STRATEGIC ENVIRONMENTAL ASSESSMENT: A RAPIDLY EVOLVING APPROACH

By

Barry Dalal-Clayton and Barry Sadler

1: Introduction

Strategic environmental assessment (SEA) has emerged in the last few years as a term for tools which aim to integrate environmental considerations into proposed laws, policies, plans and programmes. However, in one form or another, SEA has been in place for some time. The preparation of legislative and programmatic Environmental Impact Statements has been an integral element of US practice under the National Environmental Protection Act (NEPA) 1969. Other SEA-type approaches reflect an extension of EIA trends, including area-wide and regional assessments, and policy-level reviews as part of public inquiries and environmental reviews. Early references to these applications can be found in various sources (e.g. Sadler, 1986; Wathern, 1988; Jacobs and Sadler, 1989; Bregha *et al.* 1990). The last two examples involved work undertaken in support of Canada's process of Policy and Programme Assessment which was established by Cabinet Directive (1990) as a parallel system to the project based Environmental Assessment and Review Process (1973)[1]
There is no internationally agreed definition of SEA, but the interpretation offered by Sadler and Verheem (1996) is among those which are widely quoted:

> "SEA is a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making on par with economic and social considerations".

Interest and debate about SEA is growing rapidly. A number of recent workshops on SEA have surfaced differing opinions about its nature and scope (e.g. workshops organised by the International Association for Impact Assessment in New Orleans, USA, in 1997, and in Christchurch, New Zealand, in April 1998; and by the UK Department of Environment in Lincoln, UK, in May 1998). One school of opinion holds that that SEA should focus mainly on environmental issues; another takes the view that it should provide a sustainability focus and cover social and economic aspects as well environmental ones. It is also argued that SEA at the policy level requires a different methodological approach to SEA at the programme and plan level. However, there is broad consensus that there can be no one 'blueprint' approach to SEA and approaches will need to be developed and tailored to suit conditions, institutional realities and political circumstances in individual countries.

There is debate on the suitability of SEA in developing country contexts where there is growing evidence that EIA is not working well (Mwalyosi & Hughes, 1998). Often the reasons are not so much technical ones, as issues of lack of political and institutional will, limited skills and capacity, bureaucratic resistance, antagonism from vested interests, corruption, compartmentalised (e.g. sectoral) organisational structures and lack of clear environmental goals and objectives. Undoubtedly, these structural problems will loom large as constraints to the introduction of SEA. In addition, there are many issues regarding the use of

[1] This process was replaced by the Canadian Environmental Assessment Act (1996) which applies exclusively to projects.

SEA in industrial countries that are unresolved and, more seriously, glossed over in promotional literature.

2: Guidelines and Literature

The general view amongst practitioners and many officials emerging from the above debate is that there is a need to experiment with SEA - to "get on and just do it" - in order to gain experience and learn lessons. Because SEA is still in its infancy, there are only a few published guidelines. These are not generic but promote individual national and organisational approaches to SEA, e.g. the method of strategic environmental assessment (SEAn) developed for the Netherlands Development Organisation (AIDEnvironment 1997, Kessler 1997a, 1977b), the South African approach (CSIR 1996), UNDP's Environmental Overview approach (UNDP 1992), appraisal of policies and development plans in the United Kingdom (UK Department of the Environment 1991, 1993), sectoral and regional environmental assessment at the World Bank (World Bank 1993).

Whilst there is a dearth of practical guidance available to those who would like to start applying SEA, the literature base is growing rapidly and a number of useful reviews of SEA experience provide perspectives and background on this evolving field (see Box 1). These are both incomplete and continually being updated by papers on SEA in conference proceedings and journals. However, there is also a considerable restatement and recycling of basic premises and themes.

Box 1: Some Key Literature on SEA

- UNECE (1992) - report on principles and procedures that were agreed amongst a range of participating countries.
- Wood and Djeddour (1992), Therivel *et al.*(1992) - compare similarities and differences between SEA and EIA, elaborate the potential scope of procedure and practice, and discuss possible methodologies for undertaking SEA.
- *Project Appraisal* (Vol 7 (3), Sept 1992) - special issue which examines the (then) status of SEA in the USA, Australia and New Zealand, and the Netherlands; and, in the UK, in relation to land-use planning, the water environment and transport sector.
- Sadler and Verheem (1996) - critically evaluate the status and effectiveness of SEA processes in leading countries and international agencies (analysis based on a portfolio of 52 case studies and eight institutional profiles (see also de Boer and Sadler, 1996).
- Therivel and Partidario (1996) - review international SEA guidance and regulations, discuss models and methodologies, and provide 10 case studies - grouped under three categories (sectoral SEAs, SEAs of land-use plans, and SEAs of policies).
- World Bank (1996) - case studies of World Bank approaches.
- CSIR (1996, 1997) - primer on South Africa's approach to SEA and a draft Protocol on SEA.
- CIDA/DGIS (1997) - report of SEA provision and practice amongst OECD development cooperation agencies.
- Dalal-Clayton and Sadler (1998, in press) - provide an overview of the international status of SEA; examine perspectives on its role and focus; discuss the rationale and benefits of the approach; describe experience (with case examples) of applying SEA processes in developing countries, in central and eastern Europe and other countries in transition; review the approach of development assistance agencies; and also consider parallel processes that are closely aligned to and/or have relevance to emerging SEA techniques, e.g. environmental scenario planning, sustainable development strategy processes, etc.

