

PART 2

A SELECTION OF KEY APPROACHES

Chapter 4

A ROAD MAP TO APPROACHES FOR ENVIRONMENTAL MAINSTREAMING

The challenges and tasks associated with decision-making differ at each stage of policy-making, strategy development, planning, considering investments, and developing institutions. Such processes tend to be most effective for sustainable development when they are considered together, at least nominally in a cyclical and iterative manner (as discussed in section 2.1 and illustrated in Figure 2.1). The ‘cycle’ stages and the mechanisms which drive cycles (eg participation, communications) provide opportunities and leverage points for promoting and delivering environmental mainstreaming. The approaches, tools and tactics available to promote and support environmental mainstreaming at these stages also vary.

For example, opportunities for environmental mainstreaming are available through design, decision-making and implementation stages associated with the ‘internal’ processes and delivery mechanisms of development cooperation agencies. Here, again, an array of different mainstreaming approaches can be used (see section 4.1.1).

4.1 What approaches are available?

The country surveys identified a range of common and popular approaches associated with particular challenges and tasks. We have grouped these into six categories (see Table 4.1):

- Providing information
- Planning and Organisation
- Deliberation and engagement
- Management
- Voluntary and indigenous approaches
- Other approaches

Table 4.1 is not comprehensive, nor would all the approaches listed be appropriate in all circumstances. But they indicate the breadth of means available to support environmental mainstreaming. In Chapter 5, we profile selected approaches.

Table 4.1: Approaches/tools for environmental mainstreaming

<p>(A) PROVIDING INFORMATION</p> <p>Impact assessment & strategic analysis Environmental impact assessment (EIA) Integrated environmental assessment (IEA) Integrated impact assessment (IIA) Life cycle assessment (LCA) Poverty & social impact assessment (PSIA) Regulatory impact assessment (environmental, fiscal) Social impact assessment (SIA) Strategic environmental assessment (SEA) Sustainability appraisal</p> <p>Economic and financial assessment Public environmental expenditure review (PEER) Budgeting Cost benefit analysis (CBA) Eco-budget Economic analysis (general) Green/Natural resource accounting Valuation (resource, NR, economic, goods & services)</p> <p>Social surveys and assessments Household surveys Participatory poverty assessment Spatial data analysis Well-being health happiness measurement</p> <p>Spatial assessment Geographic information system (GIS) Geological survey Resource maps Zoning plans</p> <p>Monitoring and evaluation Community-based monitoring Corporate social responsibility (CSR) Environmental quality monitoring Environmental audits Indicators Monitoring (general) Multi-sectoral monitoring State of environment report (SOE)</p> <p>Other Cleaner production in-plant assessment Pre-feasibility studies Thematic studies (eg noise pollution, emissions)</p>	<p>(B) PLANNING & ORGANISATION</p> <p>Plans & policies Business plans for protected areas (National) sustainable development strategies Conservation plans Environmental (action) plans Fiscal policy (taxes, incentives, etc) Integrated development plans Internal environmental policy National & District Environmental Action Plans (NEAP / DEAP) Physical & land use planning Strategic planning (general) Spatial development framework</p> <p>Legal Legal tools (general) Public interest litigation Regulatory frameworks/guidelines</p> <p>Policy tools Policy analysis Policy guidelines</p> <p>Organisation-specific Corporate policy & sustainability reporting In-house project & programme appraisals Planning schedule Work plans</p> <p>Visioning Collective/community visioning Natural step Scenarios</p> <p>Other Certification Charters & codes of practice Cleaner production Eco-management & audit system (EMAS) Environmental management system (EMS) Gantt tables Internal meetings ISO standards Life cycle analysis Multiple decision criteria analysis Performance standards, loan/grant conditions Standards & licensing Sustainable livelihoods</p>
<p>(C) DELIBERATION & ENGAGEMENT</p> <p>Participation & citizens' action Community-based natural resource management (CBNRM) Community meetings Community mobilisation Conferences</p> <p>Eco clubs Environmental tribunal Internal meetings Lobbying</p>	<p>(D) MANAGEMENT</p> <p>Management planning & control Alternative dispute resolution Conflict management/resolution Energy audits Environmental compliance audits Environmental management plans (EMP) & frameworks Integrated environmental management Occupational health & safety audits Performance indicators & benchmarks Risk assessment</p>

<p>Meetings with external actors Multi-stakeholder consultation/processes National councils for SD Participatory mapping Participatory planning Participatory rural appraisal Partnerships (eg citizen-city administration) Private-public committees Public consultation Public hearing Public participation (general) Reward systems/motivation/funds augmentation Stakeholder mapping Workshops & seminars</p> <p>Creating demand & awareness Awareness workshops Media (campaigns) Negotiations Practical examples Public online databases Right to Information Act</p>	<p>Market-based tools Business supply chains Eco-labelling Green procurement Payments for environmental services</p> <p>Institutional governance (general) Environmental standards & regulations</p>
<p>(E) VOLUNTARY & INDIGENOUS APPROACHES</p> <p>Analysis of international regulations Converting Black Economic Empowerment (BEE) to sustainable & equitable empowerment (SEE) Bhagidari scheme (India) Informal communication Quality management systems Review of national jurisdiction Taboos</p>	<p>(F) OTHER APPROACHES</p> <p>Capacity-building (general) Capacity-building workshops/seminars Collaborative forest management Environmental levy Integrated soil & nutrient management tools On-farm resource flows</p>

4.1.1 Approaches used in development cooperation processes

Development cooperation agencies (whether bilateral or multi-lateral), and UN and other international organisations have many ‘internal’ processes through which they frame and channel development assistance (eg internal policies, and country assistance strategies). Environmental mainstreaming in such processes is critical if the outcomes are to be effective in promoting sustainable development.

UNDP’S Environmental Mainstreaming Strategy ¹ identifies a range of ‘entry points’ and building blocks for mainstreaming environmental issues into national development planning and the preparation of UN Development Assistance Frameworks (UNDAF). Table 4.2, intended as a framework, lists a various tools and resources for the entry points related to phases of environmental mainstreaming in UN-supported country programming. Some activities may take place in parallel while others might be skipped due to national circumstances.

