implementation. It focuses attention on the opportunities and constraints that the environment places on plan-making, including the capacity of the resource base to support or sustain different types of activity or levels of development. This approach is seen as most appropriate to the socio-economic, biophysical and political context of the country, where the priorities are sustainable land development and meeting the basic needs of a large percentage of the population. Further information can be found in Rossouw et al. (2000).

International experience confirms the importance of taking a differentiated approach to the conduct of SEA. More than one type of process can be used and/or key elements can be adapted to the context and issues of policy, planning and programming. A frequently made distinction, noted earlier, is between SEA processes that are applied to broad policies as compared to specific plans and programmes. Qualitative assessment, using simplified elements, can be appropriate for broad policies that have indirect and diffuse environmental effects. EIA-based procedures and methods can be appropriate for plans and programmes that have direct and evident environmental effects, e.g. by fixing the location and/or type of specific projects. In other contexts, integrative appraisal may be an appropriate response to the issues or the circumstances of developing countries, for example when national sustainable development strategies are in place (Dalal-Clayton and Sadler, 1998b).

As a “rule of thumb”, answers to the two questions below can be used to help determine the appropriate type of approach (Sadler and Verheem, 1996). These will be particularly appropriate where SEA requirements allow for procedural flexibility as in the Czech Republic (section 5.4) or a flexible, voluntary approach is promoted as in South Africa (above).

- 1.) Will the implementation of the proposal initiate or fix the type, form, location of concrete projects or otherwise lead to directly attributable environmental impacts?  
 Yes: identify and predict the impact of the proposal >> EIA track  
 No: qualitatively assess the effects, issues and implications >> “policy appraisal” track.
- 2.) Will the proposal be subject to economic and social appraisal and are these processes adequate?  
 Yes: carry out an appropriate SEA  
 No: carry out an integrative appraisal.

#### Box 5:4 SEA performance criteria

A good quality SEA process is:

##### Integrated

- Ensures an appropriate environmental assessment of all strategic decisions relevant for the achievement of sustainable development;
- Addresses the interrelationships of biophysical, social and economic aspects;
- Tiered to policies in relevant sectors and (transboundary) regions and, where appropriate, to project EIA and decision-making.

##### Sustainability-led

- Facilitates identification of development options and alternative proposals that are more sustainable.

##### Focused

- Provides sufficient, reliable and usable information for development planning and decision-making;
- Concentrates on key issues of sustainable development;
- Customised to the characteristics of the decision-making process;
- Cost and time effective.

##### Accountable

- There is clear allocation of agency responsibility for the strategic decision to be taken;
- Carried out with professionalism, rigour, fairness, impartiality and balance;
- Subject to independent checks and verification;
- Documents and justifies how sustainability issues were taken into account in decision-making.

##### Participative

- Informs and involves interested and affected publics and government bodies throughout the decision-making process;
- Explicitly addresses their inputs and concerns in documentation and decision-making;
- Has clear, easily understood information requirements and ensures sufficient access to all relevant information.

##### Iterative

- Ensures availability of the assessment results early enough to influence the decision-making process and inspire future planning;
- Provides sufficient information on the actual impacts of implementing a strategic decision to judge whether this decision should be amended, and to provide a basis for future decisions.

Source: IAIA (2002).

## 5.6 Scope of applications and examples of SEA of policy, plans and programmes

*The scope of application of SEA remains incomplete. In this section, information and guidance is given on the different types and elements of approach that require consideration when introducing this process.*

So far, no country appears to subject all environmentally significant government policy, plan and programme proposals to SEA. Certain countries apply SEA to all levels of decision-making, though with varying limitations on their scope of application. Examples include the Canadian, Czech and Dutch SEA systems. In Canada, the SEA process applies to policy, plan and programme initiatives submitted for Cabinet decision. The Czech SEA process applies to concepts in eight sectors, and the Netherlands has two types of SEA process, comprising an “E-test” of regulations and “other intentions” and SEA of specified

plans and programmes. Most countries apply SEA only or primarily at the level of plans or programmes and to a limited range of sectors and areas (e.g. water, waste, transport and energy). These are specified in some cases (as in the Netherlands) and categorized generally in others (e.g. NEPA requirements for programmatic EISs). In the European Commission SEA Directive, both spatial and sector plans and programmes are covered.

### *SEA of policy*

*Policy refers to proposed government actions and options at the highest level. It may be outlined in many different forms, including guidelines, statements, position papers, legislation and strategies. Their assessment needs to be correspondingly flexible as described below.*

SEA has proven relatively difficult to apply to policy, especially at the highest level of government directions and actions. These decisions traditionally have been “off limits” to external scrutiny, and there is often political and bureaucratic resistance to policy assessment. In addition, policy-making processes are fluid and not necessarily straightforward from the standpoint of applying systematic and structured assessment procedure. Many policies evolve in an incremental and non-systematic fashion. In such cases, more flexible forms of SEA are necessary.

Certain countries, notably Denmark and the Netherlands, apply SEA primarily to draft legislation. This process is based on a minimal and flexible procedure, with relatively brief documentation of environmental effects. In both cases, there are modified screening and scoping stages to identify bills that are likely to have environmental implications and to determine the scope of effects. The Netherlands E-test is undertaken jointly with regulatory and business tests and considers four basic environmental and sustainability issues (see Box 5.5). A recent evaluation indicates that the E-test has had little impact on decision-making. SEA of legal acts addresses “policy” at a relatively late stage when it is prescribed explicitly, and the alternatives are far more limited than at the earlier discussion or “white paper” stage.

Other countries apply SEA as an element of policy-making. For example, the Canadian SEA process covers policy, plan and programme proposals that are subject to Cabinet approval. In the past, the record of SEA implementation (which is required by Cabinet Order) has been mixed. However, revised guidance calls for more systematic application and linkage with the sustainable development strategies prepared by federal agencies. In the United Kingdom (UK), environmental appraisal of government policies is carried out under non-mandatory guidelines, and its application is inconsistent. This process is part of a larger framework for policy appraisal, which is centred on economic benefit-cost analysis. Like the UK, South Africa has used SEA on an ad hoc basis to assist policy formulation. An example is given in Box 5.6.

EIA-based procedures can be an appropriate model for SEA of major policies that are systematic and detailed, for example when formulated through a centralised decision-making process, such as those in place in countries in transition. This approach includes detailed impact assessment and provision for public input as part of information gathering. Box 5.7 provides an example of SEA of the Slovak National Energy Policy. Other transitional and developing countries with centralised structures of decision-making that have EIA legislation with provision for elements of SEA at the policy level include the Russian Federation and Ukraine.

### Box 5:5 Netherlands environmental test (E-test) of draft legislation

The *environmental test* addresses the environmental and sustainability effects of a proposed law, together with its enforceability, feasibility and impact on business. The process is internal, informal and intended to be carried out efficiently, with minimum delay on government decision-making. Four questions are considered:

- What are the effects of the draft legislation on energy consumption and mobility?
- What are the effects of the draft legislation on consumption and stocks of raw materials?
- What are the effects of the draft legislation on waste streams and air, soil and water emissions?
- What are the effects of the draft legislation on use of physical space?

Source: VROM (1996).

### Box 5:6 Preliminary SEA for Trade and Industry Policy, South Africa

Under the Regional Economic Forum of KwaZulu-Natal Province, a trade and industry policy was initiated, drawing on a range of inputs including preparation of a regional industrial location strategy. The Council for Scientific and Industrial Research (CSIR) undertook a preliminary SEA to screen the opportunities and constraints to industrial development and establish a framework for rapid assessment of the environmental implications of the policy components as they evolved.

The SEA comprised three main elements:

- *An analysis* of the strengths, weaknesses, opportunities and threats (SWOT) relevant to the KwaZulu-Natal environment (comprising 10 specialist studies);
- *Environmental profiles* of 11 industry sectors (sugar, textiles, chemicals, etc.), listing resources consumed and air, water and solid waste generated by each type;
- *Assessment matrix* to link the industry profiles with the SWOT analysis. This allowed the environmental implications to be identified for component sectors when formulating the trade and industry policy. For example, sulphur dioxide was listed as an air pollution emission for several industry types, and was a major concern in relation to the capacity of Durban and Richards Bay. Other industry types not included in the Preliminary SEA could be profiled quickly, added to the matrix and assessed if the scope of policy were increased.

Source: CSIR (1996).

### Box 5:7 SEA of National Energy Policy, Slovakia

Under the Slovak EIA Act (Part 4, Article 35), there is a requirement to assess:

- basic development policies especially in the areas of energy, mining, industry, transport, agriculture, forestry and water management, waste management and tourism;
- territorial plans for regional and residential settlement in selected areas;
- any legislative proposal that may have an adverse impact on the environment.

The main objectives of SEA are to improve implementation of the environmental policy and the strategy for sustainable development. This process has only an advisory role in decision-making via links to other approval processes. A draft SEA Regulation completed in 1997 prescribed a more detailed procedure for development policies, territorial planning documentation and legislative proposals. →



The SEA of the Updated Energy Policy (UEP, 1997) was completed under the draft regulation and included:

- expert review, including presentation of opinions for public discussion;
- public forum on the UEP, including participation by NGO and industry groups;
- statement by the Ministry of Environment (MoE) on the basis of expert opinion, other comments and public discussion;
- submission of a new version of proposal of the UEP to the Slovak government (subsequently approved).

During SEA process and especially in public discussion, NGO representatives strongly criticised both the shortcomings of the UEP and weaknesses in the SEA process. There were a number of positive features, notably regarding consultations with, and inputs from, interested parties. However, the draft Regulation provides limited guidance as to the scope of review and how the results of SEA are to be taken into account in decision-making.

Source: adapted from Kozova (1998).

### *SEA of sector plans and programmes*

*Sector plans and programmes typically prescribe options and measures for carrying out a proposed course of action for a particular policy sector (e.g. energy, transport or agriculture). The use of SEA at this level is relatively long standing, dating back to the 1970s in the USA. Recently, there has been increasing “take up” internationally for reasons described above.*

Early application of SEA to plans and programmes took place under the US Federal and Californian EIA systems. NEPA Regulations contain provision for the preparation of a programmatic EIS for projects that can be grouped together (e.g. by stage of technology). Other countries with experience of this form of SEA include the Czech Republic and the Netherlands, where it is mandatory for sector (and spatial) plans and programmes listed in the EIA Decree (e.g. waste management, electricity generation, drinking water supply). The European Commission SEA Directive lists a number of sectors that are subject to SEA (where they set a framework for consent of projects subject to EIA).

Internationally, the World Bank is making increasing use of sectoral environmental assessment to address the environmental and social effects of its investment programmes. This approach, broadly comparable to the NEPA programmatic process, has been instrumental in introducing SEA in developing countries and regions. Typically, sectoral environmental assessments are applied to major Bank-financed programmes for transport, energy, industry, water, waste and agriculture. Often, these involve a large number of sub-projects. Alternatively, SEA can be applied also to a series of independent projects from the same sector. In these cases, the process and scope of SEA follow the formal requirements of OP 4.01 (World Bank, 1993). Box 5.8 provides a case example from India of this approach. For other examples refer to World Bank (1996a), Green and Raphael (2002) and Kjörven and Lindjhem (2002).

The benefits to be gained from use of SEA for bank-financed activities are becoming better established (World Bank, 1993, Kjörven and Lindjhem, 2002). SEA is particularly suited to assist borrowing countries by:

- forming a comprehensive view of the environmental issues and impacts of sector-wide investment and development;
- eliminating environmentally unsound alternatives at an early stage;

- improving their environmental planning and management related to the sector; and
- establishing a coherent framework and process for EIA of sub-projects, based on standards that are broadly consistent with those required by the Bank.

Also, SEA can be used to complement the planning process in sectors that are known to have environmental effects, or to assist a World Bank economic and sector analysis for a country. In the first case, SEA is undertaken parallel to project EIA and addresses a broader range of issues identified in environmental screening. For example, SEA was used to analyse the legal, regulatory and institutional aspects of environmental management associated with the irrigation component of the *Morocco Agricultural Sector Investment Loan*. In the second case, use of SEA does not have a direct link to Bank lending activities, and forms part of broader sector reviews or environmental strategy development. Examples include: *Urban Environmental Strategy for Vietnam*, *Land Resource Management Study in Nepal* and *Forest Sector Review, Turkey* (World Bank, 1999).

Despite recent progress, the use of SEA by borrowing countries remains limited and subject to a number of shortcomings. Experience with SEA is uneven, with greater use reported for some developing regions compared to others. SEA application appears to be most extensive in *South Asia* and *East Asia and the Pacific*. So far, however, SEA is reported as having a relatively modest impact on decision-making related to investment programmes and sub-project preparation. For example, the *Second Environmental Assessment Review* conducted by the World Bank (1996a) found that SEA usually takes place too late in the planning process, its scope is too limited and alternative investments are given insufficient consideration. The track record remains mixed according to Kjørven and Lindjhem (2002) and Green and Raphael (2002).

### Box 5:8 SEA of Gujarat State Highways Programme India

**Background:** World Bank financed programme to improve the Gujarat state highway system. First, a strategic options study identified 1500 km for detailed feasibility study. On this basis, approximately 800 km of roadway was selected for improvement within the available budget and subject to an SEA.

**Elements of approach:** The SEA covered the following aspects:

- Environmental and social impact at a state-wide level (e.g. classifying highway corridors into three levels of environmental sensitivity);
- Guidelines and methodology for the conduct of the project level EIAs;
- Early coordination with large number of administrative and technical agencies;
- Mitigation and monitoring plans relating to road construction and operations;
- Avoidance of impacts through design and routing changes (e.g. keeping the cleared zone to absolute minimum consistent with safety constraints);
- Impact zones included immediate right of way (to 100m) and indirect area of influence (to 10 km);
- Some relocation of people and plots (various instruments were used including letters of credit);
- Recognition of protected areas and sites of heritage and cultural significance (Gujarat has numerous roadside shrines and temples);
- Social assessment of state, district and local level impacts (socio-economic, demographic and community profiles);
- Consultation with local stakeholders and interested parties (village meetings and focus group interviews);
- Transportation of hazardous materials, emergency response and environmental health and safety.

Source: Kjørven and Lindjhem (2002).

### *SEA of spatial plans*

*Spatial plans typically direct the course of development and/or allocate land uses and activities for an officially designated area or natural region or landscape unit, such as a watershed or coastal zone. Experience with the use of SEA at this level is limited to certain developed and transitional countries. There are contrasting trends in “take up” of SEA of spatial plans in the developing world. On the one hand, a number of countries appear to use elements of SEA as part of land use planning; on the other, internationally accepted procedures have limited application compared to SEA of sector plans and programmes.*

The application of SEA to spatial plans as well as sector programmes is an integral feature of the Netherlands, UK, US and World Bank systems (as listed in Box 5.1). Other countries that have experience with SEA of spatial plans include the Czech Republic, Slovakia, South Africa and Hong Kong SAR, China. In addition, many countries of Central and Eastern Europe and some newly independent states of the former Soviet Union have land use planning systems that have elements in common with SEA process and procedure. These elements of SEA may be present in many developing countries (for example, those which have centralized or systematic land use and urban planning systems) and offer a way to gain experience and build capacity in implementing this process.

Land use planning arrangements vary from country to country, and offer different options for SEA development. As illustrated by Central and Eastern European experience, these can be used to integrate EIA as part of spatial planning or develop a related but parallel SEA process. The Sofia Initiative on EIA and SEA (see Chapter 2) has concentrated upon these options and identified a number of key characteristics and lessons for strengthening SEA elements in relation to land use planning (see Box 5.9). Some countries have established innovative arrangements; for example, an initial EIA is required as part of territorial planning in Lithuania, and an environmental vulnerability study is required as a basis for physical (and sector) planning. Further information on SEA developments in relation to land use planning in Central and Eastern Europe can be found in Dusik et al. (2001).

Elsewhere in the developing world, regional environmental assessment (REA) in accordance with World Bank procedure is an equivalent approach. REA is intended to “help design investment strategies, programmes and projects that are environmentally sustainable for a region as a whole” (World Bank, 1996b). It does so by taking account of the development opportunities and limitations represented by the resource base and its ecological characteristics. The end result may be a comprehensive regional development plan or a more limited assessment of the potential cumulative effects of a number of development activities that are planned for the same area. Normally, the spatial unit will be defined by physical or ecological boundaries, but it may be an administrative unit where there is an institutional focus.