3: Scope of SEA

Most practitioners view SEA as a decision-aiding rather than a decision-making process (like EIA) - a tool for forward planning to be flexibly applied at various stages of the policy-making cycle. Under this broad perspective, SEA encompasses assessments of both broad policy initiatives and more concrete programmes and plans that have physical and spatial references (e.g. town and regional plans, regional development programmes). With this scope of coverage one problem becomes readily apparent. The methodologies to be applied at the opposite ends of the decision-making spectrum differ markedly. However, the principles of EIA apply at all levels. Table 1 compares EIA and the evolving process(es) of SEA.

Table1: EIA and SEA Compared

Adapted from CSIR (1996)

EIA	SEA
Is usually reactive to a development proposal.	Is pro-active and informs development proposals.
Assesses the effect of a proposed development on the environment.	Assesses the effect of a policy, plan or programme on the environment, or the effect of the environment on development needs and opportunities.
Addresses a specific project	Addresses areas, regions or sectors of development.
Has a well-defined beginning and end.	Is a continuing process aimed at providing information at the right time.
Assesses direct impacts and benefits.	Assesses cumulative impacts and identifies implications and issues for sustainable development
Focuses on the mitigation of impacts.	Focuses on maintaining a chosen level of environmental quality.
Has a narrow perspective and a high level of detail.	Has a wide perspective and a low level of detail to provide a vision and overall framework.
Focuses on project-specific impacts.	Creates a framework against which impacts and benefits can be measured.

The inter-relationship between policies, plans and programmes is frequently idealised as a hierarchical or tiered process of decision making, as illustrated by Figure 1 using energy development as an example. In reality, however, policy-making does not necessarily follow a

Figure 1: Emerging Process of Tiered and Integrated Environmental Assessment
(Source: Sadler and Verheem, 1996)

	JUSTIFICATION	ALTERNATIVES		MITIGATION
		Technological	Locational	
POLICIES	Macro-economic policy / Environmental policy	Sectoral development straategies e.g. transport and energy	Regional development plans	Mega-projects e.g. Channel tunnel (UK) and hydro-development (Quebec)
PROGRAMS	Conservation strategies	Energy supply e.g. oil and gas, nuclear and hydro		
PLANS	Intergrated river basin management		Hydro facility plans e.g. r eservoir siting, transmission corridors	
PROJECTS	Environmental standards e.g. Water quality and fisheries production			Site-specific impact assessment

logical sequence of discrete, technical steps. Rather it is a more complex, iterative process in which the range of choice is gradually narrowed and most options are foreclosed by the project phase. This fact has a critical bearing on practical applications of SEA (Sadler 1998).

In addition, terms such as *policies, plans and programmes* (PPP or the 3 P's) mean different things in different countries and their use is dependent on the political and institutional context. But in general, policies are taken to be broad statements of intent that reflect and focus the political agenda of a government and initiate a decision cycle. They are given substance and effect in plans and programmes - which involve identifying options to achieve policy objectives and setting out how, when and where specific actions will be carried out (Sadler and Verheem, 1996).

However defined, policies and programmes encompass a range of strategic decisions, many of which are likely to have environmental, social or economic consequences. Box 2 outlines a simple "pre-screening" check for SEA to establish the proposals that are of concern. It can be adapted to different decision-making contexts and is undertaken by reference to:

- *the policy area or sector covered*. In general, all policy areas which concern or lead to changes in the use of land and natural resources, the production of raw materials, chemicals and other hazardous products and/or the generation of pollutants, wastes and residuals, are potential candidates for SEA.

- *the type of environmental effects that can be anticipated*. When moving from the policy to the project stage of the decision cycle, environmental considerations correspondingly shift from indirect to direct effects.

Logically, the scope and form of SEA should correspond broadly with the level of generality of decision-making and the type of environmental effects that are identified (see Box 2). Direct

Box 2: A Pre-Screening Procedure for Determining SEA Requirements

The following questions can be used to make a quick judgement about SEA requirements:

- What is the actual content of the proposal?
  - is it concerned only or primarily with broad general direction(s) ?; or
  - does it address or specifically include operational measures (projects, activities, etc.)?

- What policy area or sector is targeted in the proposal?
  - is it one known to have or likely to cause environmental effects (e.g. energy, transportation, housing, agriculture)?; and/or
  - are there components which are likely to have cumulative or long-term consequences for the environment (e.g. trade, industrial diversification, technology development)?

- What environmental considerations are raised by the proposal? Does it appear likely to:
  - initiate actions that will have direct or evident environmental impacts?;
  - raise broad environmental implications and/or issues that should be addressed ?; or
  - have marginal or no environmental consequences?