1

<http://66.102.9.132/search?q=cache:BwbG3B21pPkJ:www.undp.org/fssd/docs/envmainstrat.doc+entry+points+mainstreaming+environment+into+country+analysis+and+the+UNDAF&hl=en&ct=clnk&cd=5&gl=uk>

Table .2: Entry points for mainstreaming environment into Country Analysis and the UNDAF

(Source: <http://66.102.9.132/search?q=cache:M5rdJHySUOUJ:www.unssc.org/web1/program>)

UN-supported Country Programming ¹	Phases of Environmental mainstreaming ²	Phases of Environmental mainstreaming	Tools & Resources
<p>Plan of Engagement</p> <ul style="list-style-type: none"> • Map the national policy and planning process (incl. SIPs, SWAPs, DBS) • Assess the UNCT's comparative advantages • Review the quality of country analytic work and identify critical gaps • Agree on UNCT support for country analysis 	<p>Preparation Finding entry points and “making the case”</p> <ul style="list-style-type: none"> • Assessing the country institutional and policy context • Understanding development-environment linkages <p>Preliminary assessments of existing environmental analysis to identify:</p> <ul style="list-style-type: none"> • data and information for convincing arguments • partnership opportunities • critical capacity gaps • potential working mechanisms 	<p><i>Scanning, strategising, lobbying – both UNCT and key stakeholders</i></p> <p>Mapping exercise - include environmental stakeholders:</p> <ul style="list-style-type: none"> • Who are the key government, donor and civil society actors and processes that shape development priorities and affect policy and planning decisions? (focus on Finance, Planning, Environment Ministries; key sectoral ministries eg. Health, Energy, Labour; major donors) • Who amongst these actors can/would “<i>champion</i>” environmental mainstreaming? • What are their most critical institutional and capacity needs, including national and sub-national working arrangements? <p>Identify environment-development linkages during UNCT review of country analytic work:</p> <ul style="list-style-type: none"> • What are the key environmental problems in the country and their causes? • How do they contribute to major development problems, such as poverty and disease? • What are the existing national policies and programmes to address the 	<p><u>Tools</u></p> <ul style="list-style-type: none"> • Stakeholder consultations & literature review • National environmental summary • Strategic Environmental Assessment (SEA) screening <p><u>Resources</u></p> <ul style="list-style-type: none"> • National Environment Action Plan (NEAP) • National Strategy for Sustainable Development (NSSD) • Integrated ecosystem assessment (IEA) • UNEP country environment profiles • World Bank country environmental analyses • EC country environmental profiles • National reports on implementation of MEAs • Biological diversity (www.cbd.int/reports) • Climate change (www.unfccc.int/national_reports) • Desertification (www.unccd.int/cop/reports) • Hazardous Materials (www.pic.int)

		<p>problems?</p> <ul style="list-style-type: none"> • What are the critical gaps in the existing analysis related to environmental standards? <p>UNCT comparative advantages:</p> <ul style="list-style-type: none"> • What are the specific comparative advantages of the UNCT for? 	
<p>Support and strengthen country analysis</p> <ul style="list-style-type: none"> • Participation in government-led analysis • Complementary UNCT- supported analysis • A full CCA process 	<p>Phase 1: Integrating environment into national development processes</p> <ul style="list-style-type: none"> • Targeted studies – evidence • Identification of priorities for NDP, PRSP, MDG or sector strategies, UNDAF • Identification and costing of alternative environmental policy interventions and programmes 	<p><i>Focusing, linking, convincing</i></p> <p>Support and strengthen country analysis:</p> <p>Have focus</p> <ul style="list-style-type: none"> • From the range of “problems” identified for further analysis, target the ones having the most critical environment linkages – the “best bets” • Generate additional country-specific evidence to complement existing national, regional analysis <p>Position the evidence and arguments</p> <ul style="list-style-type: none"> • Position evidence about the critical environment linkages during national analytical processes and UN theme group (TG) meetings • Participate in analytical exercises and highlight critical environmental causes at underlying and root levels to major development problems • Use evidence, argument, and “champions” to Influence national development processes (NDP; PRS) and stakeholders 	<p><u>Tools</u></p> <ul style="list-style-type: none"> • Causality, role, and capacity gap analysis conducted by UN TGs • Influencing the PRS process • Economic analysis to illustrate the contribution of environment to the national economy <p><u>Resources:</u></p> <ul style="list-style-type: none"> • MEAs • National reports

<p>Select strategic priorities for UN-Government cooperation:</p> <p>The intersection of:</p> <ul style="list-style-type: none"> • (i) major development problems, • (ii) UNCT comparative advantages, • (iii) alignment of stakeholders 		<p>Link environmental evidence and analysis to emerging policy and programme priorities</p> <ul style="list-style-type: none"> • Support preparation of, and participate in the UNDAF retreat • Use evidence, argument, and “champions” to influence and shape UNDAF priorities • Make the link between UNDAF results and national environmental priorities • Develop and cost possible policy and programme interventions 	<p>As above</p>
<p>UNDAF and country programme/ project preparation, implementation, and monitoring</p>	<p>Phase 2: Meeting the implementation challenge</p> <ul style="list-style-type: none"> • Integration of key environmental indicators in the national monitoring system • Engage in budget processes • Support implementation of policy and programmes • Strengthen institutional capacities 	<p>UNDAF formulation</p> <ul style="list-style-type: none"> • Participate in/ co-chair UNDAF outcome groups to help formulate the UNDAF, particularly the framing of agency outcomes and outputs, and their indicators, where critical environmental linkages emerge • Ensure that UNDAF results help to sustain the environmental focus in national institutions and processes (planning, budgeting, policy making and implementation) <p>Formulation of UN-supported programmes and projects</p> <ul style="list-style-type: none"> • Offer assistance (<i>be the “green” advocate</i>) to UN agencies to help formulate country programmes and projects • Advocate for EIA screening or full EIAs as needed. <p>Help make the UNDAF operational</p> <ul style="list-style-type: none"> • Participate in UNDAF monitoring and reporting – particularly for environment-related results 	<p><u>Tools</u></p> <ul style="list-style-type: none"> • Appraisal of planned UNDAF results • EIA Screening <i>or</i> support for agency mandated environmental reviews • Environmental Impact Assessments (EIA) (<i>as needed</i>) • UNDAF outcome groups, joint monitoring and reporting • Checklist for including ES in the UNDAF Evaluation

		<ul style="list-style-type: none"> • Use monitoring evidence to demonstrate critical environment-development linkages <p>Play a role in coordination between UN, Gov, other stakeholders with a focus on environmental issues in the region</p>	
--	--	---	--

¹ UNDG, Common Country Assessment and United Nations Development Assistance Framework, Guidelines for UN Country Teams on preparing a CCA and UNDAF, UN, Feb 2007.

² UNDP-UNEP, Guidance Note on Mainstreaming Environment into National Development Planning, 2007, UNDP-UNEP Poverty-Environment Facility; UNDP-UNEP, Handbook on mainstreaming environment into national development planning, DRAFT-March 2008.