Regional environmental assessment has a number of advantages, particularly when set against individual, project-specific EIAs. These include the following (World Bank 1996b):

- establishes an area-wide environmental baseline, which is a key to reliable impact analysis and monitoring;
- affords a long-term perspective on trends and changes in the functioning of natural systems;
- provides a framework against which to identify key data needs and gaps and needs;
- facilitates policy and institutional analysis of environmental management capacity and requirements;

- assists coordination across administrative boundaries and among sector-specific authorities; and
- promotes comprehensive planning of environmentally sustainable land use and development.

To date, REA has been used far less than sector-level assessment to review Bank-financed plans and programmes (although elements of both are also represented in some cases). This difference reflects the interests of borrowing countries and the Bank's own operational focus, as well as reservations regarding REA methodology (World Bank 1996a, Kjørven and Lindjhem, 2002). Due to these factors, REA is applied primarily to "environmentally-oriented" plans and strategies, including natural resources management, biodiversity conservation, urban infrastructure, solid waste management, watershed rehabilitation and flood protection. A case example (Argentina) is given in Box 5.10.

Similar initiatives for integrating environment into regional development planning have been promoted for some time by other international agencies, for example by the Asian Development Bank (Annadale and Bailey, undated). Also of interest in this context is the work underway in China on what is called regional development environmental impact assessment (RDEIA). This approach attempts to predict and evaluate the environmental impact of alternative development plans and assist in the selection of an optimal strategy (Wei Li, et al. 1998). Reportedly, China has applied RDEIA for several years, although only in the context of a few cities and the approach and methodology have yet to mature. The EIA Law passed in October 2002 stipulates that RDEIA would have to be applied to all regional development plans one year after enactment.

#### **Box 5:9 SEA elements in land use planning: Central and Eastern European experience**

Land use planning requirements in the region have many elements in common with SEA process and procedure. Through this relationship, all Central and Eastern European (CEE) countries, except for Albania, have acquired experience with SEA. An increasing number of them have developed or are introducing SEA processes that are consistent with internationally accepted principles. Others have developed only partial approaches, which have some or all of the following weaknesses:

- assessment procedure is not yet fully integrated into the land use planning process;
- environmental impacts are assessed superficially and little or no attention is given to social, health and cumulative effects;
- public consultation is inadequate, due in part to use of inappropriate methods;
- identification and consideration of alternatives are ineffective; and
- the quality of SEA practice is wanting due to resource constraints and lack of information and guidance on procedure and methodology.

Even so, CEE experience with land use planning is seen as providing a useful platform for developing SEA systems, which, in turn, can be used to strengthen the planning process.

*Source:* Dusik et al., (2001).

### Box 5:10 Regional environmental assessment of Argentina flood protection

**Background:** REA of investment programme to protect communities occupying the flood plains of the Paraguay, Parana and Uruguay rivers, northern Argentina. This region had suffered enormous losses from periodic flooding (which also had important ecological functions). Proposed construction works included flood defences in areas of economic importance and with greatest vulnerability to repeated flooding. Non-structural measures included: strengthening institutional capacity and coordination to deal with periodic flooding; upgrading flood warning, preparedness and shelter in areas not warranting structural defences; and capacity building and technical assistance to support these activities

**Elements of approach:** The REA was initiated at an early stage of the decision-making process. It included the following elements:

- description of the interaction of hydro-ecological and socio-economic systems of the region;
- screening of potential investments to select sub-projects with clear economic, social and environmental benefits;
- analysis of alternatives for each site using criteria of least possible interference with natural flooding patterns;
- analysis of the cumulative effects of all flood protection projects;
- public consultation aimed at improving the design of all sub-projects;
- design changes to take into account the results of the REA and public consultation;
- identification of mitigation and monitoring measures;
- identification of institutional weaknesses in dealing with the flood problem;
- recommendation of regional action plan to address the issues identified.

Source: World Bank (1996a), Kjørven and Lindjhem (2002).

## 5.7 Guidance on SEA methodology and good practice

*Internationally, much useful experience with SEA practice has been gained. The analytical methods for undertaking SEA are drawn from EIA and policy appraisal/ plan evaluation. With some adaptation, many of these have been used successfully already. Guidance on SEA methodology and good practice is outlined below.*

As described earlier, SEA is a formal, systematic process of analysis, which can be instituted through a “differentiated approach” that is “fit for purpose” (section 5.5). Specifically, there are a number of SEA procedural and methodological models. These have both differences and similarities with respect to the steps and types of studies carried out. Box 5.11 illustrates EIA and appraisal-based approaches to the conduct of SEA. It shows that their generic stages and features overlap and correspond in particular respects. Distinctive aspects include the emphasis given to public involvement as part of an EIA-based approach and the incorporation of benefit-cost analysis following the identification of environmental impacts as part of a policy appraisal approach.

These comparisons are indicative, since not all of these steps described in Box 5.11 will be needed in many cases. Examples include qualitative assessment of policy and legislative proposals, in which steps and activities are simplified, as described in section 5.6. In addition, reviews of the quality of SEA practice have indicated a tendency to use overly elaborate methodology when carrying out impact studies (Sadler and Verheem, 1996), although this may change as SEA experience is gained. More broadly, arguments have been made for relatively simple methods to be used for SEA in developing countries.



The environmental overview (EO) is promoted for this purpose (Brown, 1997). Developed initially for internal use by UNDP for rapid formulation of a range of sector assistance programmes, the EO is a flexible tool that is seen as having the potential to work at other levels and in varied settings (see Box 5.12).

A large kit of tools can be applied to SEA practice. Selected methods are listed in Box 5.13 derived from both EIA and policy appraisal. These include tools that can be used for rapid assessment or as part of detailed impact studies. In many cases, this will be a matter of emphasis. For example, a rapid SEA or policy or plan appraisal can have three basic functions:

- scanning and characterizing the environment (e.g. baseline study);
- scoping to identify key issues and formulate alternatives; and
- evaluating the potential effects of the alternatives against any objectives that might have been set.

This approach can be completed quickly or extended immediately or later into a more detailed study of the environmental impact of implementing a preferred or best practicable environmental option. For example, for linear and spatial proposals, vulnerability mapping can be used to either identify the range of impacts and conflicts or be incorporated into GIS-based analysis (as exemplified in Box 5.14). In some cases, the shift in focus described here might correspond with the stage of decision-making, reflecting the change of emphasis when moving from policy to planning. A number of the tools listed can be used to give SEA a sustainability orientation, for example by taking stock of critical resource assets, deriving valued ecosystem or natural capital components, relating these to environmental policy and management objectives and evaluating the effects of proposed policy or plans to identify effects and conflicts. Scenario development can be particularly effective for this purpose, either as part of a rapid, preliminary SEA or a more detailed impact study (see Box 5.15). Further information on this relationship can be found in Dalal-Clayton and Sadler (1998b).

Step-by-step guidance on SEA good practice is provided in Box 5.16 (Sadler, 2001). This *aide-mémoire* draws on experience in both EIA-based and policy appraisal experience and reference is made to the usage of tools and methods listed in Box 5.13. A larger number of key stages and elements of SEA are described, compared to the EIA and appraisal-based approaches listed in Box 5.11. Depending on the procedure followed, many or even most of the actions described may not be appropriate to a particular application. Rather, they should be read as a menu of options, which should be adapted to the particular purpose of an SEA and the context of a proposal. In all cases, the procedures and methods should be applied flexibly and pragmatically.

A series of “rules of thumb”, distilled from case experience in a number of countries, can serve as “reality checks” when implementing the SEA good practice guidance in developing countries (Sadler, 1996; Sadler and Verheem, 1996):

- begin as early as practicable in the process of policy or plan formulation;
- keep in mind the purpose of SEA is to inform decisions not to produce a study;
- ensure an SEA of a proposal corresponds to its potential environmental effects;
- focus on the comparison of major alternatives;
- look to gain environmental benefits as well avoid adverse impacts;
- use the simplest procedures and methods consistent with the task;
- provide the right information, at the right time for decision-making;
- follow through to implementation and evaluate outcomes; and
- build capacity and strengthen process and procedures based on lessons of experience.



### Box 5:11 A comparison of EIA-based and policy appraisal approaches to SEA

Policy appraisal	EIA-based approach
<i>List the objectives of the proposal and summarize the policy issue, identifying constraints and trade-offs</i>	<i>Screen to trigger SEA and identify likely scope of review needed</i>
<i>Specify the range of options for achieving the objectives, including the do nothing option</i>	<i>Scope to identify key issues and alternatives, clarify objectives and to develop terms of reference for SEA</i>
<i>Identify and list all impacts on the environment and consider mitigation measures to offset them</i>	<i>Compare alternatives including no action options to clarify implications and trade-offs</i>
<i>Assess the significance of the impacts in relation to other costs and benefits</i>	<i>Involve the public early – e.g. at the scoping stage – and with sufficient information</i>
<i>Value costs and benefits, including those based on monetary values, ranking or physical quantities</i>	<i>Analyse impacts, evaluate alternatives, and identify mitigation and follow up measures</i>
<i>State the preferred option with reasons for doing so</i>	<i>Document the findings including recommended terms and conditions for implementation</i>
<i>Monitor and evaluate the results, making appropriate arrangements for doing so as early as possible</i>	<i>Review the quality of the SEA report to check the information is sufficient &amp; relevant for decision-making</i>
	<i>Carry out follow up measures as necessary to monitor effects, check on implementation, etc</i>
<i>Source: UK Department of Environment (1991), UK DETR (1998).</i>	<i>Source: UNECE (1992).</i>

### Box 5:12 The environmental overview

The environmental overview (EO) is applied to an aid programme at the draft formulation stage. It is undertaken by:

- completion of a set of structured “questions”;
- engaging a broad mix of specialists and others;
- modifying the draft programme.

The questions are similar to those asked by a conventional EIA, but with a different emphasis. They concern the baseline conditions for a programme; the likely impacts and opportunities; and how to modify and redesign the programme to take these into account. An EO results in a brief document, and it is the interactive review that is the heart of the process. Of particular relevance for developing countries, the EO can be completed with considerable speed, perhaps in a single day, yet it is claimed to conform to many principles for effective SEA. →

## Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach

The EO has been used to help formulate UNDP assistance programmes in different countries, including:

- tourism development and management (Cambodia & Tonga);
- state enterprises reform and privatisation (Vietnam);
- institutional support for implementation of national shelter strategy (Indonesia & Namibia);
- improvement of land settlement schemes (Mekong Secretariat);
- technology transfer and development (Philippines); and
- employment through development of small, medium and micro enterprises (South Africa).

*Source: Brown (1997).*

### Box 5:13 Methods and their usage in SEA

Step	Examples of methods
Baseline study	<ul style="list-style-type: none"> <li>• State of the Environment reports and similar documents</li> <li>• Listing of environmental stock and resource assets</li> <li>• “Points of reference” for valued ecosystem components</li> </ul>
Screening/scoping	<ul style="list-style-type: none"> <li>• Environmental scan</li> <li>• Analogues or case comparison</li> <li>• Checklists and cause-effect networks</li> <li>• Public or expert consultation</li> </ul>
Formulating options	<ul style="list-style-type: none"> <li>• Scenario development</li> <li>• Comparative risk assessment</li> <li>• Policy, strategies, plans, commitments &amp; precedents</li> <li>• Public values and preferences</li> </ul>
Impact analysis	<ul style="list-style-type: none"> <li>• Vulnerability mapping</li> <li>• Environmental indicators and criteria</li> <li>• Policy impact matrix</li> <li>• Predictive and simulation models</li> <li>• GIS, capacity/habitat analysis</li> <li>• Benefit/cost analysis and other economic valuation techniques</li> <li>• Multi-criteria analysis</li> </ul>
Documentation for decision-making	<ul style="list-style-type: none"> <li>• Cross-impact matrices</li> <li>• Consistency analysis</li> <li>• Sensitivity analysis</li> <li>• Trade-off mapping/ “decision trees”</li> </ul>

*Source: updated from Sadler and Verheem (1996).*

#### **Box 5:14 Use of vulnerability mapping for SEA of transport component of the National Physical Plan, Slovenia**

**Background:** This SEA comprised: (a) an assessment of the proposed changes to the National Physical Plan – for transportation (roads and railway); and (b) a proposed methodology for other similar (location-oriented) cases, using the study as a pilot. A preliminary scope identified potential impacts of proposed corridors for new highways and railways, e.g. changes in soil, air, water, landscape, habitats, natural resources, and natural and cultural heritage. Based on this information, environmental vulnerability/sensitivity mapping was selected as the most appropriate methodology, using GIS as the most appropriate tool for detailed assessment.

**Elements of approach:** Using existing data, a preliminary assessment of the environmental vulnerability of the entire territory of Slovenia was carried out. Five categories of impact sensitivity were used: (1) negligible, (2) small, (3) moderate, (4) severe and (5) inadmissible (for activities within the area of the Triglav National Park). Zoning classifications were based on a number of criteria, including various protected area designations, prime agricultural land, ground water sources, productive forests, etc.

Vulnerable areas or valued environmental components, where potentially significant losses could be incurred, included:

- higher degree of wilderness and naturalness (nature protection objective);
- high quality and large quantity of drinking water (human health and next generation point of objective);
- high potential for recreation (resource conservation objective).

These criteria were combined to produce comprehensive vulnerability maps, following accepted parameters and rules of modelling. A separate assessment was conducted to select alignments of highways, a high-speed railway line and other new railways. In some sections, only the basic corridors of the proposed highway and railway routes were given; in other sections, more general definitions served as the basis for the preparation of detailed physical plans. Tools and techniques used included: overlay technique, geographic information system, special software application, workshops and use of expert groups.

*Source: Koblar (1998).*

#### **Box 5:15 Use of scenarios for SEA of master plan for Victoria Falls area, 1996**

**Background:** In 1989, the Victoria Falls area was designated as an UNESCO World Heritage Site. The Governments of Zambia and Zimbabwe commissioned a SEA of its future development (with financial support from the Canadian International Development Agency and technical assistance from the IUCN Regional Office for Southern Africa [IUCN-ROSA]). The objective was to provide information for the preparation of a Master Plan for the Victoria Falls area, including zoning policies, management measures and monitoring and institutional arrangements to address the cumulative impact of tourism and other developments.

**Elements of approach:** The focus for the SEA was set by a scoping workshop attended by 50 key stakeholders. The boundaries for the SEA comprised a 30 km radius of Victoria Falls and a 10-year time horizon. A scenario approach was used to forecast the adverse and beneficial environmental (particularly cumulative) impact of four different levels of growth in tourism (low, moderate, high, rapid). The methodology involved calculating carrying capacities and limits to use, developing “problem trees” to show linkages between issues and concerns, identifying cumulative effects and estimating the potential loss in tourism revenue. The study suggested that the sustainable limits to tourism development between the low and medium growth scenarios, i.e. 500,000 - 800,000 tourists per year. A comprehensive public consultation programme was organized, involving opinion surveys, workshops and “open houses” and 150 stakeholders were involved in reviewing and commenting on the draft report and recommendations.

