

PART 1

INTRODUCTION AND APPROACHES TO SUSTAINABILITY APPRAISAL

Chapter 1

INTRODUCTION

1.1 Study background and rationale

For more than a decade, there have been repeated calls for the design and application of an integrated approach to implement sustainable development. The road from Rio to Johannesburg, from the Earth Summit (UNCED 1992) to the World Summit on Sustainable Development (WSSD 2002) is posted with them, marked by *Agenda 21* and its *Plan of Implementation* as major milestones. In this last document, for example, there is frequent reference to the importance of taking an ‘holistic and inter-sector approach’ to implement sustainable development. However, there is relatively little discussion of what this approach entails or how it should be introduced.

There are numerous perspectives and entry points from which such an approach can be constructed but they all converge around the same problem encapsulated in the following statement:

“Many streams of knowledge have a contribution to make in bringing the ideas of sustainability from theory to practice: economics, ecology, systems theory, the health sciences, engineering and applied science, community planning, law, business management, performance measurement and progress assessment, and so on. Each of these can provide a doorway into the theory and application of sustainability ideas. However, the real power of applying the ideas of sustainability comes from a capacity to integrate and synthesise rather than split apart in bounded categories” (IISD 2002).

With this as our point of reference, the present study takes stock of the status of sustainability appraisal. For present purposes, sustainability appraisal is broadly defined to encompass a range of equivalent terms such as sustainability impact assessment and strategic impact assessment. It is taken to include approaches that are used to integrate or inter-relate the environmental, social and economic (ESE) pillars of sustainability into decision-making on proposed initiatives at all levels, from policy to projects and particularly within or against a framework of sustainability principles, indicators or strategies. Others recognize more than three intersecting pillars, for example including institutions or politics or distinguishing between social and cultural dimensions of sustainability.

By itself, recognition of such pillars does not facilitate much understanding of the inter-relationships among these factors or suggest how these crucial inter-relationships should be addressed in practice. A number of principles and precepts for this purpose have been identified and promoted with varying degrees of ‘buy-in’. Most notable are those contained in the superstructure of international law and policy, which reflect a consensus on the general approach to achieving sustainability. These are elaborated and extended in numerous documents, reports and papers, including those issued by international organisations such as UNEP, OECD and the World Bank that have a wide remit. In addition, there is considerable research on the methodologies for evaluating sustainable development and some promising policy experimentation with integrated approaches in the fields of impact assessment and development planning and decision-making where the interest in this approach is long standing.

A major focus of this report is on the analytical and policy toolkit for sustainability appraisal, including contributions from both the impact assessment and planning fields. When

addressing specific policy options and issues, the general consensus on the importance of balancing ESE considerations can soon break down over the emphasis to be placed on them or over the best means of moving forward..

The challenge in both fields is to sharpen this approach and apply existing frameworks and tools more effectively in order to add value to decision-making, providing information that facilitates sound choice and gives a greater measure of *sustainability assurance* or confidence that proposals will meet ESE objectives (Sadler, 1996)¹. Environmental impact assessment (EIA) and strategic environmental assessment (SEA) provide formal processes that already have a number of features and characteristics of an integrated, sustainability-oriented approach, notably when considering related social, health and economic issues. These areas also are the focus of professional specialisation on social impact assessment (SIA), health impact assessment (HIA) and benefit cost analysis and other forms of economic appraisal. When used in combination, these tools can approximate to integrated assessment or sustainability appraisal (as defined below).

For their promise to be fully realised, however, a number of institutional and methodological issues remain to be addressed. These include the appropriate provision and arrangements for implementing sustainability appraisal within policy-making and planning processes. In this respect, perhaps the most critical issues are “*how* environmental, social and economic information is analyzed, integrated and presented to decision-makers” (Buselich 2002) and, above all, within what framework of sustainability objectives and measures (Sadler, 1999). With important exceptions, the discussion of these issues in the impact assessment literature lacks a cutting edge and is largely general or theoretical. To date, there appear to have been few surveys of the field of sustainability appraisal and what is happening in practice.

1.2 Study themes and approach

In this review, we provide a preliminary scope of international experience with sustainability appraisal. The purpose is to benchmark recent progress in this area as a first step to ground and re-focus further debate. Our main objectives are to:

- highlight developments and issues in the use of sustainability appraisal;
- identify options and directions for improving practice in this area; and
- draft an agenda for action to move ahead on promising developments.

Five particular aspects of interest have been identified for purposes of taking stock of sustainability appraisal and consulting with potential partners and other interested organisations and individuals. These comprise:

- *concepts and definition*: elaborating what is understood by the term sustainability appraisal and equivalent terms internationally;

¹ Jenny Pope, Australia (pers.comm), comments that “notion of safeguards is crucial to sustainability assessment, especially if we accept a vision of sustainability as an equitable society living within the earth's carrying capacity. From an environmental perspective at least, this is consistent with Sadler's concept of Environmental Sustainability Assurance (Sadler 1999). However, many approaches to sustainability assessment seem to embody the concept that any shift towards overall economic, social and environmental improvements (even if there are trade-offs between the three) equates to sustainability, without any mention of carrying capacity, safeguards or acceptability thresholds, or whether the measured factors are relevant to sustainability, and if they are, whether the improvements go far enough. It is important, therefore, to be careful about what factors should be included in the scope of a sustainability assessment and what criteria should be applied to those factors. Such issues have been raised by George (2001), Pope *et al.* (2004) and Hacking (2004).

- *trends and developments*: summarising experience to date with the application of sustainability appraisal in EIA, SEA, planning and policy-making;
- *procedures and methodologies*: outlining the arrangements and tools currently used to carry out sustainability appraisal;
- *guidance and case studies*: drawing out lessons and examples of good practice; and
- *future directions*: suggesting how the process and practice of sustainability appraisal might be improved.