4.2 Choosing appropriate approaches

In selecting an appropriate approach or tactic that is applicable to a particular context, situation or set of circumstances, and that best suits needs, it will be useful to consider a number of questions: [NB The profiles in Chapter 5 should address these questions as far as possible]

1. Is it *relevant* to the environmental purpose and local/sector conditions?
2. How *easy* is it to use?
3. What is the need for *data* (and is this likely to be available or easy to access)?
4. *Where* will it be done – will it involve a desk exercise or will fieldwork be required?
5. How *robust* is the approach – does it deliver reasonably good information?
6. What particular *skills*, training or qualifications does it demand?
7. How much will it *cost*, and is it economically efficient?
8. How much *time* is required?
9. How *understandable* will the outputs be?
10. What *impact* will the tool have – will it help to make progress towards sustainable development?
11. How *participatory* is the approach – can relevant stakeholders readily get involved/be engaged?
12. How *measurable* will the outcomes be, and will they be comparable with those from other approaches?
13. Does it require a degree of *enforcement* and can that be achieved?

Admittedly, not all of the information needed to answer all of these questions about particular approaches will be readily available, and an intuitive decision will need to be made based on advice available. Also experimenting with an approach and testing it, even adapting it to local circumstances, can provide valuable outcomes and lessons.

Chapter 5

DRAFT PROFILES OF SELECTED APPROACHES

The following selected approaches to environmental mainstreaming focus on those that are likely to be applicable in most countries and situations because they are legislative requirements, proven standard practice, and/or of broad applicability. They are grouped according to the broad categories in Table 4.1.

[Note: We believe 5.1, 5.2 and 5.8 are reasonably complete. Others are drawn from available materials and our partial experience and include material from country consultations. We would welcome feedback and comments on all of these profiles]

Information

- 5.1 Environmental impact assessment (EIA)
- 5.2 Strategic environmental assessment (SEA)
- 5.3 Indicators
- 5.4 Participatory geographical information systems (PGIS)
- 5.5 Public Environmental Expenditure Review
- 5.6 Tools for making the economic case (maybe 2-3) (to be added)

Planning

- 5.7 Environmental management systems
- 5.8 National Sustainable Development Strategies
- 5.9 Natural Step – an approach to vision-building
- 5.10 Scenario planning

Deliberation

- 5.11 Citizen's juries
- 5.12 National Councils/Commissions for Sustainable Development (to be added)
- 5.13 Public interest litigation

5.1 Environmental impact assessment (EIA)

<i>What is EIA for?</i>			<i>What issues does an EIA focus on?</i>	
Policy development			Environmental	√√√ (mainly)
Planning	√	Guides good decisions	Social	√ (sometimes)
Field work	√	For data collection	Economic	√ (sometimes)
Investment	√	For project approval	Institutional	√ (sometimes)
Assessment	√	Main focus		
Monitoring	√	Indicates what to monitor		
Campaigning				

Purpose

EIA is intended to identify the impacts (both beneficial and adverse) of a proposed public and private development activities. Often, the focus is dominantly environmental (biophysical); but good practice also addresses social and economic aspects. EIA is mainly used at the level of specific developments and projects such as dams, industrial plants, transport infrastructure (eg airport runways and roads), farm enterprises, natural resource exploitation (eg sand extraction). Strategic environmental assessment (SEA) is a sister tool applied upstream at the level of policies, plans and programmes. Like SEA, EIA is most valuable when applied early in the planning process for a project as a support to decision-making. It provides a means to identify the most environmentally suitable option at an early stage, the best practicable environmental option, and alternatives to the proposed initiative; and thus avoid or minimise potentially damaging and costly negative impacts, and maximise positive impacts.

Background facts

EIA was first introduced in the USA under the Environmental Policy Act (1969). Since then it has evolved and a variety of offshoot assessment techniques have emerged (focusing, for example on social, biodiversity, environmental health and cumulative effects and risk) acting as a broader impact assessment toolkit.

Most countries have now introduced formal EIA systems, usually under dedicated environmental legislation, and have introduced EIA regulations (and often regulatory bodies) specifying when and for which developments an EIA is required, institutional responsibilities and procedures, and specific steps and processes to be followed.

Brief description of the main steps involved in application of the tool:

Key stages in the Environmental Assessment process include: screening, alternatives, preliminary assessment, scoping, mitigation, main EIA study and environmental impact statement, review and monitoring (Box 5.1.11 and Figure 5.1.1). These need to be managed so that they provide information to decision-makers at every stage of the project planning cycle (Figure 5.1.2)

Box 5.1.1: Steps in EIA

(1) **Screening** (often by an EIA Authority) – to decide whether an EIA is required and focus resources on projects most likely to have significant impacts, those where impacts are uncertain and those where environmental management input is likely to be required.. Official EIA guidelines usually contain lists or schedules specifying which developments require an EIA (eg always, or in particular circumstances).

(2) Consideration of possible **alternatives** (demand, activity, location, process & design, scheduling, inputs, ‘no project’) should be undertaken before a choice is made. Some projects can be site specific (eg in mining, extraction can only occur were a mineral is sited). In such cases the EIA might focus

more on measures such as scale, mitigating measures and traffic management.

(3) **Preliminary assessment** - where screening suggests further assessment is needed or if there is uncertainty about the nature of potential impacts. Uses rapid assessment techniques, but provides sufficient detail to identify key impacts, their magnitude and significance, and evaluate their importance for decision-making. Indicates if a full EIA is needed. - involving the following steps.

(4) **Scoping** –a ‘narrowing’ process usually undertaken by an ‘assessment team’ to identify the key issues of concern at an early stage in the planning process and guide the development of terms of reference for the EIA. It aids site selection, identifies possible alternatives, and avoids delays due to having to assess previously unidentified possible impacts. Scoping should involve *all interested parties* such as the proponent and planning or environmental agencies and members of the public. The results determine the scope, depth and terms of reference to be addressed within an *Environmental Impact Statement* (see below). Once the site for development has been selected, the number of issues usually decreases and attention to detail increases.

(5) **Main EIA study** – building on and deepening the preceding steps to predict the extent and magnitude of impacts and determine their significance. A variety of methods can be used including: checklists, questionnaires, matrices, overlays, networks, models and simulations. The study should incorporate consideration of *mitigating measures* - reviewing the action proposed/taken to prevent, avoid or minimise actual or potential significant adverse effects of a project, eg abandoning or modifying a proposal, or substituting techniques using BATNEEC (Best Available Technology Not Entailing Excessive Costs) such as pollution abatement techniques to reduce emissions to legal limits. If the uncertainties are great, with the possibility of grave consequences and no mitigating measures then the proposed development should be rejected. If there are uncertainties that might be reduced by further studies, then an application can be deferred pending until further studies. Where mitigation is inappropriate, compensation may be an option.