*Source: IUCN (1996).*

**Box 5:16 Step-by-step guidance on application and use of procedures and methods in SEA good practice**

<p>Proposal:</p> <p>Establish the need for and objectives of the proposed action</p>	<p>Before SEA is initiated, the responsible agency defines the basis for a proposed policy, bill, plan or programme. A preliminary statement should be made of the need, purpose and objectives to be achieved. These aims are not subject to review by an SEA, but the justification of a proposal is conditional on its environmental impact. The SEA process itself must be objectives-led in order to fully evaluate the environmental impacts of a proposal. Preparatory methods of identifying environmental objectives include policy and legal review (e.g. goals, standards and targets outlined in government strategy, obligations under international environmental agreements).</p>
<p>Screening:</p> <p>Determine if an SEA is required and at what level of detail</p>	<p>Formal screening procedures can be divided into two types. Listed proposals subject to SEA are specified in legislation or guidelines. Case-by-case screening applies to all proposals to determine which ones have potentially significant environmental effects and warrant full assessment. Screening criteria and checklists from EIA can be readily adapted to this purpose, supplemented, as necessary, by policy tree diagrams and stakeholder consultation. Use of these methods also helps to indicate the type of approach and level of detail required for an SEA (e.g. policy appraisal versus impact assessment). For certain proposals, timing and tiering are important considerations in SEA screening decisions (e.g. at which level is SEA best carried out, how to relate it to any successive SEA and/or EIA process).</p>
<p>Scoping:</p> <p>Identify the important issues and impacts that need to be examined</p>	<p>EIA scoping procedure can be adapted to the different types of proposal subject to SEA. An early, transparent and systematic process should be followed to focus on the impacts that matter for decision-making and set terms of reference for further study. Modified EIA methods, such as matrices, overlays, and case comparisons can be used to scope the environmental dimensions of specific plans and programmes, e.g. to identify inconsistencies in their objectives, issues that require attention and/or the potential impact of implementing the proposal. Where environmental considerations are generalised and less immediate (e.g. proposed immigration, fiscal or trade policies), appraisal methods can be used, such as environmental scanning to clarify the implications, and/or issue tracking to a stage when key impacts become clarified (e.g. immigration projections linked to housing demand, nationally or regionally).</p>
<p>Information:</p> <p>Assemble environmental information</p>	<p>The general content of information to be gathered in an SEA can be specified in legislation or procedure. The data that need to be gathered for a specific proposal will be clarified during screening and scoping. SEA is carried out against a baseline or profile, typically a description or characterisation of the affected environment or media (e.g. air or water quality). Useful sources of background information include state of the environment reports and country environmental profiles. For plans and programmes with a spatial dimension, the baseline can be recorded as environmental stock and critical natural assets. Key indicators are used to measure change in terms of global sustainability, natural resource management and local environmental quality. Appropriate indicators for sector-specific proposals will depend on the key environmental impacts (e.g. emissions-based air quality indicators for energy, transport strategies).</p>



<p>Consideration of alternatives:</p> <p>Identify and compare the range of alternatives, including a best practicable environmental option</p>	<p>Formulation of alternatives in the SEA process is central to integrating environment considerations into sector policy and plan-making. A first step is to identify the range of alternatives that meet the objectives of the proposal, and summarize their economic, social, and environmental aspects. The alternatives should include a do nothing alternative and best practicable environmental option (BPEO). Where potentially a large number of alternatives are open, methods used to systematically compare them include environmental benefit-cost analysis and multi-criteria evaluation (e.g. formulation of national energy or water policy). The BPEO helps clarify the environmental trade-offs that are at stake, and the basis for choice. Objectives-led SEA is critical for this purpose, and also can empower risk and benefit negotiation (e.g. to reduce NO<sub>x</sub> emissions as part of transport strategy).</p>
<p>Impact analysis:</p> <p>Identify, predict and evaluate the effects of the proposal and the main alternatives</p>	<p>Usually, there is greater uncertainty to contend with in SEA compared to EIA of projects. Often, the relationship of policy-level proposals to environmental effects is indirect or difficult to locate in time or space, mediated by intervening factors. Indicator-based methods can show 'direction of movement' for an impact, e.g. increase in habitat loss, reduction in volume of hazardous waste. Projection methods that are used to deal with uncertainty include trend extrapolation and scenario development. For plans and programmes that initiate projects, environmental impacts are more readily identified and predicted. EIA methods that are used with varying modification include impact matrices, GIS and comparative risk assessment. No single method is likely to be sufficient to cover the range of impacts in such cases.</p>
<p>Significance:</p> <p>Determine the importance of the residual impacts, and if appropriate, relate these to other benefits and costs</p>	<p>To determine significance, predicted and residual impacts (that cannot be mitigated) are evaluated against selected environmental criteria and objectives. As in EIA, this test gives decision makers a key proxy of the environmental acceptability of a proposal. If appropriate, a balance sheet of gains and losses from a proposal also can be drawn up, e.g. in monetary or descriptive terms, to show their distribution among groups, and/or to illustrate the range of uncertainty (worst/best case). If major policy options or critical outcomes are at stake, sensitivity analysis can be used to test the effect of changed assumptions and the robustness of assessment. Alternatively, this test can be based on expert judgement and case comparison with similar actions.</p>
<p>Mitigation:</p> <p>Identify measures to avoid, reduce and offset the main impacts identified</p>	<p>The EIA mitigation hierarchy should be followed in SEA but with eye to the greater opportunities for its creative application. So first avoid, then reduce, and next offset adverse impacts, using specific measures and actions that are appropriate to their significance and specificity. A precautionary approach should be taken when information is incomplete but analysis indicates the risk or possibility of large scale, serious or irreversible environmental change. This may entail not going ahead with certain proposals or replacing them with no regrets alternatives. For low-threat situations, standard mitigation measures can be used to minimize an impact to "as low as reasonably practicable" (ALARP level), e.g. using "best available technology not entailing excessive cost" (BATNEEC) or contingency policies and plans to cope with low probability but highly damaging risks.</p>



## Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach

Reporting:  Describe the Environmental impacts of the proposal and how they are to be addressed	Typically, a separate SEA report or statement must be prepared and made available to the public. Other than certain prescribed information content, there is no common format. Depending on the context, a report can be an environmental paragraph in a policy memorandum, a <i>section or chapter</i> in a plan or strategy, or a separate document or annex ranging from a few to several hundred pages. The proposal itself should contain or be accompanied by a brief explanation of the SEA process and a summary of findings, e.g. key impacts, preferred alternative, mitigation measures and outstanding issues. Use of impact display and trade-off matrices help to focus decision-making. Change already made to a proposal as a result of an SEA should be noted on a policy record sheet.
Review of quality:  Check the information is adequate for purposes of decision-making	An SEA report should be reviewed to ensure it provides the information necessary for decision-making, prior to its submission. Review procedure can be informal or formal, internal or external, conducted by the competent authority, environment agency or an independent body. Provision for public comment on an SEA report, although not uniform, promotes transparency and robustness. As in EIA, review of quality takes place against terms of reference or other guidance issued for SEA preparation. But the scope of review can differ markedly with the type of proposal and policy context. Use of methods can range from spot checks to comprehensive quality audit.
Decision-making:  Approve, reject or modify the proposal, with reasons for decision	On submission to the final decision-making body, a proposal can be approved, rejected or modified (e.g. as a result of condition-setting). When doing so, the decision-making body has a duty or obligation to take account of the results of an SEA, including public consultation. Despite adverse environmental impact, a policy, bill or plan often will be accepted because the economic and social benefits are considered to outweigh the impact. Reasons for decision should be issued, specifying the terms of approval and any follow up requirements.
Monitoring:  Check to see implementation is environmentally sound and in accordance with approvals	Monitoring the implementation of a policy, bill or plan can be a simple check to see if environmental objectives are being met, or a systematic programme to measure its impact. Information tracking systems can be used to monitor issues and progress, and to focus and streamline any subsequent SEA or EIA process. Cumulative effects monitoring may be appropriate for plans and programmes that will initiate regional-scale change in environmental stock or critical natural assets. Methods and indicators for this purpose are not well developed.
Source: Sadler (2001).	



## KEY POINTS: Summary of Chapter 5

### Background and context:

The evolution of SEA is the most striking feature of the past decade in the development of the larger field of EIA. So far, provision for and take-up of SEA procedure has been confined to developed and transitional countries. A number of developing countries also use elements of SEA and the World Bank and other multilateral financial institutions may require borrowing countries to undertake SEA of certain types of plans and programmes. There are increasing demands for information and training of SEA, which together with new international legal instruments such as the SEA Protocol to the Espoo Convention may presage the wider use of this process following the earlier path of EIA adoption.

### Innovations

The main innovations have been the formalization of SEA arrangements, procedures and methods. Also, these are relatively diverse and continue to be adapted to different forms of strategic decision-making, notably between general policy and concrete plans and programmes. The European SEA Directive and the UNECE SEA Protocol likely will encourage greater standardisation with respect to SEA of plans and programmes. However, SEA procedures and methodologies can be expected to continue to evolve at the policy level. The World Bank, in particular, uses a range of policy-based lending instruments that have SEA-type characteristics and implications for developing countries.

### Challenges

Three main challenges with respect developing countries are:

- Ensuring that SEA is adapted to the particular requirements of developing countries so that this process both helps to strengthen the openness and transparency of decision-making and provides a practical tool for problem solving (not just a pro-forma procedure);
- Applying SEA to the problems that matter, as identified in the WSSD Plan of Implementation where priority is given to addressing the linkages of poverty, environment and development; and
- Building SEA capacity and capabilities in response to the particular needs of developing countries, recognising that the pre-conditions for this process may include addressing basic issues of governance in low-income countries.

## References

Annandale, D. and Bailey, J. (undated) Strategic Environmental Assessment Project, Contract No. ADM 99-247, Murdoch University, Perth, Australia.

Brown, A. (1997) The environmental overview in development project formulation, *Impact Assessment* 15: 73-88.

Cherp, A. (2001) Strategic environmental assessment in the newly independent states of the former Soviet Union, in Dusik, J. (ed.) *Proceedings of International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment*, Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.

CSIR – Council for Scientific and Industrial Research (1996) *Strategic Environmental Assessment (SEA): A Primer*, CSIR Report ENV/S-RR 96001, Stellenbosch, South Africa.

Dalal-Clayton, B. and Sadler, B. (1998a) Strategic environmental assessment: a rapidly evolving approach, in Donnelly, A, Dalal-Clayton, B. and Hughes, R. (eds.) *A Directory of Impact Assessment Guidelines* (Second Edition) London: IIED.

Dalal-Clayton, B. and Sadler, B. (1998b) *The Application of Strategic Environmental Assessment in Developing Countries: Recent Experience and Future Prospects, including its Role in Sustainable Development Strategies*, Environmental Planning Issues No. 18. London: IIED.

- DEAT—Department of Environmental Affairs and Tourism and CSIR—Council for Scientific and Industrial Research (2000) *Guideline Document: Strategic Environmental Assessment in South Africa*, Pretoria, South Africa.
- Dusik, J. (ed.) (2001) *Proceedings of International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment*, Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.
- Dusik, J., Sadler, B. and Mikulic, N. (2001) Developments in strategic environmental assessment in Central and Eastern Europe, in Dusik, J. (ed.) *Proceedings of International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment*, Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.
- Green, K. and Raphael, A. (2002) *Third Environmental Assessment Review* (FY 96-00), Environment Department, World Bank, Washington DC.
- Impact Assessment and Project Appraisal 18: 3 (2000) Special issue on strategic environmental assessment, planning and policy-making.
- IAIA—International Association for Impact Assessment (2002) *SEA Performance Criteria*, IAIA Leaflet, Fargo, ND, USA.
- IUCN (1996) *Strategic Environmental Assessment of Development Around Victoria Falls*, IUCN-ROSA, Harare, Zimbabwe.
- Kjorven, O. and Lindhjem, H. (2002) *Strategic Environmental Assessment in World Bank Operations: Experience to Date – Future Potential*, Environment Strategy Paper No. 4, Environment Department, World Bank, Washington DC.
- Koblar, J. (1998) Strategic environmental impact assessment of major transport routes in Slovenia, in Mikulic, N. et al. (eds.) *Strategic Environmental Assessment in Transitional Countries: Emerging Practices*, Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.
- Kozova, M. (1998) Environmental assessment of Slovak energy policy, in Mikulic N et al. (eds.) *Strategic Environmental Assessment in Transitional Countries: Emerging Practices*, Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.
- Mercier, J-R. (2001) Environmental assessment at the World Bank: new developments and strategic directions (OP 4.01), *Environmental Assessment Yearbook 2001*, Institute of Environmental Management and Assessment and EIA Centre, Lincoln, UK.
- Naim, P. (2002) South and South East Asia, in *Environmental Assessment Yearbook 2002*, Institute of Environmental Management and Assessment and EIA Centre, Lincoln, UK.
- Petts, J. (ed.) (1999) *Handbook of Environmental Impact Assessment* (Volume 1), Blackwell Scientific, Oxford, UK.
- Rossouw, N., Audouin, M., Lochner, P., Heather-Clark, S., and Wiseman, K. (2000) Development of strategic environmental assessment in South Africa, *Impact Assessment and Project Appraisal* 18(3): 217-224.
- Sadler, B. (1996) *Environmental Assessment in a Changing World* (Final Report of the International Study of the Effectiveness of Environmental Assessment), Canadian Environmental Assessment Agency and International Association for Impact Assessment, Ottawa.
- Sadler, B. (1999) A framework for environmental sustainability assessment and assurance, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment* (Volume 1), Blackwell Scientific, Oxford, UK.

- Sadler, B. (2001) A framework approach to strategic environmental assessment: aims, principles and elements of good practice, in Dusik, J. (ed.) *Proceedings of International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment*, Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary.
- Sadler, B. and Brook, C. (1998) *Strategic Environmental Appraisal*, Department of the Environment, Transport and the Regions, London.
- Sadler, B. and Verheem, R. (1996) *Strategic Environmental Assessment: Status, Challenges and Future Directions*, Ministry of Housing, Spatial Planning and the Environment, Publication No. 53, The Hague.
- Therivel, R. and Partidario, M. (eds.) (1996) *The Practice of Strategic Environmental Assessment*, Earthscan, London.
- UK Department of the Environment (1991) *Policy Appraisal and the Environment*, HMSO, London.
- UK DETR—Department of Environment, Transport and the Regions (1998) *Policy Appraisal and the Environment: Policy Guidance*, London.
- UK DTLR – Department of Department for Transport, Local Government and the Regions (2002) *Integrated Policy Appraisal*, DTLR, London.
- UNECE—United Nations Economic Commission for Europe (1992) *Application of Environmental Impact Assessment Principles to Policies, Plans and Programmes*, UNECE Environmental Series No.5, Geneva.
- VROM – Netherlands Ministry of Housing, Spatial Planning and the Environment (1996) *Environmental Test*, VROM 14349/175, The Hague.
- Wei Li, Huadong Wang and Liu Dongxia (1998) Progress on environmental impact assessment and its methods in China, in A. Porter and J. Fittipaldi (eds.) *Environmental Methods Review: Retooling Impact Assessment for the New Century*, International Association for Impact Assessment, Fargo, ND, USA.
- World Bank (1993) *Sectoral Environmental Assessment*, Environmental Assessment Sourcebook Update No. 4, Environment Department, World Bank, Washington DC.
- World Bank (1996a) *The Impact of Environmental Assessment - A Review of World Bank Experience*, Environment Department Technical Paper No. 363, Washington DC.
- World Bank (1996b) *Regional Environmental Assessment*, Environmental Assessment Sourcebook Update, No. 15, Environment Department, World Bank, Washington DC.
- World Bank (1999) *Environment Matters*, Environment Department, World Bank, Washington DC.
- World Bank (2000) *Environment Matters*, Environment Department, World Bank, Washington DC.
- World Bank (2001) *Environment Matters*, Environment Department, the World Bank, Washington DC.
- World Bank (2002) *Making Sustainable Commitments: An Environment Strategy for the World Bank – Summary* (Complete volume on CD-ROM) Environment Department, World Bank, Washington DC.



## Chapter 6: Towards Integrative Approaches to Impact Assessment and Planning

*Integration is one of the defining characteristics of impact assessment, reflecting the use of a systematic, inter-disciplinary approach to inform decision-making. Recently, increasing attention has been given to the different aspects of integration in relation to EIA, SEA and other tools of impact assessment. This chapter provides a brief introduction to these issues and guidance on ways and means of realizing the potential of an integrated approach in EIA and SEA.*

### 6.1 Introduction

The WSSD *Plan of Implementation* agreed at Johannesburg in September 2002 emphasises the importance of taking a “holistic and inter-sector approach” to implement sustainable development. However, there is little practical direction on what this means or how to implement such an approach. An immediate challenge at all levels involves making better use of existing processes and tools of impact assessment, development planning and environmental management. EIA and SEA provide key instruments for achieving a more integrated approach in support of decision-making at the project and policy level, respectively.

An integrated approach always has been identified as a hallmark of EIA good practice. The founding legislation, for example, calls for agencies to “...utilize a systematic interdisciplinary approach which will ensure the integrated use of the natural and social sciences” (sec. 102(2) US National Environmental Policy Act, 1969). As described in previous chapters, the scope of EIA has expanded: first, outward to include social, health and certain types of economic and fiscal impacts; and second, upstream to become SEA of proposed policies and plans and downstream toward closer links with Environmental Management Systems (EMS) of operational facilities.

A companion theme, less well developed, is more concerned with repositioning EIA. It places EIA in the larger scheme of environmental management, optimising its functional niche in relation to other impact assessment and sustainability appraisal tools. There are two levels of potential integration<sup>10</sup>:

- *All impacts on the environment* are taken into account. For example, ecological footprint analysis gives a proxy measure of the appropriation of natural capital (or impact deficits) by country, urban region, economic sector or industrial plant. In turn, this sets a frame of reference for EIA, EMS, life cycle assessment and environmental auditing.
- *All impacts of development proposals* are assessed, e.g. EIA and SEA are undertaken or integrated with economic and social appraisal tools to derive a full cost analysis of major policy and project initiatives.