The first phase of this study has been carried out as a contribution to the work of the OECD ENVIRONET Task Group on SEA (see Box 1.1) and is meant to provide a companion volume to the SEA sourcebook and reference guide (Dalal-Clayton and Sadler, 2005, in press). It has also benefited from the involvement of the authors in the UNEP initiative on integrated assessment and planning (Box 1.1) and particularly the review we have undertaken of international experience in this larger field (Dalal-Clayton and Sadler 2004) of which sustainability appraisal is a sub-set .

Box 1.1: Background of the review

OECD DAC ENVIRONET Task Team on SEA in development cooperation

In 2003, the Network on Environment and Development Cooperation (ENVIRONET) of the OECD Development Assistance Committee (DAC) established a Task Team on the role, scope and contribution of SEA in support of development cooperation. Its objectives include developing and promoting the practical use of SEA in the formulation and assessment of strategic development initiatives including “mega projects” and to help ensure that:

- environmental considerations are effectively incorporated into strategic decision-making at the formative stage;
- the linkages between environmental, social and economic factors are better understood and addressed; and thus
- the outcomes of strategic development initiatives have better prospects to contribute to sustainable development.

One of its key outputs will be OECD guidance on SEA in development cooperation

UNEP pilot study of integrated assessment and planning (IAP) for sustainable development

This UNEP initiative was initiated in 2003. It aims to develop a generic framework for such planning and involves pilot applications and policy experimentation in a number of countries. It builds on earlier UNEP work on an integrated approach to EIA and SEA and on integrated assessment of trade policies. It is anticipated that the IAP framework will become a reference point for a shift towards applying what UNEP initially calls “strategic integrated assessment” or what others call sustainability impact assessment or sustainability appraisal.

As indicated previously, the present study has been undertaken primarily through a desk review of international literature. It is based on internet searches and information supplied by a range of government, non-government and private sector sources and supplemented by more intensive consultations to take stock of international experience in this field. Round tables and discussions on selected aspects of sustainability appraisal were organized in Canberra (October 2003), Wellington (November 2003) and Johannesburg (March 2004). This phase of the study concluded with an international review workshop in Victoria, BC, Canada, in April 2004 immediately prior to annual meeting of the International Association for Impact Assessment (IAIA’04). Preliminary findings on the issues addressed in this report were reviewed at IAIA’04 in a special session of the SEA stream. Following feedback from

these events, a work programme has been drawn up for a second, more detailed phase of the study.

The information assembled in this preliminary phase is organized in five thematic parts:

- Part 1: Introduction and approaches to sustainability appraisal

Introduces this study, provides a background to trends, relationships and issues (Chapter 1), and considers the main SA frameworks and approaches (Chapter 2);
- Part 2: Dimensions of sustainability

Examines approaches under the three pillars of sustainability: environmental assessment approaches (Chapter 3); economics-based approaches (Chapter 4) and social assessment approaches (Chapter 5); and also integrated assessment (Chapter 6);
- Part 3: Methodologies and their application

Focuses on SA methods and applications in particular fields and sectors: land use and natural resources (Chapter 8); business and industry (Chapter 9); trade (Chapter 9); urban areas, municipalities and communities (Chapter 10); and global sector-wide approaches (Chapter 11);
- Part 4: Institutional arrangements and experience in developing countries

This section is incomplete and represents work in progress. Currently, it deals with experience in Southern Africa (chapter 12) and some other countries (Chapter 13).
- Part 5: Retrospect and prospect

Discusses SA in the context of strategies for sustainable development (Chapter 14) and makes some conclusions and recommendations (Chapter 15).

An initial perspective on the nature and scope of sustainability appraisal is provided in this introductory chapter, beginning with the key terms used and their relationship.

1.3 Background – trends and drivers in impact assessment and strategic planning

Sustainability assessment lies at the most demanding and testing end of a wide spectrum of integrative approaches. The interest in and demand for such an approach comes from the convergence of trends in strategic planning and impact assessment, including the increasingly broadening concept of SEA, which provide distinct but mutually supportive entry points to sustainability appraisal. As Buselich (2002) notes:

“There is a spectrum of sustainability-based assessment processes that have occurred at many levels in most sectors. They usually take the form of integrated assessment, strategic environmental assessment, sustainability indicators, and sustainability auditing or triple bottom line reporting. Although these represent well-established processes and provide much groundwork for sustainability-based assessment, in reality a widely accepted and truly integrative sustainability-based assessment mechanism/framework is yet to be established out of these experiences”.

1.3.1 *Integration via strategic planning*

Strategic planning, including the preparation of sustainability strategies, is a relatively recent development, although it has emerged from a much longer planning tradition, through innovations in regional planning in the 1980s (see Simon and Rakodi 1990) and green planning in the 1990s (see Dalal-Clayton 1996). It now connotes a proactive, flexible and iterative approach, focused on a cycle of action, adjustment to the environment and accommodation to change. As such, in the mid 1990s, it became associated closely with an emerging generation of sustainability strategies (Sadler 1997), stimulated by the *World Conservation Strategy* (IUCN/UNEP/WWF, 1980), refocused around *Agenda 21* (UNCED, 1992) and now undergoing further revision in light of the *WSSD Plan of Implementation* (2002). By definition, these national sustainable development strategy (NSDS) processes seek to integrate economic, environmental and social ends and the means to achieve them, using a range of tools for this purpose (see Dalal-Clayton and Bass 2002). Such an approach may be defined as ‘sustainability appraisal writ large’. It is concerned, post-Johannesburg, with addressing key issues and linkages of poverty, environment and development in the context of developing countries (DFID/UNDP/World Bank 2002) or severe threats to the future well-being or cohesion of European society (EC 2002).