Source: Sadler & Verheem (1996).

effects, typically, can be correlated with projects and with plans and programmes that initiate and locate specific activities; indirect effects are associated more with policies and with certain types of plans and programmes, such as legislative and fiscal initiatives. Many of these are not easily separable into discrete actions but that may have an environmental dimension; for
example, by influencing attitudes and consumer behaviour toward transport or waste recycling (Sadler and Verheem, 1996). These categories apply equally to developing as well as industrial countries, although obviously the circumstances and considerations will differ.

4: Rationale for SEA

The benefits of introducing SEA and some constraints are identified in Box 3. In broad terms, the rationale for SEA of policies, plans and programmes falls into three main categories: strengthening project EIA; advancing the sustainability agenda; and addressing cumulative and large-scale effects; (Jacobs & Sadler, 1989; Lee & Walsh, 1992; Sadler, 1994; Sadler & Verheem, 1996).

Strengthening project EIA and advancing sustainability

EIA practice is constrained by certain limitations and weaknesses. These include structural weaknesses centred on the relatively late stage at which EIA is usually applied in decision-making. By this point, high-order questions of whether, where and what type of development should take place have been decided, often with little or no environmental analysis. Project-by-project EIA is also an ineffective means of examining these issues. SEA or an equivalent approach can be used as a complement to project-level EIA to incorporate environmental considerations and alternatives directly into policy, plan and programme design. Thus, when applied systematically in the "upstream" part of the decision cycle and to the economic, fiscal and trade policies that guide the overall course of development, SEA can be a vector for a sustainability approach to planning and decision-making - as called for by the Brundtland Commission (WCED 1987) and by Agenda 21 (UNCED 1992). This "upstream" approach can also help to focus and streamline project EIAs, making them more consequential and reducing the time and effort involved in their preparation. SEA may yield significant other benefits; for example, by ruling out certain kinds of development at the policy level, reducing the need for many project-level EIAs and thus relieving pressure where institutional and/or skills capacity is limited.

Addressing Cumulative and Large Scale Effects

Arguably, SEA offers a better opportunity than project-level impact assessment to address cumulative effects. Recently, considerable efforts have been made to extend EIA-based frameworks to encompass certain types of cumulative effects. These deal reasonably well with the ancillary impacts of large-scale projects (e.g. dams, transport infrastructure) and the incremental effects of numerous, small-scale actions of a similar type (e.g. road realignment and improvement). However, more pervasive cumulative effects and large-scale environmental change (which are the end result of multiple actions and stresses that cut across policy and ecological boundaries) are difficult to address. In principle, these can be addressed best by SEA of policies, plans and programmes; in practice, this has not proven to be the case.

Box 3: SEA: Some Benefits and Constraints

Benefits: SEA can and should:

- promote integrated environment and development decision-making;
- facilitate the design of environmentally-sustainable policies and plans;
- provide for consideration of a larger range of alternatives than is normally possible in project EA;
- take account, where possible, of cumulative effects (particularly by focusing on the consequences of sectoral or regional-level developments) and global change;
- enhance institutional efficiency [particularly where EIA related skills, operational funds and institutional capacities are limited] by obviating the need for un-necessary project-level EIAs;
- strengthen and streamline project EA by:
  - the incorporation of environmental goals and principles into policies, plans and programmes that shape individual projects;
  - prior identification of impacts and information requirements;
  - clearance of strategic issues and information requirements; and
  - reducing time and effort taken to conduct reviews; and
- provide a mechanism for public engagement in discussions relevant to sustainability at a strategic level.

Constraints: For SEA to function effectively:

- a level of institutional maturity is necessary which allows for effective inter-sectoral dialogue, for environmental considerations to be taken into account in formulating, revising and implementing policies, plans and programmes effectively, and to influence decision-making;
- appropriate skills are needed, within government departments and agencies, in the private sector (e.g. industry, environmental consulting companies) and amongst academics and NGOs; and
- there is a need for adequate capacity in these sectors (both human and financial resources).

Other factors: In practice, the extent to which the benefits of SEA are achieved will also depend on a number of other important factors:

- the provisions made for SEA, e.g. legal versus administrative;
- the prior record of implementation and acceptance by decision-makers;
- the degree to which overall strategies of sustainable development are in place;
- the scope and level(s) of process application; with the broadest range of benefits being gained from SEA systems that include review of policies as well as plans and programmes.

Sources: Adapted from Dalal-Clayton & Sadler (1995) and Sadler and Baxter (1997)

5: Trends and Experiences

To date, formal provision for undertaking SEA has been confined largely to industrial countries (e.g. Australia, Canada, the Netherlands, New Zealand, UK, USA) (see Table 2). Except for the requirements of lending and donor agencies, particularly the World Bank, experience with SEA in developing countries is limited, but there is evidence of much wider use of SEA-type processes (proximate approaches) (see Box 4). In the countries of Central and Eastern Europe, there is increasing experimentation with formal procedures for SEA (see Box 5).