Like the concept of sustainability, the definition of what is being integrated in relation to impact assessment is not always clear. There are, in fact, several levels of potential integration being promoted or attempted in EIA and SEA frameworks. At a recent annual meeting of IAIA, which focused on this theme, three distinct forms were emphasised (Sadler, 1999):

<sup>10</sup> These ideas were developed by Barry Sadler with Alex Weaver of CSIR, South Africa. They were presented as part of his Presidential Address to IAIA 1999 in Glasgow, and also briefly referred to in EIA Newsletter 18: 7-8, 1999 (Sadler, B., *EIA and Sustainability*).

- Substantive integration of the main types of impacts (economic, environmental and social) linking together separate impact assessments, which are undertaken at different stages in the policy, planning and project cycle;
- Horizontal integration of assessments, that is, bringing together different types of impacts into a single overall assessment at one or more stages in the planning cycle, linking together separate impact assessments which are undertaken at different stages in the policy, planning and project cycle;
- Integration of assessments into decision-making, that is, integrating assessment findings into decision-making at different stages in the planning and project cycle.

Each of these forms of integration may be used separately or in combination, as discussed below.

A transition to integrated assessment will be difficult, particularly for the poorest countries where capacity is least and even for developed countries and international lending and aid agencies with EIA and SEA systems that are relatively advanced. First, there are outstanding questions about its practicality, including whether concepts, methods and arrangements are sufficiently robust to carry out integrated assessment. Second, there are concerns about the relationship of integrated assessment and decision-making, including the possible subordination of environmental and equity considerations to economic factors as a result of development pressures and political realities. Third, the culture, process and structures of policy-making that are in place in a particular country or international organization will govern progress towards integrated assessment. Dealing with technical and institutional issues and pre-conditions for integrated assessment in many developing countries will require long-term capacity building.

However, much can be done in the interim through pilot studies to demonstrate practical approaches to integrated assessment, to build support for them among policy-makers and assist practitioners in applying core methods and components. Recently, UNEP has addressed this issue in a number of projects. For example, it has developed a reference manual for integrated assessment of trade-related policies and initiated a major capacity-building process with UNCTAD. Also, as mentioned in Chapter 1, UNEP has initiated an ambitious programme to devise and promote an initiative to incorporate integrated assessment into planning for sustainability (discussed later in the chapter).

In this chapter, the focus is on integration within the scope of impact assessment and its family of tools.<sup>11</sup> Basically, integration can occur in two time frames: vertical and horizontal. In the vertical time frame, specific impact assessment and management tools are used in sequence and over time. The linked use of items from an available “toolkit” enables impact assessment and management to be as cost-effective as possible. Table 6.1 below shows, as a simple example, the tools that can be used, in sequence, for projects in the energy sector of a country. This type of integration poses no significant logistical or procedural problems. However, it does require a reservoir of skills/knowledge and commitment to ensure that the appropriate tools are used at the correct time and that the results of applying one tool, at a specific time, are available and used when the other tools are being applied.

<sup>11</sup> It is possible to consider integrating EIA with project feasibility studies as discussed in the previous version of this volume (see UNEP, 1996). However, this type of integration only applies to project-level EIA and is not relevant to SEA or other impact assessment tools.



**Table 6.1 Application of impact assessment and management tools to developments in the energy sector**

Development phase (Energy sector)	Impact assessment/management tool
1. Policy/strategy	SEA (sectoral) or policy appraisal
2. Project design (power stations)	EIA with integral environmental action plan
3. Project construction/early operational years	EIA/environmental action plan with input to design of an Environmental Management System
4. Project operational period (may be 30-50 years)	Environmental Management System (focus on continuing environmental improvement)
5. Decommissioning	EIA Update or new EIA with links to Environmental Management System

Source: Authors' elaboration.

In the horizontal time frame, integration occurs during the implementation of a specific study. The integration occurs within a relatively short period of time and is not dependent for its successful outcome on events before or after the study. Here, the focus is on the adequate analysis and evaluation of a range of impacts covering, broadly, environmental, social, health and economic dimensions.

In this chapter attention focuses on:

- horizontal integration in EIA at the project level;
- integration of project sustainability and wider sustainability issues;
- integration of distribution impacts in comparison of options;
- integrative methods and tools;
- links between EIA/SEA and sustainability analyses;
- integration and sustainability issues for Strategic Environmental Assessment;
- vertical linking of EIA and EMS;
- integration in tools for application in poverty reduction strategies and programmes;
- integration in the development and use of a suite of tools for application in poverty alleviation strategies and programmes; and
- integration of assessment and planning for sustainable development.

Finally, some observations are offered on the possible future directions for EIA and SEA, including their potential role as “building blocks” for integrated assessment that take account of economic, environmental and social considerations in project and policy decision-making.

## 6.2 Horizontal integration of impacts in EIA and EIA- type studies at the project level

Over the past 25 years, there has been a tendency to use EIA as vehicle for analysing a variety of impact types within a single framework. In some cases, EIAs are supplemented by related but separate, specific studies (and reports) on social/health impacts when the latter are considered to be particularly important for decision makers. Despite a lack of internationally consistent practice, it is possible to identify a majority position that inte-

grated assessments, potentially covering a wide range of impacts, are needed, and that at present, EIA (or adaptations of EIA) is the best available mechanism for implementing them. The most common approach is to consider the key links between, for example, socio-economic and biophysical impacts. In the earlier version of this document, guidance was provided on the essential characteristics of social, health, and economic impacts to assist those undertaking EIAs to integrate impacts. Practice is improving, but the advice is still believed to be current and of use to EIA practitioners, thus the advice is reproduced in Annex 1.

Examples of this type of integration occur in the international oil and gas sector. For example, some major oil and gas companies refer to Environmental and Social Impact Assessment (ESIA) to make it clear that social issues are important components of the study (health issues are subsumed within the “social” impact category). The Azerbaijan International Operating Company (in which BP is the lead operator and major shareholder) has produced two ESIA for Phases 1 and 2 of the Azeri-Chirag-Gunashli Full Field Development project which show attempts to integrate a range of impact types.<sup>12</sup> Interestingly, Shell Exploration and Production is currently preparing comprehensive but separate Guidelines on assessing environmental, social and health impacts. They will be accompanied by guidance on how to prepare integrated ESIA.<sup>13</sup>

Once an EIA integrates environmental, economic, social and health impacts there is an opportunity to analyse the differential distribution of impacts. This aspect of EIA has long been recognized as important in the EIA literature, but actual EIA practice has not been consistently in line with good practice. There is scope to use an explicit framework that places stakeholders with their interests, rights, responsibilities and attendant risks (to all of the former) at the centre of the analysis. The World Commission on Dams (WCD)<sup>14</sup> has recommended just such an approach with respect to the identification, design, assessment, decision-making and implementation of dams and associated infrastructure.

In the WCD proposed framework the following features indicate an earnest attempt to integrate different kinds of impacts and to focus on distribution issues. First, during the assessment of viable options, distribution and risk analyses should be conducted with environmental and social impacts evaluated in monetary terms (to the extent possible and credible). Second, the screening of options should:

- give social and environmental aspects the same significance as economic, financial and technical factors; and
- consider river basin-wide aspects and cumulative impacts (knowledge of cumulative impacts is essential for assessing distribution impacts).

The perspective of the WCD is interesting because of the twofold objective of the decision-making framework. First, there is the paramount need to ensure that the dams are sustainable in terms of meeting their objectives by delivering benefits to the intended beneficiaries over their planned viable life. Second, is the equally important need to try to ensure that the dams do not imperil the ability of people in other parts of the region/country to pursue their own initiatives to move towards improved standards of living in a sustainable manner. These two aspects of the application of EIA and related studies have been recognized as important in the literature. Practice has been weak, possibly because the issue of project viability is often considered to be relevant for the project sponsor only and to have been dealt with in economic, financial and technical studies.

<sup>12</sup> See: [www.caspiandevlopmentandexport.com](http://www.caspiandevlopmentandexport.com).

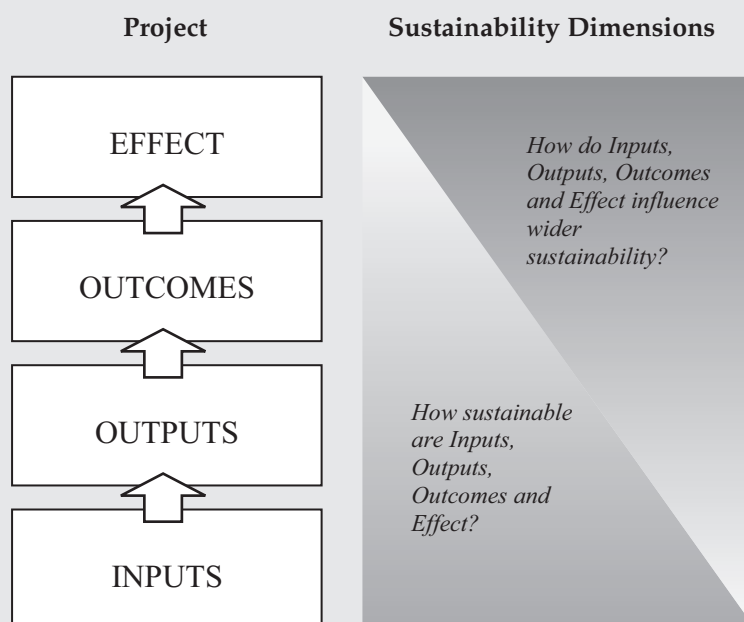
<sup>13</sup> Macklin, S., Lyon, D. and R. Bisset (2002).

<sup>14</sup> World Commission on Dams (2002).

### 6.3 Integration of project sustainability and wider sustainability issues

This perspective, focusing on the sustainability of a development project while maintaining conditions for sustainable actions in the wider “environment”, is not yet a typical EIA feature. Indeed, the sustainability of development actions, especially major capital projects, is open to wide interpretation. It has been, however, increasingly an aim for development cooperation projects (such as regional economic initiatives and health promotion activities) most of which occur in developing countries or countries in transition. Figure 6.1 shows the basic themes and principles involved. Basically, a proposal is assessed in relation to environmental, economic and social impacts against agreed objectives, targets or indicators. In addition, the project (or other action) can be assessed in relation to “internal” or “external” dimensions of sustainability as explained below.

**Figure 6.1 Links between the two dimensions of sustainability**



*Adapted from: Smith (2001).<sup>15</sup>*

In this diagram, the first dimension of sustainability (internal) centres on the project itself. This dimension embraces not only the overall effect (combination of outputs and outcomes) in terms of achieving objectives and delivery of benefits, but also, the constant supply of needed inputs. These aspects and their linkages are central and internal to the project itself and the intended beneficiaries (e.g. rural subsistence farmers). Secondly, there is the wider or external dimension of sustainability that is focused on the impacts that all actions associated with a project have on the conditions (sometimes referred to as “assets”) of the wider area. These conditions form the basis, support and context for initiatives that will assist sustainable development now and in the future for the local population. These two dimensions are closely linked and can be incorporated in a single analysis (see Box 6.1).

<sup>15</sup> This report was commissioned by the World Bank RDV within the framework of the *Vision to Action* Update, and was funded through the World Bank/UK Department for International Development collaborative programme for rural development.

### Box 6:1 Examples of “internal” and ‘external’ sustainability issues for a proposed refugee camp

In a hypothetical case of a proposed new refugee camp housing 30,000 people, this sustainability framework would guide an EIA to focus on, *inter alia*:

- Threats (e.g. sufficient water supply over time) to the sustainability of the outputs (basically the objective of care for the refugees that underpin all emergency camp establishment and operational management); and
- Impacts of the camp outputs and inputs, on the assets of the surrounding area and consequences for the local community in terms of whether the camp is harming the conditions that will enable them to move toward sustainability. The use of timber for camp construction and fuelwood might prejudice the interests and livelihoods of the ‘host’ community.

## 6.4 Integration of distribution impacts in comparison of options

The integration of findings into the EIA and decision-making processes is a long-standing challenge. It has a particular focus when comparing alternatives and summarizing their relative impact in relation to key objectives or the interests of different stakeholders. As indicated above, these latter distributional or equity impacts are not always addressed systematically. Further guidance on these aspects is given below.

Not all stakeholders will be equally affected by a development action. It is important to ascertain “who gains and who loses” to take account of the equity dimension of sustainability within the EIA process. A number of tools are available for this purpose. For example, the rapid impact assessment matrix (RIAM) method devised by Pastakia and Jensen (1998) was adapted to focus explicitly on equity issues in the EIA undertaken for a programme to eradicate tsetse fly in the Okavango Delta area of Ngamiland, Botswana.<sup>16</sup>

Four options to eradicate the tsetse flies were assessed and the key stakeholders identified. The stakeholder groups identified are listed in the box below.

### Box 6:2 Stakeholders in the EIA of the Botswana tsetse eradication programme

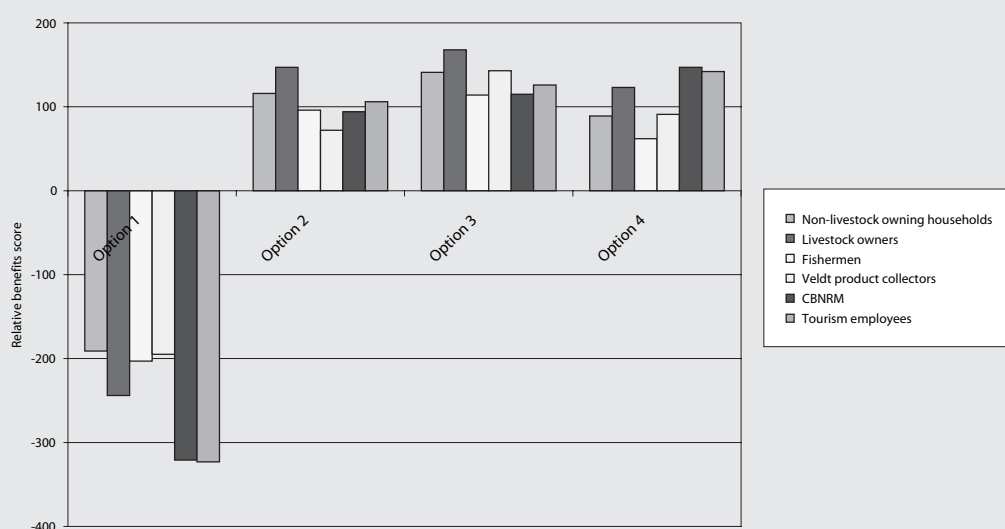
- |   |  |
|---|--|
| • Livelihood interests                        | – Tourism service providers                                |
| – Non-cattle owning households                | – Other private businesses                                 |
| – Cattle owners                               | – Tourists.  |
| – Fishermen                                   | • Livestock sector   |
| – Veldt product collectors                    | • Public health sector                                     |
| – Community-based natural resource management | • Conservation interests – international and national NGOs |
| – Tourism employees.                          | • Local government   |
| • Tourism sector                              | • National government.                                     |
| – Camps and lodges in the Delta               |  |

Source: Meynell (forthcoming).

<sup>16</sup> The EIA was undertaken by a team led by Peter-John Meynell of Scott Wilson Resource Consultants for the Tsetse Control Division of the Department of Animal Health and Production, Government of Botswana. The work was supported by the UK Department for International Development.

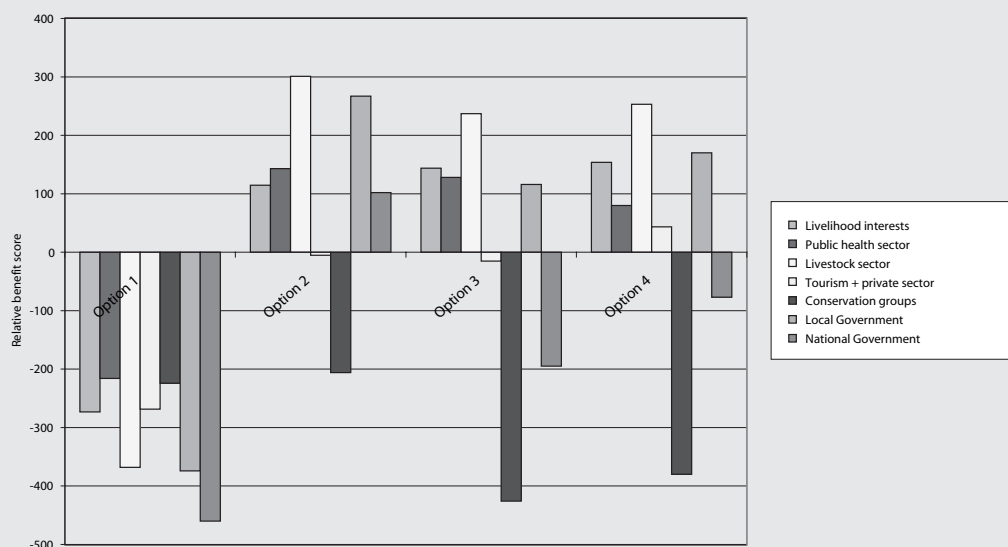
The approach requires a means to summarize the important adverse and beneficial impacts for each stakeholder so that a composite result of the net benefit or loss for a stakeholder can be obtained. The process of summarizing needs to be undertaken using a common scale so that the net effects on a range of stakeholders can be compared. The combined adverse and beneficial impacts for stakeholders were shown in the form of bar charts (see Figures 6.2, 6.3). Scores below the mid-point (bars coming down) indicate net negative impacts, whereas scores above the line (bars going up) indicate net positive impacts for each stakeholder group. Figure 6.2 shows the relative impact scores for the stakeholders in the “livelihoods” category, whereas Figure 6.3 shows the overall impacts on all stakeholders. These bar charts are accompanied by an explanatory text in Box 6.3.