This approach is evident, for example, in the environment strategy of the World Bank (2002), which has refocused the Bank’s activities to where they can be most effective in supporting sustainable development. A major aim is to ‘mainstream environment’ in policy dialogues, country assistance strategies, poverty reduction and non-lending programmes, notably through the more systematic use of strategic environmental analyses and other policy tools. The European Union strategy for sustainable development (EC 2001, 2002)², inter alia, also emphasizes that a new, more coherent approach to policy-making will be needed in order to respond effectively to ‘major challenges to sustainability’. Specifically, the strategy calls for “assessment of the full effects of a policy proposal [that] must include estimates of its economic, environmental and social impacts” (European Commission, 2002, 26). This proposal opens the door to a more rigorous approach to sustainability appraisal, merging with developments in impact assessment.

1.3.2 *Integration via assessment*

Integration has been one of the defining characteristics of EIA since its formal beginnings in 1969 in the US *National Environmental Policy Act* (NEPA). For example, NEPA requires federal agencies to “utilize a systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences” (section 102(2)). This aspect of integration and the NEPA standard continue to be a focal and elusive part of EIA practice and other fields of impact assessment, with interdisciplinary science never more needed and never further away (O’Riordan, 1998). Moreover, the challenge of achieving a coherent synthesis of knowledge and information – as intended by the architects of NEPA (Caldwell, 1998) – has expanded and is becoming differently understood in the context of impact assessment (see Box 1.2).

Now widely institutionalised, the EIA process has broadened progressively in scope and inclusiveness and toward a framework for integration that continues to evolve (see Table 1.1). ‘First generation’ (project-level) EIA now considers a range of effects including social, health, economic and other aspects. Perhaps the most striking trend of the last decade is the development and adoption of a ‘second generation’ process of SEA for policy, plan and programme proposals. The number of countries with SEA provision will soon double when

² The European sustainable development strategy was developed in two phases: an initial ‘*internal component*’ (EC 2001) and the ‘*external dimension*’ prepared subsequently (EC 2002).

EC Directive 2001/42/EC comes into force through its transposition into national legislation by EU member states. Both EIA and SEA appear to be on the threshold of further change as new approaches to integrated assessment and sustainability appraisal are rolled out in the government and private sectors.

Box 1.2: Impact assessment as an synthetic approach

Impact assessment encompasses several dimensions in the synthesis of knowledge called for in the US *National Environmental Policy Act*:

- ‘impact science’ that is cross-disciplinary and addresses consequences in the context of uncertainty;
- ‘trans-science’ that brings together facts and values;
- ‘civic science’ that draws on the inputs of interested and affected parties;
- ‘policy science’ that relates information to the requirements of decision-making; and
- ‘sustainability science’ that tests whether a proposed action is heading in the right or wrong direction against policy commitments.

Source: Sadler (2002)

Table 1.1: The evolving paradigm – from EIA to SA?

Sources: Sadler (1996; 1999)

Paradigm/Level/Stage	Key Characteristics
First generation – project level EIA	<ul style="list-style-type: none"> • Includes social, health and other impacts, cumulative effects and biodiversity
Second generation – SEA	<ul style="list-style-type: none"> • Applies to policy, plans, programmes and legislation
Third generation – toward environmental sustainability assurance (ESA)	<ul style="list-style-type: none"> • Use of EIA and SEA to safeguard critical resource and ecological functions and offset residual damage; plus environmental accounting and auditing of natural capital loss and change
Next generation – toward sustainability appraisal (SA) and integrated environmental management (IEM)	<ul style="list-style-type: none"> • Integrated or full cost assessment of the economic, environmental and social impacts of proposals. • Comprehensive or full cycle assessment and control of all impacts of existing and proposed actions.

This third generation process is still at an early, prototype stage, characterised by increasing interest and new ideas. Increasing reference is being made in the EIA and SEA literature to sustainability appraisal or to near equivalent terms. These include sustainability analysis, sustainability assurance, sustainability impact assessment and sustainability assessment, e.g. Dalal-Clayton (1993), Sadler (1996, 1999), Devuyst (1999), Eggenberger and Partidário (2000), Smith and Sheate (2001). Along with their various derivatives, relating to specific sub-fields, the alphabet soup of acronyms currently makes for a confusing picture (see Figure 1.1). The first order of business is to bring the terminology into preliminary focus, beginning with the roots of the problem in the relationship of SEA and sustainability appraisal.

Figure 1.1: Sustainability appraisal terminology and acronyms: alphabet soup



1.4 On the relationship of SEA and SA

In part, the increasing attention being given to sustainability appraisal reflects the current debate concerning the role and function of strategic environmental assessment (SEA). SEA has evolved rapidly over the last decade and has become formalised in legal instruments, notably the SEA Directive that applies to all EU member states and UNECE SEA protocol that has been adopted by a larger number of European countries. Internationally, there is a larger array of SEA-type approaches, each with its own name and customised acronym (see Dalal-Clayton and Sadler 2003). As a result, there is considerable confusion about what is included in SEA and how this process relates to integrated policy-making and planning. In response, the World Bank has set up a Structured Learning Programme on SEA and the OECD DAC ENVIRONET has established a Task Group to review experience and opportunities for SEA in development cooperation. These initiatives, amongst many others, may help to order the extended family of SEA approaches that apply in this area.

In the OECD DAC review, two generic issues for debate are:

- Should SEA concentrate on environmental concerns to ensure these are mainstreamed into policy-making and planning; or should it take a broader sustainability focus and seek to integrate environmental, economic and social dimensions?
- Should SEA be undertaken as a separate process to review the potential impacts of implementing a proposed strategy and its alternatives; or should it be undertaken as an integrated part of policy-making, planning and decision-making processes?