An *Environmental Impact Statement (EIS)* is a comprehensive document that reports the findings of the EIA and now often required by law before a new project can proceed. A typical EIS, usually prepared by the project proponent (but often with the help of consultants), focuses on the issues most relevant to decision-making. It can be broken down into three parts with different levels of detail:

- Volume 1 - a comprehensive and concise document drawing together all relevant information regarding the development project;
- Non-Technical Summary (NTS) - a brief report of volume 1 in non-technical language that can easily be understood by the public;
- Volume 2 - a volume that contains a detailed assessment of the significant environmental effects.(not necessary when there are no significant effects either before or after mitigation).

Alternative communication approaches by also be appropriate where literacy or social/cultural barriers prevent local people accessing the EIS. (eg local language videos, presentations, radio programmes, meetings and workshops)

(6) **Review** – to assess the adequacy of the EIA to decision-making and consider its implications for project implementation (in some countries, such review is a formal and independent process)

(7) **Monitoring** of project implementation and operation (including decommissioning) , and eventually an *audit* of the project after its completion.

Figure 5.1.1: The EIA process

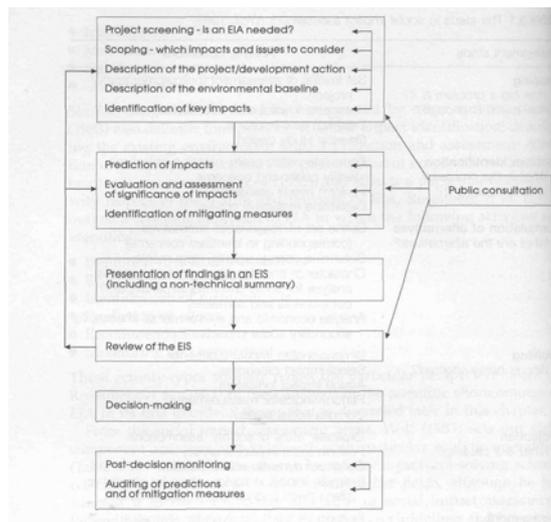
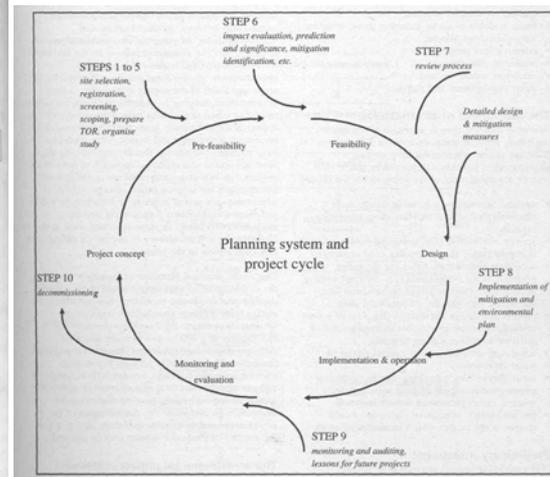


Figure 5.1.2: The project planning cycle



Expected outputs

- An Environmental Impact Statement that provides clear, understandable, relevant information to influence the final decision on the development project.
- A better development project (minimised negative impacts, maximised positive impacts, optimal location, best alternative selected, etc)

Basic requirements

For a major project, an EIA may take considerable time, manpower and resources. The first four stages (Box 1) are very important to determine the required extent and focus of the EIA.

Data

Prediction of impacts relies on data from a variety of sources: physical, biological and sociological. Its quality will often impose constraints on accuracy and reliability of predictions. Where data is limited, qualitative techniques will need to be used

Cost – usually less than 1% of overall project costs – the table shows example EIA costs for four World Bank projects.

Type of project	Cost of EIA (000, US\$)	Project cost (000, US\$)	% of total project costs
Thermal power generation, Ghana	250	400,000	0.06
Forest management, Tanzania	131	26,000	0.50
Energy sector development, Kenya	510	1,000,000	0.05
Energy sector development, Malawi	180	231,300	0.08

Skills and capacity – often a multidisciplinary team is required – particularly where scoping indicates the existence of multiple or complex issues.

Pros (main advantages) and Cons (main constraints in use and results)

- EIA often focuses on biophysical issues (often a fault of poor terms of reference);
- Where environment, social and economic aspects are addressed, they are not always addressed in an integrated way (EIA reports tend to present as separate chapters)
- EIA provides an opportunity to learn from experience of similar projects and avoids the (often high) costs of subsequently mitigating unforeseen negative and damaging impacts.
- EIA Improves long-term viability of many projects

Box 5.1.2: Case Study: EIA Mkuze River Crossing to Phelendaba, South Africa

A relatively small EIA of a proposed road development in Maputaland, South Africa was conducted in 1999 for the South African Roads Agency, Department of Transport. The road formed a key infrastructural component of a Spatial Development Initiative aiming to provide a direct link between northern KwaZulu-Natal and Mozambique to encourage rapid investment and convert the area into an internationally competitive zone of economic activity and growth. The project aimed to tar the road, upgrade river crossings and construct a new crossing over a swamp. The undeveloped area dominated by subsistence agriculture had high levels of poverty and unemployment but high bio-diversity value and high eco-tourism potential.

An extended scoping study proved adequate for decision-making, despite the complexity of the issues. It proved unnecessary to undertake an intensive, detailed EIA that would have had significant time and resource implications.

The study involved extensive stakeholder participation. Because of the eco-tourism potential of pans in the area, the KwaZulu-Natal Nature Conservation Service (KZNNCS) proposed an alternative routing for the roadway (the western alignment), arguing that this would provide greater access to the Kwa-Jobe Tribal Authority – an extremely poor community.

The existing route was shorter and therefore cheaper, and most of its alignment was already cleared - so linear developments and other disturbances already existed. But it passed through a state forest with hazards to game and game hazards to traffic, opportunistic poaching and noise from the road.

The alternative western alignment required clearing 140 ha of mature Sand Forest and could open access to uncontrolled woodcutting. But benefits included expanding the width of a migration corridor between the Mkuze Game Reserve and the Sodwana State Forest. This route would also have eliminated the need to cross the Mozi Swamp.

The proposed upgrading of the swamp crossing would result in several positive impacts including removing barriers to fish migration, improving access to Kwa-Jobe, increase the frequency of water exchanges, reducing the hyper-salinity in Lake St Lucia and improved fish yields. Negative impacts included constricting water movement, possible embankment collapse during heavy floods and a reduction in hydrologic pressure on the Mkuze Swamp during floods.

The scoping study concluded that the eastern (existing) alignment was preferable especially given the vehement opposition expressed by Tribal authorities to the western (alternative) alignment. A stringent Environmental Management Programme (EMP) was recommended to govern all construction practises.