**Figure 6.2 Livelihood stakeholder benefits/disbenefits**



Source: Meynell (forthcoming).

**Figure 6.3 Stakeholder benefits and disbenefits**



Source: Meynell (forthcoming).

### Box 6:3 Analysis of stakeholder impacts in the EIA of the tsetse control programme, Botswana

Figure 6.2 shows the comparative effects on the different 'livelihood' stakeholders. There are no 'winners' for Option 1. However, all livelihood interests show positive scores for each of the other options. There is not a large difference between the magnitude of the benefits to each of the interests, though it would seem that the livestock owners tend to benefit more, while the fishermen tend to benefit less. Tourism employees and CBNRM stakeholders appear to be very similar, since their livelihoods are dependent to some extent upon visitors. Veldt product collectors benefit most from Option 3 since the tsetse flies are removed immediately from the areas where they collect in the Delta.

In Figure 6.3, Option 1 (the 'do nothing' option) does not benefit any of the groups, whilst each of the other options aimed at eradicating or controlling tsetse, will benefit most of the stakeholders. However, the livestock sector appears to benefit the most, as would be expected from such an exercise, followed by public health and local government. As a whole the livelihoods interests also benefit from each of the options. Of the main stakeholder groups, it is the conservation organizations that appear to be most adversely affected because they do not receive any economic or social benefits to counteract the 'loss' to their interests by the adverse effects on the environment.

The other major group experiencing some overall disbenefits is the national government, which carries both the costs of carrying out the spraying and the other risks, whereas local government does not carry the costs, but potentially benefits from improved local productivity.

The Government of Botswana selected Option 3.

This EIA raises one of the key issues of integrated studies: how to arrive at an overall score or weighting of the impacts. It is a particular challenge when a number of alternative development options are examined and when no clear preferred option could be identified easily.

## 6.5 Integrative methods and tools

Methodologically, it would be helpful if a mechanism could aggregate all results from an integrated assessment of one option into a single numerical score or index that could be compared with those derived in a similar way for its alternatives. It is clear, however, that not all environmental impacts can be quantified and/or valued in monetary terms. Various tools and mechanisms to present EIA results are described briefly below, with emphasis on their strengths and weaknesses.

Considerable efforts have been made to devise methods for an integrated assessment. Probably, the best known is multi-criteria analysis (MCA) and its many variants. MCA is based on identifying the preferences of decision makers or other stakeholders and incorporating these as the major determinants of the analysis. In the more complex variations, the probability of outcomes can be incorporated, as can sensitivity analyses to test the extent to which altering basic assumptions (for example, that all impacts can be treated as being equally important) will change the overall result. By this means it is possible to test the extent to which it is possible to be confident that the overall result provides a sound basis for decision-making.

There is no doubt that these methods do assist in selecting a preferred option, but there are a number of significant difficulties in their use. They can be technically complex and require specialists to implement them. However, they also can be kept simple and based



on meaningful stakeholder involvement. Indeed, the WCD recommends the use of a relatively simple form of MCA, with extensive stakeholder involvement to evaluate options, particularly when it is necessary to reduce a large number of options to a more viable and realistic set for more detailed analysis. For example, a nation-wide search may be undertaken to identify a “bank” of potential hydro-power or power station sites. The output might be three or four sites that would be considered in more detail when a specific power station proposal was planned.

There are EIAs of a limited number of options that use such methods to select the preferred option from a limited number of alternatives. The simplest of such methods tend to use a scaling-weighting approach (again very complex variations exist). The scaling ensures all impacts are measured on a single scale (e.g. -3 to 0 to +3). Weighting of impacts is done to determine the relative importance of individual impacts (e.g. impacts on rare birds being weighted as being 3 times more important than air quality changes), as impacts are not all equally important. With this information, impacts can be amalgamated and a choice made depending on the scores for each alternative.

There are technical and socio-political advantages and disadvantages to the use of impact scaling and weighting methods. All attempts to amalgamate impacts to provide total “scores” simplify reality. Also, the issue of who decides the weights is critical. The ability to use the selected method to undertake a sensitivity analysis on one set of results by “testing” different combinations of weights can counter some of the difficulties of such an approach. Generally, there is less of a problem if the sensitivity analysis finds that the original result was robust. However, in the opposite situation, when the original result changes, the socio-political problems remain, especially if there is an existing disagreement on the relative weights.

In SEA, data are often less detailed and more qualitative compared to the application of EIA. This means that aggregation through scaling and weighting is not always necessary or applicable because the impact predictions are not in a form that allows for “robust” scaling. However, SEA practitioners might find the type of MCA approach advocated by WCD useful in certain situations.

There are also alternative ways of presenting results that do not involve amalgamation of impacts. In SEA, increasing use is being made of sustainability objectives and indicators (as in the European Commission trade-related work) to guide the preparation of plans and programmes. This means that SEA could focus as much on the ability of a proposal to achieve its objectives as on possible adverse impacts or costs. For example, in the draft Guidance<sup>17</sup> on implementation of the European Commission SEA Directive<sup>18</sup> in England, advice is given on presenting the results (see Figure 6.4). In this figure, impacts of a proposed plan are considered in terms of “targets” (to be achieved). A variety of mechanisms to indicate relative performance are shown (e.g. symbols and colours).

<sup>17</sup> Office of the Deputy Prime Minister (2002).

<sup>18</sup> Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment (27 June 2001). Official Journal of the European Communities L197/30.

**Figure 6.4 Impact prediction symbols**

Examples of descriptions of impacts:	much better than 'do minimum' or much better than target	Better	same as 'do minimum' or achieves target	worse	much worse than 'do minimum' or far from target
shades of	grey				
'traffic lights'	Dark green	light green	Amber	light red	Dark red
Symbols	++	+		—	—
Comparison against Targets	X% better than target		0		y% worse than target

*Adapted from: ODPM (2002).*

## 6.6 Links between EIA/SEA and sustainability analyses

*Often, horizontal integration of impact types is equated with sustainability appraisal or analysis. Both concepts do overlap and converge. However, important differences exist as described below.*

Theoretically, integrated assessment can be undertaken without explicit reference to sustainability objectives, principles and targets. Integrated assessment as sustainability appraisal means making the framework of ends and measures explicit. It involves evaluating whether and how this proposal contributes to (or deviates from) sustainability, as defined by reference to international agreements, national policy, sectoral or regional plans, local Agenda 21s or other equivalent strategies (Sadler, 1996; 1999). These instruments provide benchmarks and measures that can be applied via impact assessment to “test” development proposals and options to judge their approximation to sustainability (as indicated in Table 6.2).

This process helps provide sustainability assurance to decision-makings, and the greatest scope for promoting it lies at the strategic level, influencing the course of selection of alternatives. Although many difficulties remain to be resolved, a number of tools and methods for integrated assessment or sustainability appraisal are available or can be adapted (see Table 6.3). First, much can be achieved by using current methods to identify the economic, environmental and social impacts of a proposal. Second, options appraisal, MCA and other integrative tools can be used to compare the aggregated impact of development proposals and the main alternatives so far as this is possible. Third, stakeholder analysis and negotiation can be employed to assist a structured process of trade-offs, disciplined by the triple bottom lines of economic, social and environmental objectives and criteria (Sadler, 2002).

**Table 6.2 Impact assessment (IA) for sustainability assurance**

Stage of IA	Sustainability test	Some key questions
Screening	Direction toward requirements	Is the proposal consistent with sustainability policies or principles? What are the economic, social and environmental (ESE) implications in this regard?
Scoping	Distance to target	How does the proposal measure up against key ESE policies and indicators? What are the significant issues and major alternatives in this regard?
Impact analysis	Determination of significance	What are the major impacts of the proposal and how do the alternatives compare? How significant are the impacts with reference to ESE objectives and sustainability criteria?

*From: Sadler (1999).*

**Table 6.3 Tools for integrated assessment or sustainability appraisal**

Purpose	Examples of available tools
Economic appraisal	Benefit-cost analysis, contingent valuation
Social appraisal	Social Impact Assessment, Health Impact Assessment, preference elicitation
Environmental appraisal	EIA, SEA, ecological footprint analysis
Integrative tools	Options appraisal, multi-criteria analysis, comparative risk assessment
Trade off analysis and decision-making	Stakeholder analysis, negotiation and other forms of dispute settlement
Cross-sector policy response	Macro- and micro-economic instruments, institutional and regulatory arrangements, environmental and social mitigation or flanking measures

*From: Sadler (2002).*

The findings of an integrated assessment also demand a coherent, cross-sector policy response, encompassing economic, social and environmental measures. For example, an integrated assessment of a trade agreement could lead to the implementation of a parallel regime to address environmental and social issues of trade liberalization (UNEP, 2001). Currently, the European Commission is supporting a series of “Sustainability Impact Assessments” examining the implications of possible trade negotiation outcomes.

## Chapter 6

### Towards Integrative Approaches to Impact Assessment and Planning

For example, one current study focuses on the expected impacts of two scenarios for greater liberalization of trade in environmental services such as water supply and solid waste management services.<sup>19</sup>

Basically, a set of generic sustainability indicators, with criteria for assigning significance to impacts affecting the indicators and scoring them, has been created (see Tables 6.4 and 6.5). The likely environmental, social and economic impacts of the trade are then identified, predicted and evaluated. Most of this work is qualitative because of the difficulties of quantifying many of the social and environmental impacts (some economic impacts can be quantified by using various techniques such as General Equilibrium Models (and their variants). These assessments are undertaken for four main groups of countries: member states of the European community; other industrialized countries, developing countries and least developed countries. So, for each of the country groups, a set of generic impacts are ascertained.

**Table 6.4 Core and second tier target and process sustainability indicators**

Indicator	Core	Second tier
A. Target Economic	Real income	Savings, consumption expenditure
	Fixed capital Formation	Economic, other (social, environmental) components of fixed capital formation
	Employment	Self-employment; informal sector employment
Social	Poverty	Income and other social dimensions of poverty
	Health and education	Life expectancy; mortality rates; nutritional levels Literacy rates; primary, secondary and tertiary enrolment rates
	Equity	Income distribution; gender; other disadvantaged age-related groups (young, old); indigenous peoples, ethnic minorities
Environment	Biodiversity	Designated eco-systems, endangered species
	Environmental quality	air, water, and land quality indicators
	Natural resource stocks	energy resources; other non-renewable and renewable resources
B. Process	Consistency with principles of sustainable development	Polluter pays; user pays; precautionary principles
	Institutional capacities to implement sustainable development strategies	Sustainable development mainstreamed and integrated into policy-making; high-level ownership and commitment to sustainable development objectives

Source: Kirkpatrick, C. et al. (2002).

<sup>19</sup> IDPM (2003).

Once the generic impacts have been assessed, the impacts (for each country group) are related to the indicators and the criteria are used to judge the significance of the impact and some of its main characteristics. The impacts are scored using a simple numerical scale with additional symbols to designate certain characteristics of the impacts (see table 6.5). The outcome shows the main “sustainability” impacts of the trade-related measure on different country groups. The results show those impacts that require measures to mitigate them if the trade agreement is negotiated. By undertaking these studies, in advance or during negotiations, the Commission and governments can take informed decisions to assist the negotiations and/or implement measures to alleviate adverse impacts and enhance beneficial effects or opportunities created by the trade measure.

**Table 6.5 Significance criteria and scoring**

**Significance criteria**

- Extent of existing economic, social and environmental stress, in affected areas
- Direction of changes to baseline conditions
- Nature, order of magnitude, geographic extent and reversibility / duration of changes
- Regulatory and institutional capacity to implement mitigation and enhancement measures

**Scoring**

- 0 = non-significant impact compared with the base situation
- 1 = lesser significant impact (marginally significant, by itself, to the negotiation decision but, if impact is negative, also a potential candidate for mitigation)
- 2 = greater significant impact (likely to be significant, by itself, to the negotiation decision. If negative, merits serious consideration for mitigation)
- + = positive impact
- ± = positive and negative impacts likely to be experienced – net effect is uncertain and/or varies according to context
- -/+ = negative over an initial (specified) period of time but expected to become positive in the longer term. The length of short and longer time periods should be specified (and, where appropriate, standardized) for this purpose.

*Source: Kirkpatrick, C. et al. (2002).*

## 6.7 Integration and sustainability issues for Strategic Environmental Assessment (SEA)

A trend is underway towards integration of social and, to a lesser extent, economic factors in application of SEA and SEA-type tools in some countries and agencies, for example, the Netherlands and the World Bank. Also, the recent WSSD in Johannesburg (2002) has provided a further stimulus to such actions and to moving from SEA towards sustainability appraisal along the lines described previously. In the UK, for example, there are some interesting initiatives, which are the focus of the discussion below.

For some time, non-mandatory policy appraisal procedures have been used in central government policy formation in the UK. No single or integrated appraisal procedure exists, rather there is a variety of appraisal procedures that are used depending on the specific context. This has been recognized within government as being “inefficient”, and recently an attempt has been made to devise and then test an Integrated Policy Appraisal procedure for eventual adoption by government departments. Its progress seems to have been hindered by internal conflict over the institutional “home” for the Integrated Policy Appraisal procedure. Once this issue is resolved, it is unlikely that Integrated Policy Appraisal will be implemented systematically and consistently before 2004/5 at the latest.

The testing also contributes to this likely implementation time-scale as it will involve a number of pilot case studies and then an evaluation of performance and “lessons learned”.

In the UK, the Government has also issued draft Guidance on implementation of the European Commission SEA Directive in England.<sup>20</sup> The Directive is expected to apply to the current system of development plans (plans having an explicit strategic and land-use focus) prepared by local authorities, and to other types of planning and development guidance. It will apply to those plans and programmes whose formal preparation begins after 21 July 2004 or those plans and programmes under preparation by that date, but will not have been adopted or submitted to a legislative procedure by 21 July 2006.

The draft Guidance on implementation of the SEA Directive attempts to integrate SEA with sustainability appraisals. Since the late 1990s, in the UK sustainability assessments have been applied to development plans and to regional planning guidance. These assessments are less detailed and more qualitative in nature compared to EIA, and explicitly consider social and economic issues as well as environmental implications. In the new guidance, the aim is to maximize the benefits of both approaches while minimizing the administrative burden on local authorities, which are responsible for both plan/programme preparation and the application of sustainability appraisals and future SEA.

SEA, as defined by the Directive and sustainability appraisal, has similarities and differences. SEA focuses primarily on impacts of a proposed plan or programme on the environment (as opposed to social, health and economic impacts) and measures that will minimize environmental harm. Like sustainability appraisal, it also is “objectives-led”, first identifying key environmental objectives and indicators set by the plan or other policy frameworks and then testing plan performance and impact significance against them (Sadler and Verheem, 1996; Sadler, 2001a). As some of the objectives/indicators encompass environmental, social and economic issues at local regional and global scale, the compatibility of the plan/programme with the objectives can be assessed. If there are areas of incompatibility then the plan/programme should be amended to eliminate them (or at least reduce them to an acceptable level). In the case of both SEA and sustainability appraisal, more “environmentally friendly” and sustainable plans/programmes should result.

In the new guidance on SEA implementation in accordance with the Directive, the UK government is striving to ensure that the plan-making process is:

*“.....more transparent, better documented, and more clearly focused on environmental and sustainability problems.”* (Office of the Deputy Prime Minister, 2002).

Table 6.6 shows possible objectives and indicators that can be used in joint SEA/SA (sustainability appraisals). It can be seen that a significant number of these refer to social and health concerns.