In practice, there are different forms of SEA in use in different countries that cover all of these (and other) objectives. New areas of emphasis and activity continue to be added and SEA process and practice are aligned across a broad spectrum of approaches. Still, most application has been in relation to plans and programmes (nearer the project level and using EIA-derived approaches) and less at the policy level. The primary focus remains on environmental concerns, but there is continuing debate about whether and how SEA might be used as an entry to, or evolve towards, more integrated approaches. In addition, these often have their own 'brand names' that are associated with particular institutional processes or theoretical constructs. This adds a further layer of complexity to SEA terms and concepts and many practitioners and observers now consider that SEA is an overly broad umbrella and it needs to be repackaged to clarify the different forms and purposes of application.

1.5 Focus on terminology

The relationship of SEA and sustainability appraisal presents a particular challenge, since approaches continue to proliferate at the former end of the spectrum and are pioneering and experimental at the latter end of the spectrum. As with SEA, sustainability appraisal (SA) is being developed 'on the hoof'. SA is also attracting its own family of terms as practitioners develop particular approaches for a range of particular purposes, and coin and market different acronyms, as illustrated in Figure 1.1 and Box 1.3. These examples serve to illustrate the wide range of focus and application that is emerging, many of which lie outside the compass of the usual literature on impact assessment.

Box 1.3: Sustainability assessment: examples of approaches/applications and their brand names

ASA	Advanced sustainability analysis (Malaska 2003)
ASSIPAC	Assessing the sustainability of societal initiatives and proposing agendas for change
CSA	Campus sustainability assessment Citizen sustainability assessment Community sustainability assessment; Corporate sustainability assessment; Country sustainability analysis
DSA	Debt sustainability assessment (IMF 2003);
ESA	Environmental sustainability assessment
IIA	Integrated impact assessment
ISA	Integrated sustainability analysis (University of Sydney) Integrated sustainability assessment (Western Australia, Varey 2004)
ISCAM	Integrated sustainable cities assessment method
LUSA	Land use sustainability assessment
PSA	Participatory sustainability assessment Product sustainability assessment;
RISE	Response-inducing sustainability evaluation
SA	Sustainability assessment; Sustainability appraisal;
SAFE	Sustainability assessment for enterprises
SAM	Sustainability assessment model
SAP	Sustainability assessment for production systems
SDA	Sustainable development appraisal;
SIA	Sustainability impact assessment;
SPeAR	Sustainable project appraisal routine
SSA	Strategic sustainability analysis Systematic sustainability analysis

Within impact assessment, the emerging ground of sustainability appraisal can be staked out from early definitions and perspectives, eg:

- Dalal-Clayton (1993) proposed ‘modified EIA’ as a practical starting point (although not the only one) for ‘sustainability analysis,’ bringing together environmental, economic and social issues within an analytical framework;
- The conclusions of the international study of EA effectiveness referred to ‘moving beyond EIA and SEA to sustainability assessment’, equated elsewhere in the report with ‘full cost assessment of economic, environmental and social impacts’ against ‘threshold levels’ (Sadler 1996);
- Lawrence (1997) defined sustainability assessment as “applying the broad principles of sustainability to the assessment of whether, and to what extent, various actions might advance the cause of sustainability”;
- Adapting a definition of SEA by Therivel *et al.* (1992), Devuyst (1999) defined sustainability assessment as “a formal process of identifying, predicting and evaluating the potential impacts of an initiative (such as a legislation, regulation, policy, plan, programme, or project) and its alternatives on the sustainable development of society”;
- Along similar lines, Buselich (2002) interprets sustainability assessment as the “assessment of proposed initiatives (projects, policies and plans) in terms of sustainability to determine whether or not approval should be given and under what conditions”.

These definitions illustrate how the impact assessment community views sustainability appraisal through its own ‘field lens’, moving beyond the traditional environmental focus of EIA and SEA and toward integrated assessment. Similar developments are taking place in sister areas of social impact assessment (SIA) and economic analysis, increasing their reach and scope of application particularly in relation to international trade, lending and assistance. In this context, the Worldwide Fund for Nature has adopted a more people-centred approach to its work, defining sustainability assessment as “a method that considers and measures the well being of people and the ecosystems together. It assesses trade and investment policies, and addresses their socio-economic and environmental impacts. The SA process involves dialogue and co-operation between many diverse groups which are involved in, and affected by, trade agreements including governments, industry and business, NGOs, social justice groups and indigenous people” (www.panda.org/questions/uder/response.cfm).

1.6 A second look -- what is being integrated in sustainability appraisal?

Like the concept of sustainability (see below), the definition of what is being integrated in relation to impact assessment is not always clearly delineated. There are several levels of potential integration being promoted or attempted in the impact assessment field, including, as suggested by Lee (2002):

- *Vertical integration of assessments*, which are undertaken at different stages in the policy, planning and project cycle (hereafter the planning cycle) (‘tiering’);
- *Horizontal integration of assessments*, i.e. bringing together different types of impacts – environmental, economic and social – into a single overall assessment, at one or more stages in the planning cycle (others have called this *substantive integration*);

- *Integration of assessments into decision-making*, i.e. integrating assessment findings into decision-making at different stages in the planning cycle (sometimes called *process integration*).

Scrase and Sheate (2002) went further, identifying up to 14 different types of integration in the context of environmental assessment and governance (Table 1.2)

Table 1.2: Integration of environmental assessment and governance

(Source: adapted from Scrase and Sheate, 2002)

	Meaning	Main focus
A	Integrated information resources	Facts/data
B	Integration of environmental concerns into governance	Environmental values
C	Vertically integrated planning and management	Tiers of governance
D	Integration across environmental media	Air, land and water
E	Integrated environmental management (regions)	Ecosystems
F	Integrated environmental management (production)	Engineering systems
G	Integration of business concerns into governance	Capitalist values
H	The environment, economy and society	Development values
I	Integration across policy domains	Functions of governance
J	Integrated environmental-economic modelling	Computer modelling
K	Integration of stakeholders into governance	Participation
L	Integration among assessment tools	Methodologies/procedures
M	Integration of equity concerns into governance	Equity/socialist values
N	Integration of assessment into governance	Decision/policy context

Our main concern in this review of sustainability appraisal is with substantive integration. In this context, a key issue is whether integrated assessment and sustainability appraisal are one and the same concept. This assumption appears to be widely held. However, we contend that integrated assessment is a necessary but not sufficient condition for sustainability appraisal. As hinted earlier, SA is an impact assessment carried out against or within an explicit framework of goals, principles, rules and indicators drawn from international law and policy, a national sustainable development strategy and/or the economic, environmental and social objectives of governments, the private sector or civil society³. This framework, however defined, is used to test whether a proposed action approximates toward or away from key requirements⁴ for realising sustainability and to identify the main conflicts and trade-offs at stake.