Box 4: Some Examples of SEA and Proximate Approaches from Developing Countries

- CSIR (1997a): Preliminary SEA for the KwaZulu-Natal Trade and Industry Policy, South Africa.
- CSIR (1997b): SEA for the Proposed East London Industrial Development Zone, South Africa.
- IUCN Nepal (1995): Bara Forest Management Plan, Nepal.
- TANAPA (1993): General Management Plan for Kilimanjaro National Park, Tanzania.
- Thompson (1997): Ngorongoro Conservation Area General Management Plan. Tanzania.
- Spenceley (1997): SEA of Tourism at Hwange National Park, Zimbabwe.
- IUCN-ROSA(1996): SEA of Development Around Victoria Falls.
- World Bank (1996): Best Practice Regional EA: Argentina Flood Protection Project (Proposed).
- Huntley *et al*. (1989) and Sunter (1992): Scenario-Planning in South Africa.
- Dalal-Clayton (1997): Extreme Scenarios for Southern Africa.
- Kessler (1998, pers comm): Strategic Environmental Analysis (SEAn) methodology applied by the Netherlands Development Organisation (SNV): in Benin to develop a strategic plan, and Nicaragua for integrating environmental care in council planning.
- Naim (1997a, 1997b): SEA of Thermal Power Generation Policy, Pakistan.

Box 5: Some Examples of SEAs from Central and Eastern Europe

- Koblar (1998): SEA of Major Transport Routes in Slovenia: Methodology and Approach.
- Rotbergh (1998): SEA of the Jurmala Territorial Development Plan, Latvia.
- Kozova (1998): SEA of the Updated Version of the Energy Policy of the Slovak Republic.
- World Bank (1996): Sectoral EA: Estonia District Heating Rehabilitation Project.

and Therivel (1997) lists a range of SEAs undertaken, including, for example:

- Czech Republic: landscape protected area Zelezne hory (Iron Mountains), 1996.
- Hungary: express motorway network, 1993.
- Poland: national transport policy (1996).
- Slovak Republic: territorial development policy (1994);

Table 2

Institutional Arrangements for SEA in a Number of Northern Countries

Country/ Institution	Provision	Procedure	Responsibility
Western Australia	Environmental Protection Act 1986/93 allows for the EA of programmes, plans and policies. EIA has been applied to programmes and plans; more limited experience with respect to policies. No structural SEA procedure to new legislation, decisions of executive government or State budgets.	No formal requirements for SEA procedure; ad hoc determined by EPA.	The Environmental Protection Agency (EPA) determines form, content, timing and procedure of the assessment.
Canada	Cabinet Directive 1990 requires all federal departments and agencies to apply EA to policy and program proposals submitted for Cabinet consideration.	No formal requirements for SEA procedure; guidelines only.	Individual Ministers are responsible for assessment of the proposals generated in the departments and agencies.
Denmark	Administrative Order 1993 requires Bills and other proposals to Parliament to include an assessment of the environmental impacts in the documentation attached if they are expected to have significant impacts on the environment.	No formal requirements for SEA procedure; guidelines only.	Responsibility for SEA lies with the lead ministries; guidance is provided by the Ministry of the Environment.
European Commission	Internal communication of June 1993 requires screening and assessment of all future Commission actions (almost always strategic in character) and new legislative proposals if likely to have a significant effect on the environment. Draft SEA Directive 1997 issued.	No procedural or content requirements are set to allow for maximum flexibility Applies to plans & programmes only	Responsibility for the statement lies with the responsible Directorate General. Binding on member states if accepted.
Hong Kong	October 1992 govt. initiative requires all policy papers submitted to the Executive Council to contain an environmental implications section. This is also required for Information Notes issued by the govt., briefs recommending new legislation and all papers seeking funding for govt. works projects.	Limited guidance on the content of SEA reports.	The proponent agency is responsible for drafting an EIS and should consult the Environmental Protection Dept. at an early stage of the policy formulation.
The Netherlands	1987 EIA Act requires an SEA of a number of plans, programmes and sectoral policies. Dutch Ministry of Foreign Affairs has decided to use SEA - where appropriate - in its planning of development assistance. Since 1995, an environmental test is mandatory for draft legisaltion that might have significant environmental effects (not requiring a mandatory SEA under the EIA	For SEA the same (comprehensive) procedure applies as required for projects. The environmental test has minimal procedural and	Responsibility for SEA lies with the lead agency. The environmental test should be carried out by the lead authority, with the mandatory

	Act).	content requirements to provide for flexibility.	involvement of the Minister of the Environment.

New Zealand	1991 Resource Management Act (RMA) requires the integration of environmental considerations in all policy statements and plans at national, regional and district levels prepared under the provisions of the Act.	Rather than establishing a distinct SEA process, the RMA aims at the integration of environmental issues in all stages of decision-making.	The consideration of environmental issues is the responsibility of the agencies responsible for the policy, plan or programme (national, regional and district authorities).
UK	No formal SEA provisions at the national level; local planning authorities are required to 'have regard to environmental considerations' in preparing their land use plans: a number of these have prepared SEAs for County Structure Plans.	No formal requirements for SEA procedure; 'good practice' guidance only.	Policy appraisal is responsibility of lead central government agency
USA	The US National Environmental Policy Act, 1969, requires EA for major federal actions significantly affecting the quality of the human environment, including programs, policies, procedures and legislative proposals.	SEA procedures are the same as for project EIA	EAs should be prepared by the agency at a point in the planning process when it can highlight potential environment problems and allow a wide range of alternatives to be evaluated.
World Bank	The system is policy-based, recommends use of sectoral and regional EA, e.g. where sector investment projects and loans through financial intermediaries involve numerous sub-projects. In some instances, sectoral EA is also used as a planning tool in the early stages of project preparation without a formal link to sub-project EA work.	The Bank's regional environment division for Asia (ASTEN) has developed standard procedures for sectoral EAs.	World Bank Divisions.