Source: Millard R and S le Hanie (1999). Mkuze River Crossing to Phelendaba, Environmental Scoping. Report Project SAPR S58-040-01/1. Johannesburg: Environmental Impact Management Services.

Key sources of further information and useful web-links

Donnelly A, Dalal-Clayton D.B. & Hughes R. (1998): *A Directory of Impact Assessment Guidelines*. 2nd edition. Environmental Planning Group, IIED (available at www.iied.org).

Petts J, (Ed) (1999). *Handbook of Environmental Impact Assessment* (2 volumes), Blackwell, Oxford

Wood C. (2003) *Environmental Impact Assessment : A Comparative Review*. 2nd ed. Prentice Hall, Harlow

Glasson, J; Therivel, R; Chadwick A, *Introduction to Environmental Impact Assessment*, (2005) Routledge, London

An index of useful EIA websites is available at: <http://www.iaia.org/eialist.html>

5.2 Strategic environmental assessment (SEA)

<i>What is SEA for?</i>			<i>What issues does an SEA focus on?</i>		
Policy development	✓	Assesses potential impacts	Environmental	✓✓ (sometimes dominant)	
Planning	✓	Guides good decisions	Social	✓	
Field work	✓	For data collection	Economic	✓	
Investment	✓	Often required for major infrastructure approval	Institutional	✓ (sometimes)	
Assessment	✓	Main focus			
Monitoring	✓	Indicates what to monitor			
Campaigning					

Purpose

SEA is an umbrella term for analytical and participatory approaches applied at the very earliest stages of decision-making to integrate environmental considerations and evaluate the inter linkages with economic and social considerations. It thus helps to formulate policies, plans and programmes and assess their potential development effectiveness and sustainability.

An SEA can be initiated due to administrative or legal requirement in a country, or following a request from donor agency or initiative on part of government champion. In donor agencies, the stimulus can be an administrative or policy requirement or an initiative of environmental specialist, country or strategy manager.

Background facts

SEA is a rapidly evolving field that emerged in the 1990s in several developed countries as a separate process from EIA which is usually focuses on specific projects but is less easily and less effectively applied to policies, plans and programmes. It is now the subject of an immense literature and framed and guided by widely supported principles and performance criteria ².

Currently, SEA systems are in place in more than 25 countries and jurisdictions with an increasing number of developing countries gaining experience of the tool. Their scope of application collectively encompasses policy, legislation, plans, programmes and other strategies across a range of different sectors. But SEA is still most commonly applied to plans and programmes, with a particular focus on the energy, transport, waste and water sectors, and on spatial or land use plans. Recently multilateral and bilateral development agencies and other international organisations have emphasised the use of SEA (most notably the World Bank), particularly as aid modalities focus less on projects and more on budget and sector support and poverty reduction. The OECD Development Assistance Committee recently published guidance on SEA application in development cooperation ³.

SEA is also now formalised in several international legal instruments, most notably the EC Directive 2001/42/EC which entered into force in July 2004 and applies to plans and programme. It has been transposed into national legislation in EU member states. Non-EU countries are also seeking to align their SEA arrangements with the EU framework. The Directive also influenced the SEA Protocol to the UNECE Convention on EIA in a Transboundary Context adopted in 2003 which, once ratified, will be legally binding on signatories with regard to plans and programmes, and discretionary regarding policy and legislation.

² For principles, see, for example, Dalal-Clayton & Sadler (2005, Chapter 2, p15) – available at www.iied.org/Gov/spa. For performance criteria, see IAIA (2002) – available at www.iaia.org

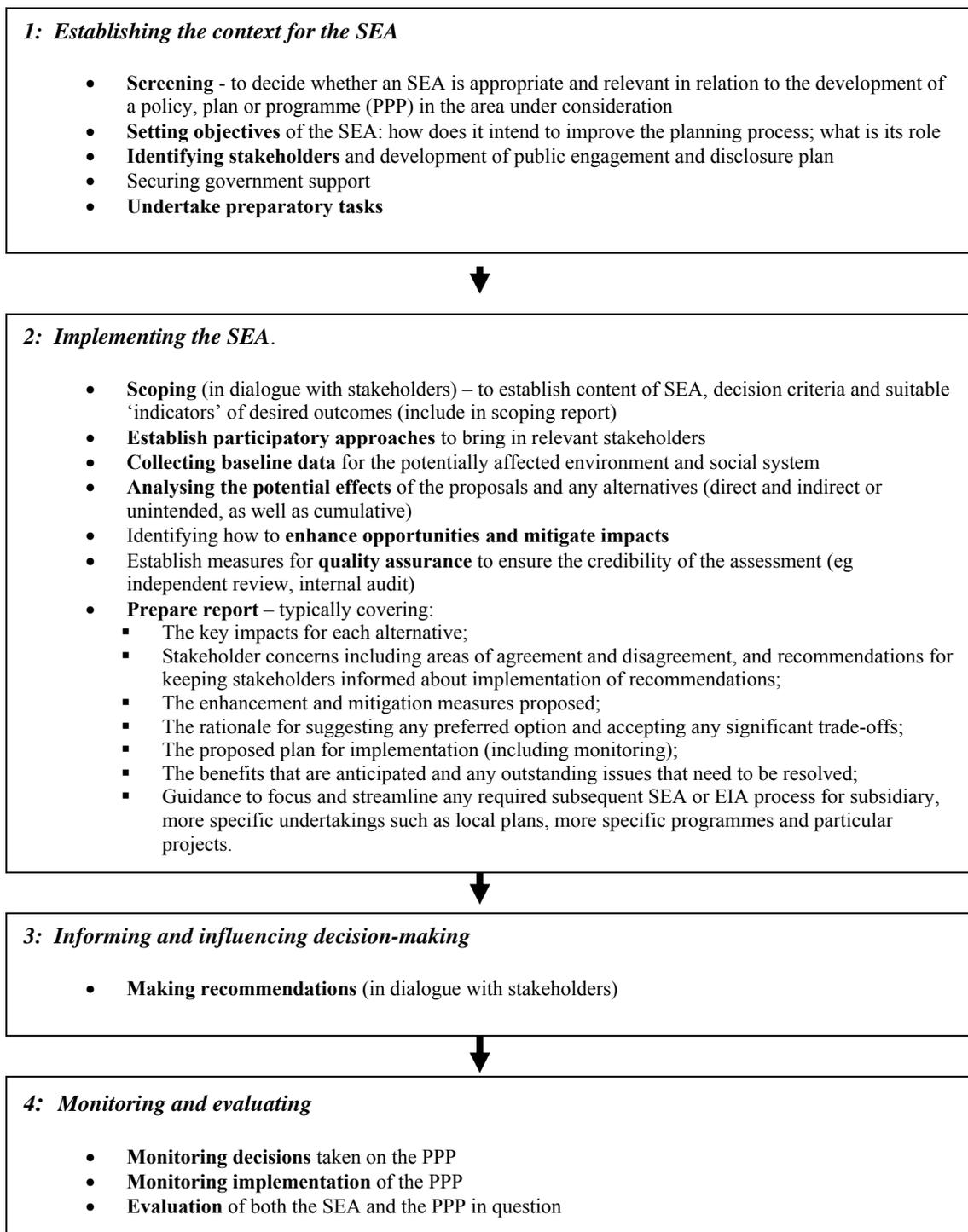
³ See OECD DAC (2006) - available at: www.seataskteam.net