³ Jenny Pope (Australia, pers.comm..) comments: “This raises the question of what is an appropriate sustainability framework? In practice, the way in which such frameworks are defined appears to depend upon the jurisdiction, the level at which the assessment is being conducted (eg. national, regional, local, etc.) and who is defining it. For example the sustainability framework developed by ChevronTexaco on behalf of the Gorgon Joint Venture in Western Australia was markedly different from the framework developed by the Western Australian Government on behalf of the community. Therefore, perhaps we need to critically appraise sustainability frameworks applied for the purposes of assessment (eg. does it reflect the concept of living within the Earth’s carrying capacity?; does it embody the Precautionary Principle? etc.)”.

⁴ Jenny Pope (Australia, pers.comm..) comments: “We need to consider whether moving towards key requirements is enough. Should we perhaps be assessing whether or not key requirements are met by a proposal, or at least whether we are moving fast enough in the right direction. Either of the latter would require a vision of where we are headed (ie a vision of what sustainability might look like), which is consistent with the first of the Bellagio Principles. Otherwise perhaps there is a danger of starting to believe that any triple bottom line improvements represent sustainability. For example, this could lead

We recognize that sustainability is a concept that remains open to debate and subject to different interpretations; however, there is considerable guidance on the conditions and challenges of sustainability, globally and in relation to developed and developing countries. A number of frameworks offer useful starting point. These include general requirements for sustainability set out by Gibson (2002, Box 1.4) and the Bellagio principles⁵ (Box 1.5) for assessment of progress toward sustainable development (Hardi and Zdan 1999). These principles offer a broad road map to the type of approach that will be in keeping with current perspectives on sustainability appraisal. It can be further structured by reference to internationally accepted concepts and principles, such as the precautionary and other principles outlined in the *Rio Declaration on Environment and Development*. A number of general rules for this purpose (described in Chapter 2) [of the Declaration – need reference] reinforce more specific national objectives.

Box 1.4: General sustainability requirements

The following general requirements direct attention to what must be addressed in sustainability action. In their application, situational constraints and processes dictated by local interests and circumstances must be considered along with aggregation, comparison, and conflict problems.

Social-ecological integrity

Build human-ecological relations to establish and maintain the long term integrity of socio-biophysical systems that protect the irreplaceable life support functions upon which human well-being depends.

Sufficiency and opportunity

Ensure that everyone has enough for a decent life and that everyone has opportunities to seek improvements in ways that do not compromise future generations' possibilities for sufficiency and opportunity.

Equity

Ensure that sufficiency and effective choices for all are pursued in ways that reduce dangerous gaps in sufficiency and opportunity (and health, security, social recognition, political influence, etc.) between the rich and the poor.

Efficiency and throughput reduction

Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long term integrity of socio-ecological systems by avoiding waste and reducing overall material and energy use per unit of benefit.

Democracy and civility

Build the capacity, motivation and habitual inclination of individuals, communities and other collective decision-making bodies to apply sustainability principles through more open and better informed deliberations, greater attention to fostering reciprocal awareness and collective responsibility, and more integrated use of administrative, market, customary and personal decision-making practices.

Precaution and adaptation

to a situation whereby a world's best practice coal-fired power station is assessed as sustainable because it shows economic, social and environmental improvements over the previous design of a coal-fired power station, and the issue of whether this method of power generation is sustainable in the first place is not addressed.

⁵ These principles are called after the Italian municipality Bellagio, where the International Institute for Sustainable Development (IISD) convened in 1996 to discuss how to assess progress towards sustainable development. These principles have much in common with those for developing national sustainable development strategies (OECD DAC 2001).

Respect uncertainty, avoid even poorly understood risks of serious or irreversible damage to the foundations for sustainability, plan to learn, design for surprise, and manage for adaptation.

Immediate and long term integration

Apply all principles of sustainability together as a set of interdependent parts, seeking mutually supportive benefits.

Source: Gibson (2002)

Box 1.5: The Bellagio principles for assessing progress towards Sustainable development

In November 1996, an international group of measurement practitioners and researchers from five continents came together at the Rockefeller Foundation's Study and Conference Centre in Bellagio, Italy to review progress to date and to synthesise insights from practical ongoing efforts. The following principles resulted and were unanimously endorsed.

These principles deal with four aspects of assessing progress towards sustainable development. Principle 1 deals with the starting point of any assessment – establishing a *vision* of sustainable development and clear goals that provide a practical definition of that vision in terms that are meaningful for the decision-making unit in question. Principles 2–5 deal with the *content of any assessment* and the need to merge a sense of the overall system with a practical focus on current priority issues. Principles 6–8 deal with key issues of the *process of assessment*, while Principles 9 and 10 deal with the necessity for establishing a *continuing capacity* for assessment. Assessment of progress towards sustainable development should:

1. Guiding Vision and Goals

- Be guided by a clear vision of sustainable development and goals that define that vision.

2. Holistic Perspective

- include review of the whole system as well as its parts;
- consider the well-being of social, ecological, and economic sub-systems, their state as well as the direction and rate of change of that state, of their component parts, and the interaction between parts;
- consider both positive and negative consequences of human activity, in a way that reflects the costs and benefits for human and ecological systems, in monetary and non-monetary terms.