Sadler & Verheem (1996).

Current SEA processes vary considerably. They may be formal or informal, comprehensive or more limited in scope, and closely linked with or unrelated to either policy or planning instruments. In general, three broad approaches to SEA have been adopted to date:

- it has been introduced as a relatively separate, distinct process - typically as an extension of EIA (e.g. in Canada);

- it has been established as a two tier system (e.g. in the Netherlands) with formal SEAs required for specific sectoral plans and programmes and an environmental "test" applied to strategic policies; or

- it has been incorporated into policy appraisal (e.g. in the UK) and regional and land use planning (e.g. in Sweden). Recently, there has been growing recognition of the importance of integrating EA with other policy and planning instruments.

Few developing countries have these enabling conditions in place. However, there are a number of supportive trends and developments. Notably various international organisations have taken steps to promote the transition:

- In 1978, the US Council for Environmental Quality (CEQ) issued regulations for the National Environmental Policy Act (NEPA), which apply to USAID and specify requirements for “programmatic assessments”.

- In 1989, the World Bank adopted an internal directive on EIA which allows for the preparation of sectoral or regional assessments.

- A section of the 1991 UNECE Convention on EIA in a Transboundary Context promotes the application of EA for policies, plans and programmes.

- In 1991, the OECD Development Assistance Committee adopted a principle calling for specific arrangements for analysing and monitoring environmental impacts of programme assistance, i.e. assistance not linked to project activities.

- In 1995, UNDP introduced the strategic overview as a planning tool.

In most cases where SEA has been undertaken in developing countries, the basic aim and approach has mirrored that in the north – namely to identify the environmental consequences (and associated social and economic effects) of existing, new or revised policies, plans and programmes. A notable and innovative exception is in South Africa where the emphasis is on "assessing the effect of the environment on development needs and opportunities" with a strong focus on assessing cumulative impacts.

The countries of Central and Eastern Europe (CEE) are experiencing a period of great change with the establishment of new administrative arrangements, major infrastructural developments, and the privatisation of sectors and industries formerly under national control. Although EIA was only introduced in the CEE countries in the mid-1980s, SEA is already an emerging area of interest (see Therivel, 1997). A number of countries in the region have made some provision for this approach, e.g. as part of recent EIA legislative reforms. But the use of SEA is still relatively limited in scope and varies among CEE countries (Sadler *et al.*, 1998).

In the Newly Independent States (NIS), some countries make no distinction between EIA and SEA and their legislation requires that laws, programmes, plans and projects are all subject to environmental assessment. In some of these countries, the former Soviet system of State Environmental Expertise (SEE) is still applied, sometimes under new legislation (e.g. Belarus, Georgia, Kazakhstan, Ukraine). In practise, however, other than in the Russian Federation, there appears to be little or no development of SEA in NIS countries.

Where SEA is undertaken, it is applied primarily to regional and local plans and to a lesser extent to sector programmes. This approach builds on the land use planning systems which are well established in the ex-socialist countries. Except for in Slovakia and the Czech Republic, there appear to be no examples yet of policy-level SEA. However, SEA is a priority of the EIA programme for CEE and NIS countries launched under the Sofia Initiative.

EIA requirements are now an established component of development assistance. Recently, SEA approaches have also been introduced by multilateral and bilateral donor agencies and by other international development organisations. As with EIA, these "conditionalities" are becoming an important part of SEA practice in developing countries and a vector for their wider introduction and adaption for domestic applications. The World Bank is in a leading position in this regard. Increasingly, it is using sectoral EAs to address sector-wide issues and

programmatic loans covering numerous similar sub-projects, e.g. roads, irrigation, etc; and is also undertaking regional EAs to take a spatial, area-wide approach to development planning.

Other multilateral and bilateral donor agencies also have important SEA initiatives underway. UNDP, for example, has promoted the application of the Environmental Overview in the formulation stages of aid programmes (Brown 1997a, 1997b). It asks a set of questions, similar to those asked by conventional EIA, but with different emphasis. First it asks questions concerning the baseline conditions for the project/programme, followed by questions concerning the impacts and opportunities and how the draft project/programme can be redrafted in an operational strategy to take these, and the baseline conditions into account. Additional questions focus on modifications that should be made to the original design. Answering these questions results in a brief document, but it is the interactive process of assembling the EO that is the heart of the process.

A related approach, also termed Strategic Environmental Analysis (but denoted by the acronym SEAn), has been developed and tested by the Dutch group AIDEnvironment, in co-operation with SNV (Netherlands Development Organisation) (AIDEnvironment 1997; Kessler 1997a, 1997b). This experimental methodology is designed for use at the earliest possible stage of policy-making to allow the relevant environmental issues and options to be fully integrated into policy, plan and programme design and priority setting. The methodology is based on experiences with EIA, environmental profiles, and environmental planning, monitoring and evaluation within the project cycle, and comprises 10 steps (Box 6) "which are executed in a

Box 6:
Strategic Environmental Analysis (SEAn): The AIDEnvironment Approach. The Main Steps

The strategic environmental analysis approach aims to be systematic, analytical and practical. 10 methodological steps create a logical structure and provide guidance to participants in clarifying the complex issues involved.