Brief description of the main steps involved in application of the tool:

There is no prescriptive, ‘one size fits all’ approach to SEA. It needs to be adapted and tailor-made to the context in which it is applied. But at the plan and programme level, good practice SEA usually involves the four stages shown in Figure 5.2.1, adapted from the characteristics of EIA. In policy-making, usually this will not be possible, because of the complex, non-linear character of this process.

Effective SEA also depends on an adaptive and continuous process focused on strengthening institutions and governance rather than just a simple, linear, technical approach, as is often found in EIA. This is a significant challenge.

Figure 5.2.1: Basic stages in SEA



Expected outputs

Perhaps the most important outcome of a good quality SEA is that it has significantly influenced the achievement of positive development results and has helped to enhance the effectiveness of development. But development involves complex processes and it is not easy to isolate those outcomes that are solely due to the application of SEA. Equally, it is not possible to be certain that unsustainable outcomes of a PPP would have been avoided by undertaking an SEA.

Basic requirements

Data needs. SEA needs to be based on a thorough understanding of the potentially affected environment and social system. This must involve more than a mere inventory, e.g. listing flora, fauna, landscape and urban environments. Particular attention should be paid to important ecological systems and services, their resilience and vulnerability, and significance for human well-being. Existing environmental protection measures and/or objectives set out in international, national or regional legislative instruments should also be reviewed.

The baseline data should reflect the objectives and indicators identified in the 'scoping report'. For spatial plans, the baseline can usefully include the stock of natural assets, including sensitive areas, critical habitats and valued ecosystem components. For sector plans, the baseline will depend on the main type of environmental impacts anticipated, and appropriate indicators can be selected (e.g. emissions-based air quality indicators for energy and transport strategies). In all cases, the counterfactual (or no-change scenario) should be specified in terms of the chosen indicators.

Cost: the cost of an SEA is difficult to estimate and will vary due to the length of the process and the complexity of chosen design: from a few thousand dollars to US\$2 million. Comprehensive SEAs typically average around US\$ 200,000-300,000.

Skills and capacity: Effective SEA application faces two key challenges:

- lack of knowledge amongst decision-makers and relevant administrations regarding the potential value of SEA to development effectiveness;
- lack of institutional experience of using systematic decision-making tools such as SEA.

A growing number of SEA training workshops are now offered, eg at the annual meeting of the International Association for Impact Assessment (IAIA) (see www.iaia.org) and by various donors (see www.seataskteam.net).

Flexibility

SEA is a flexible tool – the approach adopted should be customised so that it dovetails with and supports the particular relevant strategic decision-making or planning process relevant. It is intended as a fully participatory and transparent process

Pros (main advantages) and Cons (main constraints in use and results)

SEA can:

- provide the environmental evidence to support more informed decision-making,
- identify new opportunities by encouraging a systematic and thorough examination of development options,
- prevent costly mistakes, by alerting decision-makers to potentially unsustainable development options at an early stage in the decision-making process,
- build stakeholder engagement in decision-making for improved governance,
- safeguard the environmental assets for sustainable development with poverty reduction,
- facilitate trans-boundary co-operation and contribute to conflict prevention

But there is:

- still limited interest in many government agencies in subjecting policy and planning proposals to assessment, reinforced by fear of losing control, power and influence by opening up such processes;

- limited appreciation of the potential utility of upstream assessment among senior staff (in both governments and donor agencies), and doubts about the robustness of results;
- a perception that SEA will add significant costs and increase work loads;
- concern that SEA will increase the time frame for decision-making or delay development
- an absence of a single, 'recipe' approach
- unclear lines of accountability and responsibility for undertaking SEA
- a lack of practitioners with expertise in SEA approaches

Box 5.3.1: Case example: SEA of Ghana's Poverty Reduction Strategy processes

Background and objectives

Ghana's Poverty Reduction Strategy (GPRS), published in February 2002, identified environmental degradation as a contributory cause of poverty. However, overall, the GPRS treated the environment as a sectoral or "add on" matter rather than as a cross-cutting issue. This presented major problems as many of the policies relied on utilisation of the country's rich natural resources whose future yield was threatened by significant negative environmental impacts resulting from implementation of the policies themselves.

Ghana's Government decided to carry out an SEA so that environmental issues could be mainstreamed in a revised GPRS. The SEA aimed to assess the environmental risks and opportunities represented by the policies encompassed by the GPRS, and to identify appropriate management/mitigation measures to ensure that sound environmental management contributed towards pro-poor sustainable growth and poverty reduction in Ghana.

Approach

The SEA was led by the National Development Planning Commission and Environmental Protection Agency (EPA) and undertaken in collaboration with the Netherlands Embassy in Accra with technical advice from the UK Department of Foreign Investment (DFID) and the Netherlands Commission for EIA. The full SEA commenced in May 2003 and comprised two distinct elements: a top-down assessment of the impact of the policies contributed by 23 Ministries to the GPRS and a bottom-up exploration of the issues raised by implementation of policies at district and regional levels. The SEA focused on:

- Reviewing the extent to which environmental opportunities and risks were recognized and addressed under the five linked GPRS themes of macro-economy, production and gainful employment, human resource development, the vulnerable and excluded and governance;
- Detailed analysis and discussion on each policy leading to recommendations for revision, replacement and addition;
- Examination of the sustainability of district level plans - the principal vehicles for implementing the GPRS.

Outcomes

All the key ministries were exposed to SEA processes and guided on how to incorporate environment in policy formulation. Benefits of SEA included refinements to development policy, alterations of district level plans and revision to planning guidelines to include environmental considerations in planning at Sector and District levels. National planning guidelines are now formally required as part of policy formulation and budgeting in the GPRS process. Active participation of stakeholders (including politicians, the finance sector and NGOs) and use of SEA at all levels of decision-making has led to greater emphasis on the role of SEA in improving the processes whereby the policies themselves are translated into budgets, programmes and activities. This harmonised development objectives, including alignment with the MDGs and other regional and national strategies. SEA also changed of attitudes of officials responsible for planning and budgeting, seeking win-win opportunities in integrating environment in PPPs. The 2006-2009 GPRS is now being drafted with direct inputs from the SEA team.