3. Essential Elements

- consider equity and disparity within the current population and between present and future generations, dealing with such concerns as resource use, over-consumption and poverty, human rights, and access to services, as appropriate;
- consider the ecological conditions on which life depends;
- consider economic development and other, non-market activities that contribute to human/social well-being.

4. Adequate Scope

- adopt a time horizon long enough to capture both human and ecosystem time scales - thus responding to needs of future generations as well as those current to short-term decision-making;
- define the space of study large enough to include not only local but also long distance impacts on people and ecosystems;
- build on historic and current conditions to anticipate future conditions - where we want to go, where we could go.

5. Practical Focus – Be based on:

- an explicit set of categories or an organizing framework that links vision and goals to indicators

and assessment criteria;

- a limited number of key issues for analysis;
- a limited number of indicators or indicator combinations to provide a clearer signal of progress;
- standardizing measurement wherever possible to permit comparison;
- comparing indicator values to targets, reference values, ranges, thresholds, or direction of trends, as appropriate.

6. Openness

- make the methods and data that are used accessible to all;
- make explicit all judgments, assumptions, and uncertainties in data and interpretations.

7. Effective Communication

- be designed to address the needs of the audience and set of users;
- draw from indicators and other tools that are stimulating and serve to engage decision-makers;
- aim, from the outset, for simplicity in structure and use of clear and plain language.

8. Broad Participation

- obtain broad representation of key grass-roots, professional, technical and social groups, including youth, women, and indigenous people - to ensure recognition of diverse and changing values;
- ensure the participation of decision-makers to secure a firm link to adopted policies and resulting action.

9. Ongoing Assessment

- develop a capacity for repeated measurement to determine trends;
- be iterative, adaptive, and responsive to change and uncertainty because systems are complex and change frequently;
- adjust goals, frameworks, and indicators as new insights are gained;
- promote development of collective learning and feedback to decision-making.

10. Institutional Capacity

Continuity of assessing progress towards sustainable development should be assured by:

- clearly assigning responsibility and providing ongoing support in the decision-making process;
- providing institutional capacity for data collection, maintenance, and documentation;
- supporting development of local assessment capacity.

Source: www.iisd.org

By any standards, sustainability appraisal will be difficult to implement, particularly for many developing countries where capacity is limited and institutional pre-conditions are missing. This approach may be best introduced incrementally, for example by modifying the EIA and SEA process to address key questions outlined or implied in Boxes 1.4 and 1.5. But it is also clear that further progress on this front is related to the extent to which other levels of integration described above are in place. First, there are questions of practicality, including whether concepts, methods and arrangements are sufficiently robust to carry out truly integrated assessments. 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 and planning that are in place in a particular country or international organization will govern whether and how integrated assessment is implemented.

In addition, disciplinary and professional attitudes and ambitions may also play a role. For example, the impact assessment community still sees sustainability assessment as a separate approach rather than as being an integral part of policy-making, planning and decision-

making processes. Compare this view with that offered by Gibson (2004) (commenting on the potential of sustainability assessment within the Canadian International Development Agency):

“Sustainability assessment combines decision-making, evaluation and reporting processes organised around the integration of the full range of CIDA’s policy concerns over the long term. It is essentially a basic rational planning process applied to the full life cycle of development activities from the broad policy level to implementation of specific projects”

There is also the diversification of impact assessment through the addition of ever more specialised fields. Some recent additions, to name only a few, include child impact assessment (Muylaert, 1999), mobility impact assessment and municipality impact assessment in Belgium, and gender impact assessment in The Netherlands (Verloo and Roggeband, 1996), Canada, New Zealand, and Flanders (Belgium) (Meier, 1997). This proliferation appears to reflect a consensus among the impact assessment community on the need to address a widening array of effects and consequences of proposed actions. Does this promote integration or make it more difficult to realise?⁶