Steps 1-4: Society-environment context analysis and impact assessment:

- identification of the main environmental functions (production and regulation);
- defining stakeholders dependent upon these functions;
- assessment of current trends within the functions revealed by environmental indicators;
- assessment of consequences (impacts) of trends on stakeholders; future generations and natural values, using environmental impact chains and a trend-impact matrix;
- defining the norms, standards and thresholds involved.

Steps 5-6: Environmental problem analysis:

- definition of the main environmental problems, based on the impacts of trends and a risk analysis;
- identification of the key factors and related actors causing the problem using the action-in-context approach (underlying factors will be mainly socio-cultural, economic and/or instyitutional).

Steps 7-8: Environmental opportunity analysis:

- definition of the main environmental opportunities;
- identification of the main underlying factors and the actors to realise and benefit from these opportunities.

Steps 9-10: Formulation of a sustainable development policy plan with action fields and follow-up strategy:

- synthesis of the key factors and actors realted to the environmental problems and opportunities;
- definition of environmental action fields;
- definition of sustainable development action fields by integrating priority issues from social and economic dimensions;
- formulation of a policy and coherent action plan for sustainable development based on the strengths and weaknesses of the relevant institutions and existing development policies;

- formulation of a follow-up strategy, including definition of coordination responsibilities, establishment of a monitoring system with relevant indicators, procedures for regular adjustments to policy using relevant strategic environmental analysis steps, institutional strengthening and capacity-building.

Source: AIDEnvironment (1997); Kessler (1997a)

participatory manner, with systematic attention for the views and opinions of 'insiders' (local actors)" (Kessler 1997b).

SEA practitioners are increasingly drawing from experiences with other assessment and planning approaches. For example, the construction of environmental scenarios (future forecasting) is a potentially important approach for development planning and in policy-making, and is receiving increasing attention as an important element of the SEA 'tool box'. It is also recognised that policy-level SEA has much to learn from the experiences and processes of developing and implementing National Sustainable Development Strategies (NSDSs) and equivalent approaches such as national environmental action plans, conservation strateghies, green plans, etc.

6. The Dichotomy in SEA

Internationally, most SEA experience tends to have been at the level of programmes and plans, where EIA *procedures* and approaches can be applied fairly readily. SEA here can be seen as an extension of EIA to facilitate strategic decisions. However, there have been fewer applications at the 'higher' level of policies - particularly national-level policies. This is perhaps not surprising because policy is the prerogative of politicians and senior bureaucrats who resist the intrusions of SEA at this level. For policies, where the main body of EA practitioners has little experience, a different approach is necessary.

At this level, the critical constraints on SEA are not likely to be technical or methodological. In practice, the issues facing environmental assessment (in its widest sense - i.e. incorporating social and economic dimensions) at the policy level are:

- securing the political and institutional will so that SEA has a 'seat at the policy table', i.e., where decision-makers and policy-makers accept its legitimacy and acknowledge that SEA has a key and constructive role to play; and

- finding the key leverage points in the policy-making cycles to ensure that SEA is able to play its part in all important stages and throughout the process.

These constraints represent a formidable challenge. It is not surprising, therefore, that the proposed European Community Directive for SEA (Council of the European Communities, 1997) requires SEA of plans and programmes only and is framed restrictively. Ten years earlier the EC was committed to including policy level SEA; it appears to have been omitted as a result of political concerns and reluctance of members states to adopt the approach (Sadler and Baxter, 1997).

With increasing recognition of this dilemma, there is also a growing view that SEA will need to be rethought so as to clearly distinguish between the methodologically different SEAs as applied to the plan and programme level and policy-level SEAs respectively. Indeed, there is a further view that, at the latter level, what is really required is a more holistic approach which

has been called sustainability analysis (Dalal-Clayton 1993). This is an area which is beginning to receive attention.

7. Principles

Clearly the application of SEA approaches is increasing and with it comes the first crop of generalisations about best practice. Based on experience to date with SEA, and with proximate approaches, a number of broad principles are suggested that can guide policy-makers, planners and SEA practitioners (see Box 4). These provide a first approximation rather than a last word, and undoubtedly will undergo review and revision. Above all, the need is to test and develop these against practice - learning by doing. We accept that conceptual development can be valuable. But for more than most subjects, SEA theory could do with a prolonged spell of general re-thinking.

Box 4: Some Principles for SEA

(A) General: An SEA process should:

- fit the purpose and be customised for application at the policy level or at the level of plans and programmes;
- have integrity, so that it is applied in accordance with the objectives and provisions established for it; and be effective in meeting those objectives;
- be focused on delivering information necessary to the decisions to be made, and address the significant and key issues;
- be driven by sustainable development principles (taking into account environmental, social and economic considerations); and therefore
- be integrated with parallel analyses of economic and social dimensions and issues, and with other planning and assessment instruments and processes;
- relate to project EIA where appropriate - perhaps through tiering mechanisms;
- be transparent and open;
- be practical, easy to implement, oriented to problem-solving, and cost-effective;
- introduce new perspectives and creativity (it should "provide bonuses, not be a burden"); and
- be a learning process (thus it is essential to start 'doing SEA' to gain experience).