<sup>20</sup> The Directive is likely to be implemented in a similar fashion in Scotland, Wales and N. Ireland, but the mechanisms are not yet known.



**Table 6.6 Possible SEA/SA objectives and indicators**

SEA Topics	Possible SEA/SA objectives (adapt to regional/local circumstances: delete, add to, refine)	Possible SEA/SA indicators (ways of quantifying the environmental baseline, assisting impact prediction and monitoring) (adapt to regional/local circumstances: delete, add to, refine)
Biodiversity, Fauna and Flora	<ul style="list-style-type: none"> <li>• conserve and enhance biodiversity at ecosystem, species and genetic levels</li> <li>• conserve and enhance native and characteristic habitats and species throughout their range</li> </ul>	<ul style="list-style-type: none"> <li>• achieves international/national conservation objectives</li> <li>• achieves regional objectives</li> <li>• achieves local objectives</li> </ul>
Population and human health	<ul style="list-style-type: none"> <li>• protect and enhance human health proactively (for example sports facilities, good diet, accident prevention) as well as reactively (for example, good Accident and Emergency services access)</li> <li>• encourage balanced demographic range for population (% age of categories)</li> <li>• reduce and prevent crime,</li> <li>• decrease noise and vibration</li> <li>• support public service providers, such as</li> <li>• frontline staff in health, education,</li> <li>• local government or criminal justice</li> </ul>	<ul style="list-style-type: none"> <li>• mortality (main causes)</li> <li>• recorded crimes per 1,000 population</li> <li>• 'fear of crime' survey data</li> <li>• number of transport accidents</li> <li>• proportion of people not getting a minimum level of healthy exercise in their daily lifestyle</li> <li>• number of people affected by ambient noise levels</li> <li>• survey data on public concern over noise</li> <li>• proportion of tranquil areas</li> <li>• age characteristics of population</li> </ul>
Water and Soil	<ul style="list-style-type: none"> <li>• limit water pollution to levels that do not damage natural systems</li> <li>• maintain water abstraction</li> <li>• run-off and recharge within carrying capacity</li> <li>• reduce contamination</li> <li>• and safeguard soil quality and quantity</li> <li>• minimize waste</li> <li>• then re- use or recover it through recycling</li> <li>• composting or energy recovery</li> </ul>	<ul style="list-style-type: none"> <li>• river and canal water quality (biology and chemistry) parameters</li> <li>• quality and quantity of groundwater</li> <li>• water use (by sector, including leakage) and availability</li> <li>• proportion of households with poor water quality</li> <li>• amount/loss of greenfield/brown-field land</li> <li>• number of houses affected by subsidence, instability, etc.</li> <li>• housing density</li> <li>• per capita use of aggregates (new and recycled) and non-aggregates</li> <li>• amount of waste disposed of in landfill</li> </ul>
Air	<ul style="list-style-type: none"> <li>• limit air pollution to levels that do not damage natural systems</li> <li>• reduce the need to travel</li> </ul>	<ul style="list-style-type: none"> <li>• number of days of air pollutants above thresholds</li> <li>• population living in Air Quality Management Area</li> <li>• distance travelled per person per year by mode of transport (including air)</li> <li>• modal split</li> <li>• traffic volumes</li> </ul>

*Adapted from: ODPM (2002).*

## 6.8 Vertical linking of EIA and Environmental Management Systems

Vertical integration or “upstream” linkage between SEA and EIA (usually known as tiering in the literature, was discussed in the previous edition of this volume (reproduced in Annex 2). The issue of “downstream” linkage between EIA and environmental management systems (EMS), as established by the International Organization for Standardization (ISO 14000 series), is less well documented. Introductory guidance on this issue is provided below.

Many developing countries and countries in transition face environmental problems which result from existing operating installations, such as steel-making or fertiliser-producing factories. Often, in such countries, concern is expressed that such facilities need to be managed in a more environmentally sensitive manner. Traditionally, EIA was applied to proposed development projects, whereas existing operations were the focus of a separate EMS, including environmental audit. Now, much closer links are being developed between EIA and EMS so that environmental considerations are integral to all phases of project development, from pre-design through construction to the operations and, eventually, decommissioning.

A recent update on the relationship of EIA and EMS indicates that:

*“Significant progress has been made in developing both voluntary environmental management systems (EMS) and regulatory frameworks, such as integrated pollution prevention and control (IPPC). The ISO 14001 series has proven to be particularly important as an international benchmark for companies and agencies to manage the environmental impact of their activities. Many now have operational EMS in place and additional elements continue to be developed under the ISO 14000 process. In addition, environmental design and cleaner production are used to secure eco-efficiencies in resource inputs and waste outputs.” (Sadler, 2002)*

Countries that are introducing or amending an EIA or EMS system have an opportunity to link them together into vertically integrated environmental management focusing on the impacts of both proposed and operating developments. Both EIA and EMS focus on “impacts” and the need to minimize those that are harmful and enhance those that are beneficial. EMS, however, has a wider remit as it is concerned with improving management policies and practices to ensure continual improvement in the environmental performance of an operating entity. A key part of this work is concerned with reducing the resource inputs and the waste and pollution emissions and other impacts of the facility on the environment.

Increasingly, EIAs result in environmental management plans that are centred on mitigation and monitoring of expected impacts. Also, they may contain recommendations on institutional and regulatory issues regarding oversight of the project once under construction or in operation. Despite these useful outcomes, EIA recommendations cannot be responsive to the dynamics between a project and its context over time. There is considerable scope to make such plans the starting point for a more realistic and *beneficial* EMS framework that promotes continual environmental improvement.

Box 6.4 shows how EIA could become a basis for environmental management of a proposed refugee settlement. In this case, the basis would most likely be an adaptation of a formal EMS (under the ISO 14000 series), to fit with local conditions. Increasingly, the World Bank and other lending and donor agencies include such requirements as part of EIA implementation, together with other institution strengthening and capacity-enhancement requirements. However, there is still a lack of experience of broadening the use of EIA and EMS tools to other environmentally important actions such as the proposal described in Box 6.5, and to introduce more flexible arrangements for this purpose.

#### **Box 6:4 Integration of EIA and a system for continuing environmental management for a hypothetical proposed refugee settlement**

If an EIA has been prepared, then data on existing environmental conditions and significant impacts requiring management will exist. These data would form a major input to an environmental management programme for a settlement. For example, an impact of concern could be the likelihood of declining soil fertility or pollution of nearby surface watercourses. Such impacts would be turned into a series of objectives to be achieved, and actions to be implemented, within a specified time period, e.g. a faecal coliform count no less than 10 per cent lower than the pre-settlement level to be maintained for the first two years of the settlement. At prescribed intervals, actual performance is evaluated against the objectives. If the objectives were attained then there might be scope for achieving higher standards of performance and new objectives (for the same issue or parameter) established. If the objectives were not achieved, or new problems were identified, then specific measures would be formulated to ensure an improvement in performance. In essence, there is a continuous cycle of objective setting, activity implementation, periodic checking, performance evaluation and identification of amended or new activities.

Such a programme aimed at long-term management for settlement sustainability would provide settlement managers with an accurate understanding of settlement-induced impacts (and if formulated appropriately, the likely impacts of changes outside the settlement on the settlement itself). Managers would use this information to ensure that adverse impacts are minimized, opportunities maximized and any external regulatory requirements fulfilled. A critical element of such a programme is the requirement for managers to demonstrate a commitment to continual improvement by periodically reviewing performance and revising the plan and hence the environmental performance of the settlement and its related operations.

It is generally considered that the environmental impact of existing *products* throughout their life-cycle, from supply of raw materials to end use, far outweighs the cumulative effect of new proposed *development actions* (Sadler, 2001, 2002). EMS provides a comprehensive framework for assessing and controlling the range of impacts from both products and operating facilities, including, but not limited to life cycle assessment (LCA) of upstream (supply chain), internal (production processes) and downstream (emissions, transportation) elements. Experience with EMS and LCA is increasing rapidly, especially within industry and business organizations. The “take up” of EMS is more variable and uneven across other sectors, among small and medium enterprises, and within government and international agencies.

#### **6.9 Integration of tools for application in poverty reduction strategies and programmes**

The social aspects of sustainable development, particularly equity or “distributional” issues, have been relatively neglected to date. However, this is changing following the statement of the MDGs and the WSSD endorsement of poverty eradication as the key priority for lending and assistance to developing countries. A new generation of poverty related strategies is being developed: strategies which are broadly-based, cross-sectoral and integrate environmental, development and health objectives as described below.

Currently, poverty alleviation programmes are attracting a considerable proportion of development-oriented resources. They aim to achieve a sustainable reduction in poverty for the intended beneficiaries. A number of tools have been developed for this purpose,

for example by the World Bank, which has issued a Handbook<sup>21</sup> to guide preparation of Poverty Reduction Strategies (PRSs). This Handbook contains a chapter providing advice on how to consider environmental issues in PRSs. Similarly, there is guidance for review of draft PRSs that also covers environmental issues.

Despite these “safeguards”, the scope and quality of the environmental input into PRSs prepared to date, is, at best, questionable. As a result, further efforts are being made to integrate environmental issues into PRSs before they are implemented, so as to avoid or minimize serious environmental harm. For example, the UK Department of International Development (DFID) has undertaken such work in Uganda, Rwanda and Bangladesh. Indeed, DFID and its Dutch equivalent (DGIS, Ministry of Foreign Affairs) considered commissioning jointly an SEA prior to implementation of the Ghana PRS.

Most effort in the development of tools to assist implementation of PRSs has focused on socio-economic aspects. Among a suite of tools developed (or under development) by the World Bank are:

- Poverty and Social Impact Analysis (PSIA);
- Social Capital Assessment Tool (linked closely to PSIA); and
- Poverty and Distributional Impact of Economic Policies.

The “environment” is conspicuous by its absence in these tools, and thus far no specific environmental tool has been developed with a PRS focus. Indeed, DFID (which has been collaborating with the World Bank on PRS implementation and the development of tools in a number of countries), has found it necessary to commission specific environmental analyses to complement the application of PSIA. Of course, EIA and other established “environmental” tools could be amended to apply to PRSs.

It is interesting to note the emphasis in this family of tools, on measuring and evaluating the impacts of intended actions on identified social groups and categories. As noted earlier, this perspective has been weak in most EIA/SEAs although its importance has long been recognized in the EIA/SEA literature. The approach exemplified in the Botswana case study indicates the adaptations that could help integrate poverty considerations into EIA and SEA. Alternatively, EIA/SEA can be used to focus on the environmental aspects of poverty reduction with PSIA and other tools developed explicitly for this purpose.

In the PRS context, there is now an interesting inverse situation to that which applied in the first two decades of EIA. In this early phase, there was lengthy debate on the extent to which social, health and economic aspects should be included in EIA. Generally now, there is a consensus that these issues are legitimate concerns and few EIAs consider only biophysical environmental impacts.

However, in the “world” of PRSs, the focus of assessment work is almost exclusively socio-economic. Unfortunately, the case for widening their scope to include environmental issues still has to be accepted by the key players in the promotion of PRSs, and their potential for achieving poverty reduction remains compromised. Without adequate integrated assessment, there is an increased likelihood of unexpected and serious environmental damage threatening the resources that the poor need as a basis for improving their livelihoods. The likelihood of this outcome can be reduced significantly if the use of EIA/SEA becomes the norm at the PRS level.

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<sup>21</sup> World Bank (2002).

## 6.10 Merging assessment with planning for sustainable development

UNEP is initiating a programme to integrate assessment within planning for sustainable development. A number of frameworks are available for this purpose, and also there are strong arguments for developing a flexible approach to integrated assessment consistent with the policy and plan-making that is already in place in developing countries. The choice of strategy will depend on the particular needs and capacities of the country. In that context, the focus in this section is on generic macro-frameworks for integrating assessment and planning for sustainable development.

As part of the UNEP programme, a number of frameworks and methodologies have been surveyed and a prototype approach has been prepared for discussion purposes. The focus is on strategic and integrated planning (SIP), in which assessment is an integral part of a pro-active approach to address sustainable development. It is based on experience and recent thinking on EIA/SEA and integrated planning approaches (see Kessler, 2003).

Through application of this “macro-level” approach, integrated assessment should be a factor in all decisions in the development process, including:

- identification of sustainable development goals and objectives;
- evaluation and selection of strategies and options for achieving them;
- development and implementation of policies, programmes and projects;
- monitoring and evaluation of results; and
- amendment, if necessary, of strategies, policies, programmes and projects.

This type of approach can be applied best to a well-defined sector or large area. It will be based on agreed sustainability criteria and indicators, and help to build commitment for sustainable development across all parties and interests in a certain sector or region.

Wherever possible, policy options should include win-win opportunities and arrangements to stop illegal and unsustainable use of natural resources, and promote human rights. Strategic and integrated planning focuses at the macro level by addressing large spatial areas, long time scales and, ultimately, it may encompass all productive sectors.

Integrated assessment is fully incorporated into SIP at all key stages and is particularly instrumental in:

- identification of goals and objectives to be achieved (through assessment of the current situation in an area and stakeholder views);
- identification/selection of policy options (this is an iterative process and these two tasks tend to be inseparable); and
- evaluation of results against sustainability criteria and, if necessary (often it will be necessary), amendment of original policy options.

## 6.11 Future directions

As discussed here, “future directions” mean potential ways to achieve greater vertical and horizontal integration, rather than predicting what is likely to happen in EIA/SEA. How EIA/SEA will develop is not yet known, but it should be possible to promote more integrative assessment by building on existing trends as noted below.

It is expected that EIA will continue as an important input into decision-making processes for the authorization of projects. Although the need for EIA is near universally accepted, it often remains an “add on” process that has a marginal impact on decision-making. There needs to be closer integration with project design/feasibility work, and closer and more technically competent horizontal integration of environmental, health,



economic and social impacts, with more explicit and focused analysis of distributional impacts (“winners” and “losers”).

Vertical integration of different levels of assessment is still in its infancy. Most attention in the EIA/SEA literature focuses on “upstream” integration of EIA and SEA, with less emphasis given to “downstream” integration between EIA and EMS. Yet in reality, this literature does not appear to reflect practice “on the ground”. In “day-to-day” activities, there appears to be closer “downstream” than “upstream” integration. Also, such integration, to the extent that it is occurring, is more common in developed countries and countries in transition than in developing countries.

Currently, there is an active debate about the extent to which SEA can or should remain primarily an environmental tool or move toward integrated or sustainability impact assessment. In reality, this may well depend on the institutional arrangements that are in place in a particular jurisdiction. For example, in countries with strong, spatial or cross-sectoral planning systems, SEA may remain as a discrete process, but not a “stand alone” action that is separated from planning. In this case, there is a possibility that, over time, SEA will integrate more or less fully with planning systems. Recent attempts to integrate SEA with sustainability assessment, as exemplified by UK guidance on implementing the EC Directive and the UNEP initiative, are portents of future directions for SEA of plans and programmes.

The use of SEA in policy analysis and implementation appears to be increasing slowly, but in the right direction. For example, the World Bank (2001) is making increasing use of SEA as a tool for “mainstreaming” and “upstreaming” into all levels of lending and assistance activities. However, in this context, initial experience indicates that SEA probably will remain a separate but linked activity, especially at the policy level. Typically, policy development is a far less structured process than planning and varies from country to country. Therefore, the extent to which SEA may retain its identity or be integrated within the policy context is unclear. In either event, SEA at the policy level will likely become an increasingly important tool for sustainable development.

## **6.12 Last words**

In this chapter, the focus has turned from EIA as a mainstream tool and SEA as an emerging tool for integrating environmental considerations into decision-making, towards a broader perspective on integrated approaches. Ultimately, the focus is on integrated assessment of environmental, economic, and social effects of new proposals to inform decision-making in support of sustainable development. This approach is variously conceptualized, but can be characterized in general terms as proactive, participatory and trans-disciplinary. Others may define these characteristics or name the approach differently. Some of the terms in use include sustainability appraisal, sustainability impact assessment and strategic impact analysis - for applications at the level of planning, programming and policy-making.

Integrated assessment is being strongly promoted by UNEP to assist decision makers in addressing the root causes of unsustainable development, and, more positively, to deliver on the WSSD Plan of Implementation. This approach can have important benefits as outlined in the UNEP Initiative on Capacity Building for Integrated Assessment and Planning for Sustainable Development (UNEP, 2003), which has particular reference to developing and transitional countries. A specific focus is on poverty-environment-trade linkages, and their role in delivering on the MDGs. UNEP also considers an integrated assessment process can help to promote better governance and foster widespread public participation.