1.7 Sustainability appraisal in practice

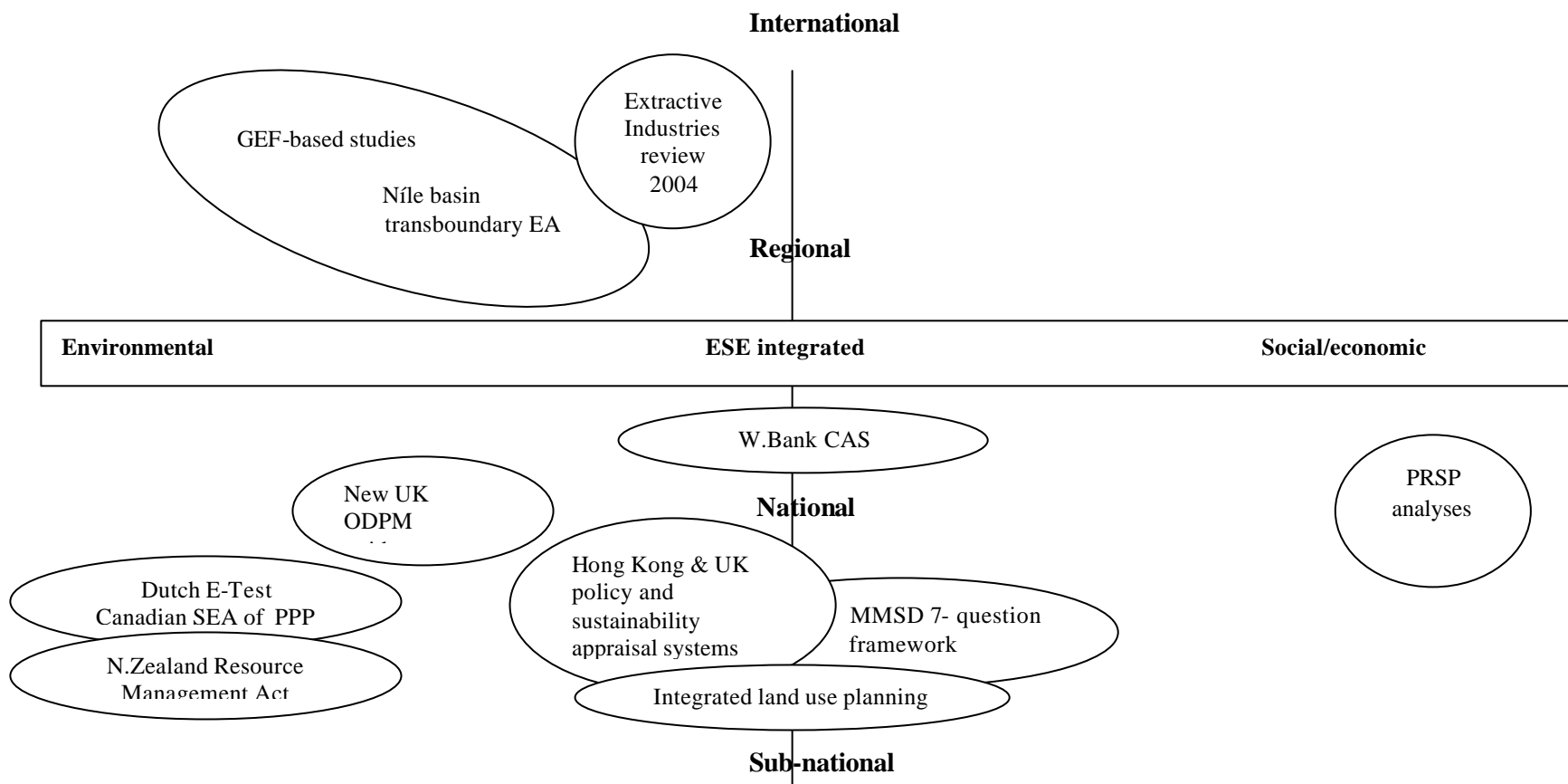
Strictly defined, there are few examples so far of truly integrative sustainability assessments, although there are examples of SEA and integrated planning approaches that are moving in that direction (Figure 1.2). This approach is still, to a great extent, an aspiration given the difficulties in integrating environmental, social and economic aspects in assessment. However, there increasing experimentation and a number of pilot studies are underway to test practical approaches to integrated assessment or sustainability appraisal, to build support for them among policy-makers and analysts and to assist practitioners in applying core methods and components. Recently, for example, UNEP has addressed this issue in a number of projects, including a reference manual for integrated assessment of trade-related policies and now an ambitious programme to devise and promote an initiative to incorporate integrated assessment into planning for sustainability (these are discussed later in this report).

A number of governments have introduced requirements for sustainability appraisal already, eg the UK (Box 1.6)

Recently, Hong Kong has produced guidelines on sustainability assessment (see Box 1.7). Others are considering what form sustainability appraisal might take. For example, the need for a sustainability assessment framework is addressed in the State Sustainability Strategy for

⁶ Jenny Pope (Australia, pers.comm.) comments: “Is there perhaps a danger that “sustainability” is becoming a catch-all for everything, a synonym for a societal perfection. Is this what we mean? I think we need to have this debate.

Figure 1.2: SEA approaches moving towards sustainability appraisal



Box 1.6: Sustainability appraisal in the UK

In the UK, guidance on the environmental assessment of plans and policies has been in existence for some years. Good practice guidance produced by the UK Department of the Environment (1993) describes the use of environmental appraisal as an integral part of the plan-making process of local authorities. It incorporates an explicit sustainability framework and an impact matrix against which to assess policy objectives and plan options. Impact analysis is to cover environmental stock at global, regional and local scales. More recent government guidance on analysing the environmental effects of policy describe a non-prescriptive, flexible approach that central government agencies should follow (DETR, 1998).

While the EU Directive on SEA creates a legal obligation to assess specific types of environmental effect in some detail, the Town and Country Planning (England) Regulations of 1999 on development plans impose a more general duty to have regard to economic, environmental and social considerations. Policy Planning Guidance Note PPG12 "Development Plans", which supports these regulations, advises authorities to look at many of the same environmental effects as the European Directive, but also at a range of economic and social effects. PPG11 "Regional Planning" and the "Good Practice Guide on Sustainability Appraisal of Regional Planning Guidance" (DETR 1999) adopt the same approach, which implements the UK strategy for sustainable development (HMSO 1999).

Subject to approval by Parliament, sustainability appraisal (SA) will be mandatory for Local Development Documents (LDDs) and Regional Spatial Strategies (RSSs) under the Planning and Compulsory Purchase Bill. ODPM will produce guidance for authorities on SA when the new planning system is brought into effect. This will give further details on social and economic issues to be addressed and on the relationships between SEA and SA.

According to Counsell and Houghton (2002), SA "is a method of appraisal which aims to ensure that consideration of sustainable development objectives is ingrained in all stages of the strategy-making process". Recent research by the EIA Centre at the University of Manchester on the current use of environmental assessment and SA during the preparation of 25 English development plans have shown an increasing use of SA (Short *et al.* 2003). It concluded that, in the majority of cases, development plans had become more environmentally sound as a result of being appraised and that some changes to the plans had been introduced in just over half of the cases as a consequence of applying SA (mainly changes in wording of policies and re-prioritisation of proposed allocation sites within the plans).

An example of a recent sustainability appraisal is that undertaken of the draft London Plan prepared by the Greater London Assembly (GLA), one of the first truly spatial strategies to be prepared in the UK. This looks beyond simply the control of development to the spatial implication of many different sectoral policies such as energy, transport, education, social exclusion, etc. The appraisal followed the guidance of the DETR (1999) and was undertaken by a team of consultants but with inputs from a number of GLA officers through a two-day round table process. An independent review of the appraisal questioned weaknesses in the SA methodology, the inadequate representativeness of the round table process, and the potentially self-referential and biased nature of the appraisal (Jeremy Richardson, ScottWilson consultants, pers.com.).