Source: OECD DAC (2006)

Key sources of further information and useful web-links

Dalal-Clayton D.B. and Sadler B. (2005): *Strategic Environmental Assessment: A Sourcebook and Reference Guide to International Experience*. International Institute for Environment and Development, London, OECD and UNEP in association with Earthscan Publications.

OECD DAC (2006) *Good Practice Guidance on Applying Strategic Environmental Assessment in Development Co-operation*. Organisation for Economic Cooperation and Development, Paris.

Therivel R. (2004) *Strategic Environmental Assessment in Action*, Earthscan, London

OECD DAC Task Team website: (www.seataskteam.net). Provides information on working groups, resources, tools, biographies and includes provision for on-line discussions.

CIDA: Various publications on SEA and environmental assessment are available at www.acdi-cida.gc.ca/ea (click on publications).

European Union: <http://europa.eu.int/comm/environment/eia/home.htm>. Provides information on environmental assessment and the European SEA Directive, policies, integration, funding, resources, news and development.

International Association for Impact Assessment (www.iaia.org) – provides information on the IAIA, resources, publications and reference materials (including SEA performance criteria and key citations for EA topics), and training.

Netherlands Commission for Environmental Impact Assessment (NCEIA): is developing an SEA database which will provide a broad array of easily accessible information (www.eia.nl).

Regional Environment Centre for Central and Eastern Europe (REC): provides services for national SEA capacity building and assists in implementation of pilot SEAs in countries in Central and Eastern Europe. (www.rec.org/REC/programs/environmentalassessment)

Transport Research Laboratory (TRL), UK: The SEA Information Service website (www.sea-info.net), provides a gateway to information on Strategic Environmental Assessment (SEA) and Sustainability Appraisal (SA).

UNECE: Information on EIA and SEA in the context of the Espoo Convention of Environmental Impact assessment in a Transboundary Context and its Protocol on SEA can be found at www.unece.org/env/eia.

UN University: www.onlinelearning.unu.edu provides a link to an SEA Course developed for the UN University, describing range of SEA-tools and providing case materials and other valuable information.

World Bank: (www.worldbank.org/sea/) – provides information on: SEA structured learning programme; understanding SEA; SEA guidance, general reference documents, and country and sector specific documents; external SEA links; news and events; and questions and requests.

5.3 Indicators

<i>What are indicators for?</i>			<i>What issues do indicators focus on?</i>	
Policy development			Environmental	✓
Planning	✓	Guides good decisions	Social	✓
Field work		For data collection	Economic	✓
Investment	✓	For project approval	Institutional	✓ (can do)
Assessment	✓	Main focus		
Monitoring	✓	Indicates what to monitor		
Campaigning				

Purpose

Indicators are simple measures that tell us what is happening with regard to a particular issue. They can be divided roughly into two groups - those that express the state of affairs with regard to the issue, and those which portray trends with specific spatial scales and time horizons.

(i) Environmental indicators. Since the environment is very complex, indicators provide a more practical and economical way to track the state of the environment than attempting to record every possible environmental variable. For example, the health of amphibian populations are often monitored as they are very sensitive to changes in their habitats and may provide early warning of ecological impacts from climate change, loss of stratospheric ozone, habitat alterations, or the presence of pesticides.

Environmental indicators can include physical, biological and chemical measures (known as ecological indicators), eg atmospheric temperature, the concentration of ozone in the stratosphere, or the number of breeding bird pairs in an area. They can also measure human activities or anthropogenic pressures, such as greenhouse gas emissions, or the societal responses used to address environmental issues, such as the number of people serviced by sewage treatment

Environmental indicators are tools that can serve different purposes. They can be used to see if environmental objectives are being met, to communicate the state of the environment to the general public and decision makers, and as a diagnostic tool through detecting trends in the environment.

Environmental indicators can be measured and reported at different scales. For example, a town may track air quality along with water quality and count the number of rare species of birds to estimate the health of the environment in the area. Others have attempted to monitor and assess the state of the planet using indicators. In other cases, indicators are developed for specific ecosystems, such as the Great-Lakes in North America.

(ii) Sustainable development indicators (SDI) comprise a mix of environmental, social and economic measures (reflecting the three pillars of sustainability). They have the potential to turn the generic concept of sustainability into action. But this potential is far from being achieved and it has proved difficult to agree a standardized set of indicators. Several private corporations are creating their own suitable for their purposes while international institutions are still trying to develop a generic indicator for measuring and monitoring sustainable development.

The last 10 years has seen a major expansion of interest in SDI systems to help measure progress towards sustainable development, both in industrialized and, albeit to a lesser extent, in developing countries. SDIs are seen as useful in a wide range of settings, by a wide range of actors: international and intergovernmental bodies; national governments and government departments; economic sectors; administrators of geographic or ecological regions; communities; nongovernmental organizations; and the private sector.

SDI processes are underpinned and driven by the increasing need for improved quality and regularly produced information with better spatial and temporal resolution. In addition, there is a need, partly

created by the information revolution, to better differentiate between information that matters in any given policy context versus information of secondary importance or irrelevant.

Audiences

The type of indicators selected or developed should be partially based on the information needs of those who will be using them:

- (a) *Technical experts and science advisors* – likely to be interested in detailed and complex indicators. These should have scientific validity, sensitivity, responsiveness and have data available on past conditions
- (b) *Policy-makers, decision-makers and resource managers* – mainly concerned with using indicators that are directly related to evaluating policies and objectives. They have similar needs to (a) but also look for indicators that are cost-effective and have meaning for public awareness.
- (c) *The public and media* - respond to indicators that have clear and simple messages and are meaningful to them, such as the UV index and air quality.

Indicator systems

Individual indicators are designed to translate complex information in a concise and easily understood manner in order to represent a particular phenomenon (e.g. ambient air quality). In contrast, indicator systems (or collections of indicators), when seen as a whole are meant to provide an assessment of a much larger domain (e.g. sustainable development, economy, environment).

There are numerous existing *indicator frameworks* and sets, varying in their sophistication and coverage. Some set hard and quantitative targets, while others are more general goals. Some of the more commonly used frameworks are

- pressure-state-response (PSR), limited mostly to environmental issues;
- linked human/ecosystem well-being frameworks (eg Figures 5.3.1 and 5.3.2);
- issue- or theme-based frameworks; and
- capital-accounting based frameworks, centred on the economic and environmental pillars of SD.