In the interim, much as EIA provides a stepping-stone to SEA, both can serve the same function as catalysts for integrated assessment. Realistically, this transition is likely to take time and will require considerable investment in training and capacity building. The following steps can be reinforcing:

- Get the basics right by establishing functioning EIA systems in all developing countries;
- Introduce SEA as widely as possible to mainstream environmental concerns in policy-making and planning;
- Extend these processes to address environment-development-poverty issues that are of most relevance to developing countries, recognizing that these vary;
- Gain experience in the use of the larger toolkit for impact assessment, including methods for social and economic analysis;
- Experiment with flexible frameworks for integrated decision-making, incorporating WSSD and WCD recommendations; and
- Incorporate other guidance as and when it becomes available (e.g. UNEP initiative described above).

### **Key Points: Summary of Chapter 6**

#### **Background and context**

Two main types of integration can be identified. First, there is 'vertical' integration with emphasis on the integration of EIA with other tools within the development process, for example upstream SEA, project-level EIA, then application of environmental management systems to operational facilities. Second, is 'horizontal' integration of different impact types within a specific assessment, whether SEA or EIA.

#### **Innovations**

Recent innovations include the development of a tool entitled 'sustainability' appraisal or assessment. This tool is based on the presumption that economic, social and environmental issues need to be assessed together. There are similarities between this tool and the more 'integrated' forms of EIA/SEA with an emphasis on an objectives-oriented approach. Attempts at integration, focusing on comparing the differential distribution of impacts on specific stakeholder interests, provide some promising insights into improving future EIA/SEA practice.

The global focus on the 'poverty' agenda has given impetus to the development of sophisticated tools to assess the impacts of governmental policies and programmes on the poorest sections of society, and the conditions that determine the extent to which such policies may hinder or assist poverty eradication. Most of these tools have socio-economic and distributional emphases.

#### **Challenges**

The main challenges are:

- Achieving greater 'vertical' and 'horizontal' integration in EIA/SEA;
- Obtaining the maximum benefit from the best of EIA/SEA and sustainability assessments; and
- Incorporating environmental considerations into the tools used to assist national poverty alleviation policies and programmes so that these tools can provide an 'integrated' service to decision makers.

### **Chapter 6**

#### **Towards Integrative Approaches to Impact Assessment and Planning**

## References

- Goodland, R. and Sadler, B. (1996) The Analysis of Environmental Sustainability: From Concepts to Applications, *International Journal of Sustainable Development*, 3: 2-21.
- IDPM (2003) *Sustainability Impact Assessment of Proposed WTO Negotiations. Sector Studies. Volume 111. Environmental Services* Final Report. Brussels: European Commission.
- Kessler, J. J. (2003) *Strategic Integrated planning (SIP) for Sustainable Development: Principles and Analytic Framework*. Draft Concept Paper presented to the UNEP Steering Group on Integrated Assessment, 14-15 February, 2003, Geneva.
- Kirkpatrick, C., et al. (2002) *Further Development of the Methodology for a Sustainability Impact Assessment of Proposed WTO Negotiations*. Final Report to the European Commission. Manchester: IDPM.
- Macklin, S., Lyon, D. and Bisset, R. (2002). *How to Embed Social Impact Assessment into Management Systems - the Development of Shell's Integrated Impact Assessment Guidelines*. Paper presented to the Annual Conference of the International Association of Impact Assessment, The Hague, The Netherlands.
- Meynell, P-J. (forthcoming) Applying the Rapid Impact Assessment Matrix. Part 2: EIA of the Tsetse Fly Eradication Programme in Ngamiland, Botswana. *Environmental Impact Assessment Review*.
- Office of the Deputy Prime Minister (2002) *Draft Guidance on the Strategic Environmental Assessment Directive*. London: Office of the Deputy Prime Minister.
- Pastakia, C. M. R. and Jensen, A. (1998) The Rapid Impact Assessment Matrix (RIAM) for EIA. *Environmental Impact Assessment Review*, 18 (5), 461-482.
- Sadler, B. (1996) *Environmental Assessment in a Changing World: Evaluation Practice to Improve Performance*. (Final Report of the International Study of the Effectiveness of Environmental Assessment). Canadian Environmental Assessment Agency and International Association for Impact Assessment, Ottawa.
- Sadler, B. (1999) A Framework for Environmental Sustainability Assessment and Assurance, in Petts, J. (ed.) *Handbook of Environmental Impact Assessment* (Vol. 1). Blackwell Scientific, Oxford. (pp.12-32).
- Sadler, B. (2001a) A Framework Approach to Strategic Environmental Assessment: Aims, Principles and Elements of Good Practice, in Dusik, J. (ed.) *Proceedings of International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment*. Regional Environmental Centre for Central and Eastern Europe, Szentendre, Hungary (pp.11-24).
- Sadler, B. (2001b) EIA Reconsidered, *Environmental Assessment Yearbook*. Institute of Environmental Assessment and Management, Lincoln and EIA Centre, Manchester (pp.8-12).
- Sadler, B. (2002) From environmental assessment to sustainability appraisal? *Environmental Assessment Yearbook 2002*, Institute of Environmental Management and Assessment, Lincoln and EIA Centre, University of Manchester (pp. 145-152).
- Sadler, B. and Verheem, R. (1996) *Strategic Environmental Assessment: Status, Challenges and Future Directions*, Ministry of Housing, Spatial Planning and the Environment, Publication No. 53, The Hague.
- Smith, D. (2001) *Strengthening understanding of sustainability: A review of concepts and approaches for its assessment*. ITAD Ltd.

UNEP (1996) *Environmental Impact Assessment: Issues, Trends and Practice*. Nairobi: UNEP.

UNEP (2001) *Reference Manual for the Integrated Assessment of Trade-Related Policies*. Geneva: UNEP.

UNEP (2003) UNEP Initiative on Capacity Building for Integrated Assessment and Planning for Sustainable Development, briefing paper distributed by the Economics and Trade Unit, UNEP, Geneva.

World Bank (2001) *Environment Matters*, Environment Department, World Bank, Washington DC.

World Bank (2002) *Handbook for Preparation of Poverty Reduction Strategies*. Washington DC.

World Commission on Dams (2002) *Dams and Development: A New Framework for Decision-Making*. Cape Town: World Commission on Dams.



## Annex 1: Advice on Assessing Social, Health and Economic Impacts in EIAs

### *Social impacts*

In certain countries, (for example, the USA, Canada and, to a lesser extent, Australia) in the 1970s and early 1980s, there were many proposed projects, usually involving exploitation of mineral or hydrocarbon reserves, which were located in rural areas with long-established communities having distinctive cultures or social characteristics different, to varying extents, from the larger society. These communities were either descendants of immigrant groups (ranchers in the USA) or indigenous ethnic groups (Aboriginals in Australia). Despite their differences, such groups shared a common anxiety in relation to the proposed developments. They were concerned about the effects on their culture and way of life. From their point of view they were part of the environment and it seemed unfair to consider impacts only on flora and fauna, not on the local people. This situation was one of the main reasons for the development and use of social impact assessment as part of an EIA or as a separate study.

Social impacts can be subdivided into:

- *Demographic impacts* such as changes in population numbers, population characteristics (such as sex ratio, age structure, in-and out-migration rates) and resultant demand for social services (hospital beds, school places, housing etc.);
- *Cultural resource impacts* including changes in archaeological, historical and cultural artefacts and structures and environmental features with religious or ritual significance; and
- *Socio-cultural impacts* including changes in social structures, social organizations, social relationships and accompanying cultural and value systems (language, dress, religious beliefs and ritual systems).

In many EIAs social impacts are considered to be only changes in population characteristics. It is likely that these impacts alone are assessed because such impacts are readily quantifiable and are easily calculated using well understood techniques. They can be given numerical values (for example, number of in-migrants and expected family size), which can provide an indication of the magnitude and scale of likely changes.

This restricted view of social impacts, however, omits more than it includes. An entire category of impacts, which for convenience, can be called “socio-cultural” as opposed to demographic, is ignored. In the main, this is due to the lack of an accepted technique for predicting such impacts and the non-existence of detailed knowledge of the social effects of a variety of projects in different settings.

Socio-cultural impacts are those changes in social relations between members of an institution, community and society resulting from external influence. Social impacts include changes in such features of social life as:

- quality of life/way of life;
- social organization and structures;
- cultural life; including such aspects as language, rituals and general life-style (such as dress). It is the components of cultural life which make a social group immediately recognizable as distinct from other groups;
- political and dispute-resolution institutions and processes;
- relationships between generations; and
- values.

From a consideration of both demographic and socio-cultural impacts, a working definition of “social impacts” can be offered. Social impacts include changes which affect individuals, institutions, communities and larger social systems and the interactions between them. In basic terms, these are alterations in the way people live, work, play, relate to each other, and organize to meet their needs and changes in the values, beliefs and norms that characterize their “group” and guide their individual and collective actions (Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment, 1995).

There are two very important conceptual and technical reasons for incorporating social impacts within EIAs. First, people and their social groups (such as villages and tribes) are a component part of their environment. The strength and diversity of the linkages are, perhaps, stronger in developing countries compared with industrialized countries. Since they are part of the environment there are good logical grounds for assessing social impacts (indeed, there are also good political reasons). There is often a direct link between social and subsequent biophysical impacts. For example, a project in a rural area can result in the in-migration of a large labour force, often with families, into an area with a low population density. This increase in population can result in adverse biophysical impacts unless the required supporting social and physical infrastructure is provided at the correct time and place.

Additionally, direct environmental impacts can cause social changes which, in turn, can result in significant environmental impacts. For example, clearing of vegetation from a riverbank in Kenya, to assist construction and operation of a dam, eliminated local tsetse fly habitats. This meant that local people and their livestock could move into the area and settle in new villages. The people exploited the newly available natural resources in an unsustainable way by significantly reducing wildlife populations and the numbers of trees and other woody species which were used as fuel wood. A purely “environmental” EIA might have missed this consequence because the social impact of actions associated with dam construction would not have been investigated.

The close relationships between social and environmental systems make it imperative that social impacts are identified, predicted and evaluated in conjunction with biophysical impacts. It is best if social scientists with experience of assessing social impacts are employed as team members under the overall direction of a team or study leader who has an understanding of the links between social and biophysical impacts and who is able to ensure, therefore, that integration occurs throughout assessment work. Sometimes the social impact assessment is done almost in isolation from the other work and the results of the work are incorporated in the EIA report as a “stand alone” chapter which has very little connection to the rest of the text. This is little better than having a completely separate social impact assessment report. Both outcomes should be avoided.

Secondly, local people are often **not** the main beneficiaries of development projects. Often they may enjoy a few short-term benefits (increased access to jobs, especially during the construction phase), but are subject to a variety of cumulative adverse impacts which are long-lasting if not permanent (such as local natural resource depletion and declining air/water quality). It should never be assumed that this generalization is universally true – however, experience has shown it to occur frequently. Increasingly, equity and gender issues are appearing as prominent development-oriented objectives in the policies of various governments and multi- and bilateral agencies. Information on the social distribution of the environmental costs and benefits is important to design mitigating measures and to inform decision makers of the equity effects of particular development options.



There is a current trend which will encourage integration of social impact assessment into EIA. EIAs increasingly incorporate a programme of public consultation and review. This provides an opportunity for individuals and groups to influence the nature and location of proposed developments via EIA. There is an important side-effect to this process which is often overlooked. People and social groups react to expected changes which affect their interests, and can take proactive steps to prevent, avoid or reduce the intensity of expected events. Species and natural communities cannot act similarly. This specific “social” issue will lead to greater consideration of social impacts, on the part of developers, governments and agencies, as a way of encouraging the creation of a planning process which encourages local people to adapt in reasoned and acceptable (to them) ways to expected changed circumstances. Successful pursuit of this strategy should lead to more successful project implementation through elimination of delays and other costly events resulting from low levels of consensus amongst all the interested and affected parties in the development process.

The process of social impact assessment is identical, in terms of the major activities and their sequence, to EIA, thus including it within EIA is relatively easy. There are, however, a number of issues specific to social impact assessment which need to be taken into account. First, and this is a direct consequence of the human propensity to act in advance of expected events, social impacts can occur from the moment people learn that a proposed project might be implemented in their locality. At this stage direct biophysical impacts do not occur, unless individuals and groups take some action which has such consequences. In the EIA for the Saguling dam in Indonesia, a number of impacts were identified and assessed relating to the pre-construction period (Institute of Ecology, Padjadjaran University, 1979). A flow diagram was constructed to show the main harmful and beneficial impacts and their relation to each other.

The issue of proactive response is also important when impacts have been predicted and public consultation occurs based on an interim or draft EIA report. Interested and affected individuals and groups may react to the information in ways that may result in impacts. The nature of any response should be identified and, if possible, assessed before consultation occurs. This is not easy to do and is often omitted from EIAs.

Social impacts, like other impacts, need to be evaluated for their importance and significance once their extent and magnitude have been predicted. When assigning significance it is less easy to rely on scientific, “objective” judgements provided by those implementing the assessment or on pre-existing criteria or standards. The “social” significance assigned to changes by individuals and particular social groups differs and needs to be incorporated into decisions on significance. Certain biophysical impacts will be a focus of public concern and “social” significance an important consideration, but the degree to which social significance is to be included in decisions on significance is probably greater in relation to social as opposed to biophysical impacts.

Finally, when an impact management plan is prepared covering mitigation, monitoring and community liaison requirements, it is important to consider that mitigation can apply not only to the proposal (design, siting, construction schedule etc.) but also to the host community or region likely to be affected. Communities can implement actions to reduce, if not avoid, significant adverse effects independent of actions aimed at the project. Also, it can be useful to consider whether any measures to mitigate biophysical impacts may have important social impacts.

Social impacts can be very difficult to identify and predict with any degree of certainty because of the variety and complexity of social structures and systems. Demographic and cultural resource impacts may be the exception to this “rule”. This contrasts, to some

extent, with our ability to predict biophysical impacts such as noise, concentrations of air pollution, some ecological impacts and the effects of water pollution.

The extent of a social impact assessment will depend on the output of scoping activities. It is suggested, however, that there is a “minimum” approach which can be taken to deal with certain social impacts. This approach focuses on the relationships between local people and natural resources (World Bank, 1991).

The first stage is to identify the specific social groups which make up local communities. Important social categories or characteristics which can be significant include:

- ethnic/tribal affiliation;
- occupation;
- socio-economic status;
- age; and
- gender.

The next main step is to determine the degree of local control over natural resources, whether or not recognized formally in law. Control is defined as the actual ability to make major decisions regarding access to local resources and production and distribution rights in terms of the outputs from local resources. The links between the identified social groups and control over natural resources should be determined through identification and analysis of the institutions by which decision-making regarding use of natural resources and the resolution of conflict occurs. Next, it is necessary to identify the production systems by which different groups obtain their livelihood from natural resources.

Finally, the various production systems need to be analysed to determine their nature and variation in time and space. For example, fishing communities typically divide production activities between the water, beach and inland areas with the latter two localities often providing more than 50 per cent of dietary intake. A social impact assessment which considered only marine-related production systems for a fishing community, would be unable to predict all likely social impacts because of the omission of the other sources of food. Throughout the social impact assessment process the above steps should be undertaken by an anthropologist or rural sociologist with expertise/experience, if possible, in both social impact assessment and the communities/cultures of the area likely to be affected by a project. Part of the process, and a very important one, would be consultation with local communities and with representatives of the social groups identified early in the process. In this way, the analysis by the external expert takes into account the views/perceptions and insights of the people themselves.

### ***Health impacts***

Traditionally, health issues have been given little attention in EIAs. Even when social impacts were being investigated, the effects of a proposal on individual mental and physiological well-being (health status and trends) were often omitted or treated in an unsatisfactory manner. The World Health Organization (WHO) defines health as “...the extent to which an individual or group is able to realize aspirations and satisfy needs and... to change or cope with the environment .. it is a positive concept emphasizing social and personal resources, as well as physical capacity”. It is not just the absence of disease. If this view is accepted, then the links between health and social impacts are very apparent.

Often, but not always, health impacts depend on initial environmental impacts such as habitat changes causing increased vector densities (such as the black fly which transmits onchocerciasis, commonly known as river blindness, or the snail involved in transmission of bilharzia) or increased likelihood of contact between the vectors and humans.

This direct relationship between a biophysical change and disease incidence may be one of the reasons why social impact assessments do not always examine health impacts. However, there are disease pathways which occur solely within a social context.

A common example is an increased incidence of sexually transmitted diseases resulting from the influx of a large construction labour force (predominantly male), with money to spend, into a rural area.