(B) SEA Steps: An SEA process should ensure that:

- *screening*: responsible agencies carry out an appropriate assessment of all strategic decisions with significant environmental consequences;
- *timing*: results of the assessment are available sufficiently early for use in the preparation of the strategic decision;
- *environmental scoping*: all relevant information is provided to judge whether: (i) an initiative should proceed; and (ii) objectives could be achieved in a more environmentally friendly way (i.e. through alternative initiatives or approaches);
- *other factors*: sufficient information is available on other factors, including socio-economic considerations, either parallel to or integrated in the assessment;
- *review*: the quality of the process and information is safeguarded by an effective review mechanism;
- *participation*: sufficient information on the views of all legitimate stakeholders (including the public affected) is available early enough to be used effectively in the preparation of the strategic decision;
- *documentation*: results are identifiable, understandable and available to all parties affected by the decision;
- *decision-making and accountability*: it is clear to all stakeholders and all parties affected how the results were taken into account in decision-making;
- *post-decision*: sufficient information on the actual impacts of implementing the decision is gained to judge whether the decision should be amended.

Adapted from Sadler (1998b) and Tonk & Verheem (1998).

References

AIDEnvironment (1997). *Strategic Environmental Analysis: A New Planning Framework for Sustainable Development*. AIDEnvironment, Amsterdam.

Bregha F. *et al*. (1990): *The Integration of Environmental Factors in Government Policy-Making.* Canadian Environmental Assessment Research Council, Ottawa.

Brown A.L. (1997a). The Environmental Overview in Development Assistance Project Formulation. *Impact Assessment*, 15, 73-88.

Brown A.L. (1997b). Further SEA Experience in Development Assistance Using the Environmental Overview. Paper delivered at the IAIA97 Conference, New Orleans, 28030 May, 1997.

CIDA/DGIS (1997). *Strategic Environmental Assessment in Development Cooperation: State-of-the-Art Review. Final Report*. Submitted by a Steering Committee Composed of Canada (CIDA)and the Netherlands (DGIS) to the OECD/DAC Working Party on Development Assistance and Environment, September 1997.

Council of the European Communities (1997). *Proposal for a Council Directive on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. 97/C 129/08. Official Journals of the European Communities C 129/14-18, Brussels.

CSIR (1996). *Strategic Environmental Assessment: A Primer*. Council for Scientific and Industrial Research, Stellenbosch, South Africa.

CSIR (1997a). *A Protocol for Strategic Environmental Assessment in South Africa*. Draft Discussion Document, 21 August 1997. Council for Scientific and Industrial Research, Stellenbosch, South Africa.

CSIR (1997b). *Feasibility Study. Strategic Environmental Assessment for the Proposed East London Industrial Development Zone*. Draft 8 August 1997, Council for Scientific and Industrial Research, Division of Water, Environment and Forestry Technology, Durban, South Africa.

Dalal-Clayton D.B. & Sadler B. (1995). *Strategic Environemtnal Assessment. A Briefing Paper*. IIED, London.

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

de Boer J.J. & Sadler B. (eds) (1996). *Strategic Environmental Assessment 54: Environmental Assessment of Policies: Briefing Papers on Experience in Selected Countries*. Ministry of Housing, Spatial Planning and the Environment, The Netherlands, and the International Study of Effectiveness of Environmental Assessment.

IUCN Nepal (1995). *EIA of the Bara Forest Management Plan*. World Conservation Union, Kathmandu, Nepal.

IUCN-ROSA (1996). *Strategic Environmental Assessment of Deevelopment Around Victoria Falls*. World Conservation Union, Regional Office for Southern Africa (IUCN-ROSA) Harare, Zimbabwe.

Jacobs P. and Sadler B. (eds) (1989): *Sustainable Development and Environmental Assessment: Perspectives on Planning for a Common Future*. Canadian Environmental Assessment Research Council, Ottawa.

Kessler J.J. (1997a). *An Introduction to Strategic Environmental Analysis: A Framework for Planning and Integration of Environmental Care in Development Policies and Interventions.. Application for SNV -Netherlands Development Cooperation*. AIDEnvironment, Amsterdam.

Kessler J.J. (1997b). *An Introduction to Strategic Environmental Analysis: A Framework for Planning and Integration of Environmental Care in Development Policies and Interventions.. Application for SNV -Netherlands Development Cooperation. Reader with Theoretical Background and Application Guidelines*. AIDEnvironment, Amsterdam.

Koblar J. (1998). *Strategic Environmental Impact Assessment of Major Transport Routes in Slovenia.*. Paper presented to Sofia Initiative EIA Workshop, Prague.

Lee N. & Walsh F. (1992). Strategic Environmental Assessment: An Overview. *Project Appraisal*, 7 (3), 126-136.