Western Australia (Government of Western Australia, 2003), identifying and recommending transitional and long-term arrangements for various forms of sustainability assessment. This exercise is of interest because it has identified the both the upside and downside of instituting such an approach as identified by government (Box 1.8)

Box 1.7: Hong Kong Guideline on Sustainability Assessment (SA)

The Requirement

With immediate effect, bureaux and departments are required to conduct SA of their new and major initiatives or programmes. Effective from April 2002, responsible bureaux or departments should include in each of their submissions to the Chief Secretary's Committees (CSC) and the Executive Council (ExCo) a paragraph on 'sustainability implications' to explain the main findings of their SA. The paragraph should be cleared with the Sustainable Development Unit (SDU) beforehand.

Scope of Sustainability Assessments

All new initiatives or programmes that may bring about significant or prolonged implications on the economic, social and/or environmental conditions of Hong Kong would be subject to SA. Examples include regional or sub-regional planning studies, comprehensive transport studies, waste management plans, education or health reform proposals, etc. Effective from April 2002, all submissions to the CSC and ExCo should also set out the SA findings of the relevant proposals. In case the responsible bureau or department does not consider an assessment applicable to its proposal or the SA has revealed negligible readings, this should be stated clearly in the submission with justification.

ADD Source:

Box 1.8: Strengths and dangers of an integrative sustainability assessment framework

The Department of Premier and Cabinet Policy Office [in Western Australia] hosted three workshops in 2002 on sustainability assessment, which indicated the challenge of developing an integrative sustainability assessment framework/mechanism. The workshops focused on sustainability assessment of legislation and projects but also considered assessment of policies, plans and programs.

Strengths:

- The wide availability of significant techniques and expertise extending from planning, SEA and social and environmental impact assessment;
- The benefit of approaching sustainability assessment as an iterative process that could be constantly refined.

Dangers and difficulties: identifying:

- How and when integration of environmental, social and economic factors would occur;
- Defining environmental and social bottom lines/thresholds;
- Identifying the roles and responsibilities of proponents, community and government;
- Whether different frameworks would be needed for projects, policies, plans and programs;
- How tradeoffs and reconciliation would occur;
- Whether sustainability assessment would build on existing assessment arrangements or start with a clean slate;
- How to ensure those undertaking a sustainability assessment would have the necessary skills and resources to do so

Source: Buselich (2002)

1.8 Recapping where we are

In general, for the purposes of this review, we see the main purpose of SA as providing an integrated, proactive framework that can be applied flexibly, as required, but in an integrating manner, to:

- Assess the environmental, social and economic outcomes (impacts) of development (policies, plans, programmes, actions) - as an audit or performance check to determine if a community or organisation is progressing towards sustainability;
- Evaluate the environmental, social and economic sustainability of policies, plans, programmes and actions when they are being developed or have been proposed.

Although SA could be applied as a post-hoc exercise (and there will be cases where this is required and necessary), it is far more preferable that it be undertaken up-front to support policy-making, planning and decision-making processes. It should be fully integrated into such processes rather than undertaken as a separate activity. The lineaments of this approach have been suggested by Buselich (2002):

“sustainability assessments are needed to address the economic, social and environmental interdependencies within policies, plans, legislation and projects, in order to complement and extend other assessment and decision-making processes and enable a more inclusive and informed decision-making. Sustainability assessment needs to integrate issues and seek to assess the cumulative and synergistic impacts of decisions and management practice, and subsequently facilitate comprehensive decision-making in order to deliver greater certainty, transparency and accountability in government decision-making”.

A comparison of EIA, SEA and sustainability assessment is offered by Devuyst (1999) (see Table 1.3). **TO BE EXPANDED.**

A particularly critical issue alluded to here is how to integrate qualitative and quantitative information into a single sustainability assessment.

Some techniques are able to combine qualitative and quantitative data in an accurate manner which is effective in aiding decisions. Other approaches which use standardisation or the use of symbols (eg in the planning balance sheet approach) tend to divert decision-makers' attention from the task of integration by referring to additional information (McAllister, 1980). But most experimentation and research on sustainability assessment has adopted a qualitative approach partly because the vast array of issues surrounding particular proposal and initiatives demand complex analysis, and partly because of the current lack of well-developed and tested quantitative sustainability assessment tools.

Table 1.3: EIA, SEA and Sustainability assessment compared (Devuyt 1999)

	EIA	SEA	Sustainability assessment
Subject of assessment	Projects with potential significant environmental impacts	Policies, plans and programmes with potential significant environmental impacts	Initiatives (such as legislation, regulations, policies, plans, programmes, and projects) with potential significant sustainability impacts
Frame of reference	Environmental policy	Environmental policy	Policy or vision on sustainable development
Scope of the study	Mostly environmental aspects are examined (such as water, air, soil, noise, and landscape), sometimes also socio-economic conditions at the local level (surroundings of the project)	The examination of environmental effects (such as water, air, soil, noise, and landscape), is often complemented by the study of socio-economic aspects at a regional, national or international level (depending on the policy, plan or programme a wide area could be affected)	Sustainability issues need to be examined at their appropriate level (local, regional, national, or international). These include e.g. the use of non-renewable resources, the application of precautionary and reversibility principles, the focus on long-term effects, the influence on climate change, aspects of equity within society and between North and South, training and employment opportunities for local populations
Introduction by governments	Established in a majority of national and regional governments	Established in a few national or regional governments, experimented with by many governments	Introduced in a few local governments on an experimental basis
Methodology for impact prediction	A wide range of methods for quantitative impact prediction exist	Because of the blurred nature of many policy and planning proposals impact prediction is often of a qualitative type	Methods for predicting sustainability impacts need further research, attempts have been made to use sets of sustainability indicators to predict how initiatives will affect the sustainable nature of society