There are winners and losers in the development process. Some groups or individuals may be more exposed to harmful pollutants and their health status may decline. Also, some groups may suffer a reduction in their standard of living and become poor if their resource base is degraded or reduced with no comparable substitute(s) provided. Such a change in socio-economic status can be accompanied by increases in morbidity and mortality due to poor nutrition, unsanitary living conditions and reduced physical and financial access to health care facilities.

Similarly, relocation of individuals and groups to new areas to enable a development to occur (a dam flooding a valley containing several villages) has been shown to increase death and illness rates amongst those being relocated. The old and the young have been the most vulnerable to illness and death. Health impacts can occur, also, directly from a development, particularly from a hazardous installation when an accident occurs such as the release of a certain amount of a toxic gas (as occurred at Bhopal) or an explosion.

As in the case of social impact assessment, the EIA logical framework of step-by-step activities, undertaken to assess and evaluate impacts and to formulate mitigation and monitoring measures, applies to health impact assessment. The scoping activities will determine the specific health impacts to be investigated and an expert in environmental or public health should be part of the overall EIA team. Depending on the type of project and its locality it may be necessary to use specialists to provide periodic advice/input to the health expert (for example, toxicologists, epidemiologists and social psychologists).

The assessment of health impacts is based on an identification of health hazards. This involves identifying the kind of hazards normally associated with projects of a specific type in a region. The next step is to assess the change in health risk attributable to the project. This involves identifying environmental factors which may cause health impacts, and the individuals or groups who are potentially threatened by changes in these factors. These changes can arise from both routine and normal operating discharges, habitat alterations or unexpected conditions or events (an accident). The factors or agents, whose nature and behaviour can be affected by a proposed development can be classed as chemicals, radionuclides, organisms or physical phenomena (pressure waves from explosions). Finally, it is essential to assess the capability of existing health institutions to protect the individuals or groups from the hazardous agents.

Once this is done, a useful approach is to describe the known relationship between the “dose” of a health-impact-causing agent and the predicted health impact in the exposed group(s). Next, an assessment is made of the exposure of the group(s) to the pathways by which agents can affect them. Specific “doses” should be estimated for various alternative options and for each threatened group. These “dose” estimates are then compared with the known or expected dose-response relationships. This comparison enables an estimate to be made of the likely magnitude of the health impacts. Unfortunately, dose-response relationships do not work for communicable diseases, malnutrition or injury. For exposures that occur sporadically (accidents) instead of continually, it is necessary to estimate, using probabilistic risk analysis, the likelihood of the event occurring and combining the results with the exposure assessment.

### *Economic impacts*

The reasons that have resulted in the incorporation of social impacts into EIA have acted, also, to encourage integration of economic impacts. There can be no doubt that changes in the local economy can have a direct bearing on “quality of life” for individuals and communities. The focus of economic impact assessment is the estimation of changes in employment, per capita incomes and levels of business activity.

The magnitude and extent of economic impacts are dependent on the following main factors:

- duration of construction and operational periods;
- workforce requirements for each period and phasing of construction workforce needs (numbers to be employed during the peak phase for construction works);
- skill requirements (local availability);
- earnings;
- raw material and other input purchases;
- capital investment;
- outputs; and
- of course, the characteristics of the local economy.

Without reliable information on these factors it is very difficult to implement an economic impact assessment. It is vital to attempt to obtain such data – if this does not occur, then not only economic impacts but also social and health impacts will not be predicted adequately.

When a new major project is proposed it is essential to obtain information on the proposed employment levels and expenditures on labour and local materials and services. At the same time it is necessary to undertake a baseline study of the local labour market and economy. Using data from these studies, projections can be made of the likely economic impacts.

It is essential to obtain information on the size of the labour forces required for construction and operation, the skills required (numbers of managers, engineers, office staff and labourers), age breakdown, average incomes and the length of time for which they will be employed. Experience from past economic impact assessments has shown a tendency for developers to overestimate the numbers of workers required for construction. It is difficult to achieve accuracy in this matter because of inherent uncertainty and technological changes which render past experience redundant. Nevertheless, some attempt should be made by those involved in the assessment to determine the size of the labour force and the time for which it is required (for example, construction labour forces tend to reach a peak about mid-way through the construction period then slowly decline). As well as estimating labour forces, it is very useful to obtain information on capital expenditure by the developer on locally produced goods and services which will be required for both construction and operational phases. At the same time as these data are being obtained, a survey of the local economy should also have been undertaken.

Information should relate, primarily, to the local labour market. Generally, a local labour market is defined in terms of the travel-to-work pattern of local people. Precise definition of a local labour market is difficult and will vary from case to case. Initially, the nature of the local industrial structure should be examined. This examination should include the degree to which local employment depends on a particular industry – for example, food processing. Data on the industrial structure should be collected over time to determine trends in the growth and decline of particular industries.

Additionally, the occupational structure of the local labour market should be analysed. This should cover the number of workers with particular skills, vacancies that exist for specific skills – for example, welding – and the average wage levels for the different skill

groups. Also, it is important to collect information on the unemployed in terms of their numbers, age and skills. This information is important because it can be an important determinant of the extent to which the unemployed can take up jobs made available by a project. If the unemployed were found to be elderly, then it is unlikely that many would wish to take up jobs involving labouring for long hours. Finally, an examination of male/female activity rates (the proportion of a population of working age which is in "full" employment) can give a useful indicator of hidden employment reserves. Once data on likely employment characteristics relating to the project and on the local labour market have been obtained, an attempt can be made to predict economic impacts.

There are a number of techniques available to predict economic impacts, but the most common is the income and employment multiplier. It works on the basis of an initial income injection into a local economy. This income injection is provided by the wages of direct employees at a proposed installation and any expenditure on local goods and services required for construction and operation of the project.

This initial income injection represents extra money which is incorporated, to a certain extent, in the local economy. This extra money is spent, by those who receive it directly, on other goods and services (some of which might be locally produced). This means that those who have produced the goods and services also enjoy a rise in income which subsequently is spent in a similar way as in the first round of expenditure. This process is repeated with a smaller amount being passed on at each stage. The eventual increase in local incomes depends on how many individuals purchase local goods and services.

In many economies, increased direct income is either saved or exported from the economy in remittances to family and other kin outside the local area. If this were a characteristic of a particular workforce then the value of the multiplier would be low. On the other hand, if consumption of local goods and services were high then the value of the multiplier would also be high. The higher the income multiplier the more jobs created in the local economy.

It is important to realize that there are a number of factors which will determine the economic (in particular, employment) impacts of a project. It has already been stated that the characteristics of the unemployed will affect their ability to benefit from new employment opportunities.

Also, activity rates showing a reservoir of suitable labour might also be misleading. Various social/cultural and economic factors may mitigate against men/women wishing to work in an industrial environment. For example, men who have a number of different occupations may not, as a result of previous experiences, wish to take the risk of single occupation employment. They might rather spread the risk of failure or job loss over a number of part-time occupations.

The effects of a new major project on existing long-established industries may be deleterious. The possibility exists of labour being attracted away from existing industries. The extent to which this will happen depends on:

- the wages being offered in comparison with those obtainable locally;
- the presence of appropriate skills in other firms; and
- intangible factors connected with work satisfaction.

It is possible that existing traditional industries might lose labour if they cannot compete with incomes offered at a new installation. This might have two consequences. First, the industry might close and the remaining employees lose their jobs. Alternatively, owners might be able to increase capital expenditure and buy machines to replace the lost labour.



Should such industries lose labour to a construction workforce then increased mechanisation might mean that those employees who lose their jobs when a project has been built are unable to obtain their previous jobs. The impacts of a new project on existing industries should be assessed, though this is a very difficult task. The loss of certain industries through competition for labour might be economically marginal, but if the industries (and skills) concerned have a cultural significance in terms of ethnic or national identity then their loss might be considered to be very serious.

The economic impacts of a project are the main cause of social impacts. This is especially true if the construction and/or operation of a project results in the in-migration of workers from outside the local area. This does not always happen – it depends on whether the local labour market is able to supply the type of workers required by the new installation.

Employment opportunities created by a new project can be divided into four categories:

- construction employment. This includes both employment related to the construction phase of the project and the provision of basic infrastructure;
- direct employment at the project;
- increases in employment, if any, brought about by linkages between the proposed development and local firms; and
- possible increases in service sector employment.

In-migrants might take up job vacancies in any of these four categories.

The size and type of in-migration can cause a number of social impacts. For example, construction labour forces tend to be young, single men with few local connections. Generally, they are transient, moving from one site to another. The main demand of such individuals is likely to be for adequate accommodation, sewage treatment, hospitals and recreation provision.

In contrast to construction work forces, the operational work force is likely to be permanent (until the installation closes). Workers will bring their dependants with them and as a result the impacts on local service provision such as schools, hospitals, sewage treatment and leisure facilities will be more comprehensive and longer lasting than those resulting from construction workers.

In many developing countries the phenomenon of induced development needs to be considered. New large projects represent “islands of prosperity in seas of poverty”. As such they attract people hoping to take advantage of job opportunities and the health and educational facilities which often accompany new projects. If this movement and aggregation of people occurs then local areas can receive more in-migrants than might be expected from an analysis of the number of jobs likely to be available. These people can place significant additional strains on local infrastructure, the environment and local government resources.

### *Fiscal impacts*

When economic impacts are being investigated the focus is, usually, on the effects on the nature and behaviour of the local economy. Commonly, the economic consequences for local and other government organizations are omitted. These consequences are termed fiscal impacts because they are concerned with changes in the costs and revenues of these organizations. Major projects can cause large increases in population and, as a result, cause stress to local services (such as health provision) and infrastructure (for example, roads and sewerage). Key factors determining fiscal impacts include:

- size of investment and workforce requirements;
- capacity of existing service delivery and infrastructure systems;



- local/regional tax or other revenue-raising processes; and
- likely demographic changes arising from project requirements (these need to be estimated during the assessment of social impacts).

Using such information, the fiscal impacts can be predicted and action taken to avoid or minimize possible consequences which might strain local government finances. One common problem often arises from the need for expenditure on services and infrastructure which increases more rapidly than revenue from the project, creating a “deficit” and short-term cash flow difficulties. Unless borrowing is permitted, this can cause serious problems with needed infrastructure and services not being provided, or being provided only in part although they were intended to be in place when a project was approved. Lack of provision can cause social and environmental impacts through overloading of infrastructure such as water supply networks or sewerage systems. Again, there is a direct linkage between biophysical damage and social changes.

A problem which can increase such difficulties is the possible miss-match between project fiscal impacts and local administrative boundaries. It can be that the project revenues are received by one local government entity, but most of the costs, in terms of services/ infrastructure provision, have to be met by another entity as most people decide to live within the boundaries of that government entity. If this situation is considered in the context of an EIA, then valuable time can be saved by formulating a strategy for dealing with the problem instead of developing a remedial strategy once the problem has begun to occur.

### *Risk and uncertainty*

EIA deals with future events and thus has to cope with the issue of predicting events whose likelihood of occurrence is not known precisely or accurately. Until recently this issue was handled usually by ignoring it. EIA reports used phrases such as “will” and “might” to indicate in a qualitative manner the likelihood or probability of events occurring. It was left to the decision makers and the public to interpret the meaning and significance of such qualitative expressions. As can be imagined, this is not an easy task.

It is useful to distinguish between risks and uncertainties. Risks are involved when probabilities can be assigned to the likelihood of an event occurring – for example there is a likelihood of 1 in 10,000,000 ( $10^{-7}$ ) per year that someone will be struck by lightning in a particular country. Uncertainty is concerned with a situation in which very little is known about future events (or impacts) and therefore no probabilities can be calculated and assigned to outcomes. There are, also, events which are unknown and cannot be anticipated in advance. For example, the use of chlorofluorocarbons (CFCs) has led to ozone depletion. This was an unknown outcome when CFCs were introduced into refrigeration and, realistically, could not have been evaluated as an impact when they were introduced.

### *Hazardous events*

It is useful to define the term “hazard” at this point because it is used commonly in EIA and project appraisal. A hazard can be defined as the inherent or intrinsic property of a system (which can be an operating factory or a mode of transport) to cause damage. The likelihood of that damage or harm occurring is termed the risk. Risk assessment is the scientific process of assessing the probability of an adverse effect of defined characteristics caused by a hazardous event occurring (for example, the explosion or release of a toxic gas occurring at a chemical installation). It answers two basic questions:

- How likely is an event to occur?
- How harmful can it be in terms of deaths, injuries and property and ecosystem damage?

Risk assessments have been undertaken, traditionally, for proposed hazardous facilities such as nuclear power stations, pipelines transporting flammable materials and installations which use or produce hazardous materials. In the past these have been undertaken separately from EIAs - often because there were no EIA requirements, but even when EIA requirements existed. Basically, risk assessment is based on engineering systems and their potential malfunction and then relating the consequences of such an event to human health (mortality and morbidity) and structural damage to buildings.

There are three distinct stages in a probabilistic risk assessment:

- identification of hazards;
- identification of initiating events that might lead, via various pathways or scenarios, to a hazardous event occurring; and
- quantification of the probabilities accompanying the various initiating events and the associated consequences of the final hazardous event.

Probabilistic risk assessment is a very specialized technique for predicting hazardous events and their social, health and environmental impacts. As such it is now seen as less of a "stand alone" specialized activity and is now more frequently an integrated part of EIAs, although its integration is by no means universal.

#### ***Impact probabilities***

There has been an increasing dissatisfaction, particularly in the industrialized countries of the north, concerning the vague, qualitative way in which many social, health and environmental impact predictions are expressed. Decision makers and the public have been seeking more and more information on the likelihood of certain impacts occurring (for example, instead of a statement such as, "...is likely to reduce fish biomass by 10 per cent it is possible to be more specific, "...there is a risk of 0.2 of a 30 per cent reduction in fish biomass even though the expected reduction is only 10 per cent) The latter statement gives more information to decision makers. It is now realized that EIA reports could be improved if concepts and techniques taken from probabilistic risk assessment could be used to produce probabilities for impacts, particularly those affecting ecological systems (and species) and social systems (local communities). There is one additional benefit. Quite often in EIAs, worst case analyses are used to ensure, basically, that potentially serious impacts are not under-estimated. There is a general preference, in EIA, to be conservative and over-estimate impacts rather than under-estimate impacts and have to initiate "emergency" mitigation measures. Decision makers can find it difficult to deal with such worst case analyses if no probability estimates are given. In fact, there is a potential to remove worst case analyses from EIAs as probabilistic analysis of a range of impact outcomes could include, automatically, the worst case event.

There is, however, little real life experience in identifying probabilities for EIA predictions, and the costs and resource implications of trying to do so are not clear. At present, it would seem appropriate for EIA teams to be aware of the benefits of assigning probabilities and to do so when and where appropriate without compromising the overall quality of the EIA work and exceeding budgetary and time constraints. In the case of hazardous installations, the use of probabilistic risk assessment is essential within the overall EIA study.

## Annex 2: Tiering EIA and SEA

The relationship between SEA and project EIAs can be considered as occurring within a tiered system. The nature and role of tiering can be examined in the context of the energy sector. There is a series of linked decisions leading, ultimately, to project approvals. Fundamental, early decisions are made at the policy level. These decisions set the context for “downstream” decisions which have more limited focus. Basically, these decisions form a hierarchy. An early policy decision might deal with strategic issues on energy generation. An EIA of alternative power-generating options, prior to such decisions, would assist identification of the environmental costs and benefits and hence the selection of a preferred option. This option might involve a mix of thermal, hydro and wind sources of power. Individual hydro-schemes, or coal-fired power stations, would then be subject to site-specific EIAs.

These EIAs would be implemented within the context of the earlier energy sector policy EIA. The basic design/location configurations for these projects may have been formulated previously on the basis of environmental considerations, so the extent of the project-level EIA should be less detailed and time-consuming than would have been the case if the initial policy-level EIA had not been done. Secondly, a considerable amount of data will have been gathered and consultations undertaken. Results from this previous work will be available to the project EIAs, thus helping to reduce the cost and length of these EIAs. In this context, project-level EIAs can be considered to be nested within the policy level EIA.

In a tiered or hierarchical EIA approach, the type and nature of the environmental information provided through the application of EIA depends on the needs of the decision makers at specific stages. For higher level policy or planning decisions, the environmental information will not be precise and quantitative and probably will relate to general, broadly defined, issues rather than specific **impacts**. Later, when EIA is applied at the project level (for projects that are a direct outcome of a policy or plan), detailed impact-specific, technical information is needed.