Lee N. & Wood C. (1978): EIA - A European Perspective. *Built Environment*, 4 (2), 101-110.

Mwalyosi R and Hughes R (1997*). The Performance of EIA in Tanzania: An Assessment*. Environmental Planning Issues No.14, IIED, London.

Naim (1997a). *Karachi's Electricity Plan: Need for a Strategic Assessment*. In Adhikari A.P. & Khadka R.B. (eds) (1998) (cited separately).

Naim P. (1997b). *Thermal power generation policy: a strategic analysis*. Lecture at the National Institute of Public Administration, Karachi. November 29, 1997. IUCN-NIPA. IUCN Pakistan Office, Karachi.

Partidario M.R. (1996). Strategic Environmental Assessment: Key Issues Emerging from Recent Practice. *Environmental Impact Assessment Review*, 16, 31-55.

Project Appraisal (1992): Special issue on SEA. *Project Appraisal*, Vol.7, No.3, Sept 1992.

Sadler B. (1994) Environmental Assessment and Development Policymaking, in: Goodland R. and Edmundson V. (eds), *Environmental Assessment and Development*, pp 3-19, The World Bank, Washington DC.

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

Sadler B. (1998a). Recent Progress in Strategic Environmental Assessment. *Environmental Protection Bulletin*, No.55, pp 1-10.

Sadler B (1998b). Institutional Requirements for Strategic Environmental Assessment. Paper to Intergovernmental Forum, organised by the Ministry for the Environment, Christhcurch, New Zealand, April 25, 1998.

Sadler B. & Baxter M. (1997). Taking Stock of SEA. *Environmental Assessment*, Vol.5, Issue 3, pp 14-16, September 1997 (special issue on SEA).

Sadler B., Dusik J. & Casey S. (1998). "Overview of Experience with SEA in Central and Eastern Europe", in Mikulic N. *et.al*. (eds) (1998): *Strategic Environmenal Assessment in Transitional Countries - Emerging Practices*, Regional Environmental Centre for Central and Eastern Europe, Budapest.

Sadler B. & Verheem R. (1996). *Strategic Environmental Assessment: Status, Challenges and Future Directions.* Ministry of Housing, Spatial Planning and the Environment, The Netherlands, and the International Study of Effectiveness of Environmental Assessment.

Spenceley A. (1997): *Strategic Environmental Assessment of Tourism at Hwange National Park, Zimbabwe, Incorporating Photographic Safari Tourism and Cultural Tourism*. Msc Thesis. Centre for Environmental Technology, Imperial College of Science, Technology and Medicine, University of London.

TANAPA (1993). *Kilimanjaro National Park: General Management Plan*. Planning Unit, Tanzania National Parks, Arusha, Tanzania

Therivel R. (1993) Systems of Strategic Environmental Assessment, *Environmental Impact Assessment*, Vol.13, No.3, pp 145-168.

Therivel R. (1997). Strategic Environmental Assessment in Central Europe. *Project Appraisal*, **12** (3), 151-160.

Therivel R. & Partidario M.R. (1996). *The Practice of Strategic Environmental Assessment*. Earthscan, London

Therivel R., Wilson E., Thompson S., Heaney D. and Pritchard D. (1992) *Strategic Environmental Assessment*. Earthscan, London.

Thompson D.M. (ed) (1997). Multiple Land-Use: The Experience of the Ngorongoro Conservation Area, Tanzania. World Conservation Union (IUCN), Gland, Switzerland and Cambridge, UK.

Tonk R.A.M.N. & Verheem R.A.A. (1998): Integrating the Environment in Strategic Decision-making: One Concept, Multiple Forms. Paper presented at the annual meeting of the International Association for Impact Assessment (IAIA'98), 19-26 April 1998, Christchurch, New Zealand.

UK Department of the Environment (1991). *Policy Appraisal and the Environment*, Her Majesty's Stationary Office, London.

UK Department of the Environment (1993*): Environmental Appraisal of Development Plans. A Good Practice Guide*. Her Majesty's Stationery Office, London.

UNCED (1992). *Agenda 21*. United Nations Conference on Environment and Development (UNCED), United Nations General Assembly, New York.

UNDP (1992): *Handbook and Guidelines for Environmental Management and Sustainable Development*. United Nations Development Programme, New York.

UNECE (1992*): Application of Environmental Impact Assessment Principles to Policies, Plans and Programmes*. Environmental Series No.5, United Nations Economic Commission for Europe, Geneva.

Wathern P. (ed) (1988): *Environmental Impact Assessment: Theory and Practice*. Unwin Hyman, London.

WCED (1987). *Our Common Future*. Report of the World Commission on Environment and Development, Oxford University Press, Oxford, UK.

Wood C. and Djeddour M. (1992): Strategic Environmental Assessment: EA of Policies, Plans and Programmes. *Impact Assessment Bulletin*, 10,3-22.

World Bank (1993). *Sectoral Environmental Assessment*. Environmental Assessment Sourcebook Update. Environment Department, October 1993.
World Bank (1996*): The Impact of Environmental Assessment: Second Environmental Assessment Review*. Environment Department, The World Bank, Washington D.C.