Examples of international indicator sets and initiatives include the UNCSO SDI initiative, the MDG indicators, and the UN System of Integrated Environmental and Economic Accounts

There has been a large, and still growing, number of attempts to create aggregate measures of various aspects of sustainability. This has generated a stable of indices that provide a more nuanced perspective on development than economic aggregates such as GDP. Some of the most prominent of these include the Human Development Index (HDI) of the United Nations Development Programme (see www.undp.org/hdro/anatool.htm); the Environmental Sustainability Indices (ESI) and the pilot Environmental Performance Index (EPI) reported under the World Economic Forum (WEF) 9SEE (http://en.wikipedia.org/wiki/Environmental_Performance_Index0); or the Genuine Progress Index (GPI) calculated at the national or sub-national level (see <http://www.gpiatlantic.org/gpi.htm>). Parallel to these initiatives is political interest in producing a green GDP that would take at least the cost of pollution and natural capital depletion into account has grown. However, implementation has been impeded by the reluctance of policy-makers and statistical services concerned about conceptual and technical challenges.

While sustainability indicators, indices and reporting systems gained growing popularity in both the public and private sectors, their effectiveness in influencing actual policy and practices often remained limited.

Figure 5.3.1: Group Barometer of Sustainability, showing the well-being of North and Central America.

The Human Well-being Index (HWI) is in the yolk of the egg; the Ecosystem Well-being Index (EWI), in the white. (El Salvador's HWI is 36 and EWI 46.) The Well-being Index (WI) is the position of the egg—the point on the Barometer where the HWI and EWI intersect. Sustainability is the square in the top right corner. Note that the Barometer clearly shows the relationship between human and ecosystem well-being, the wide spread of performance among countries, and the distance to sustainability. Belize was assessed on fewer indicators than the other countries: a fuller assessment might move its position to between Costa Rica and El Salvador.

Source: Prescott-Allen (2001a).

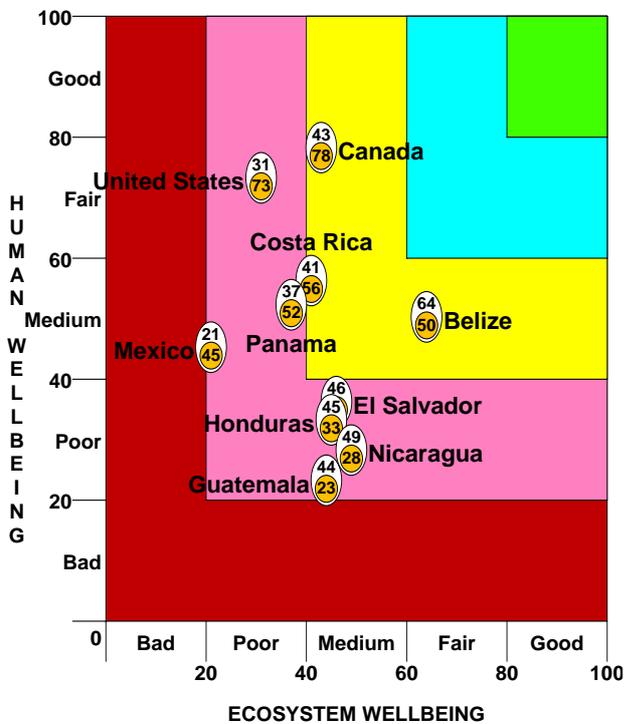
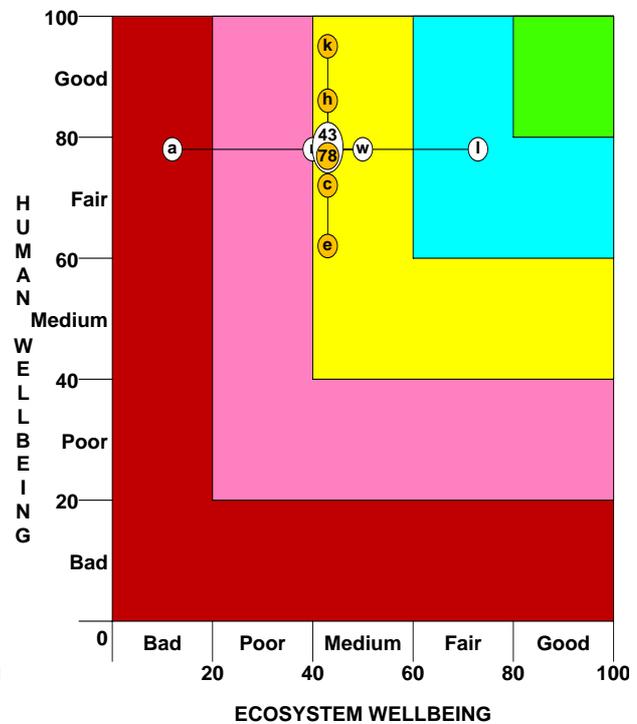


Figure 5.3.2: Individual Barometer of Sustainability, showing the well-being of Canada.

Grey circles (vertical axis) are the points on the scale of the human dimensions (major components of the HWI): c = community; e = equity; h = health and population; k = knowledge; w = wealth. White circles (horizontal axis) are the points of the ecosystem dimensions (major components of the EWI): a = air; l = land; r = resource use; s = species and genes; w = water. Some dimensions are hidden by the egg (wealth, species and genes, resource use). The dimensions that need most attention are air (reduce carbon emissions), resource use (reduce energy consumption), and species and genes (expand habitat protection for wild species, and conserve agricultural diversity).

Source: Prescott-Allen (2001a).



Interpreting indicators

Interpreting *indicator systems* can be difficult as they often include hundreds of indicators and require a certain level of knowledge and expertise in various disciplines to fully grasp. As a result, a number of methods have emerged to distil this information and allow for rapid consumption by those who do not have the time or the expertise to analyse the full set of indicators. In general these methods can be categorized as:

- *Numerical aggregation* (e.g. indices). When indicators are combined into indices, they can provide a clear picture of the entire system, reveal key relationships between subsystems and between major components, and facilitate analysis of critical strengths and weaknesses. No information is lost, because the constituent indicators and underlying data are always there to be queried.
- *Short selections of indicators* (e.g. core set or headline indicators). For example, the current (2005) UK Government Sustainable Development Strategy “Securing the Future” contains 68

indicators - 20 UK Framework indicators (Table 5.3.1) and a further 48 indicators to monitor progress.

- *Short visual assessments* (e.g. arrows, traffic signals), and
- *Compelling presentations* (e.g. maps or the dashboard of sustainability) (Figure 5.3.3).

Table 5.3.1: UK SD Strategy framework indicators

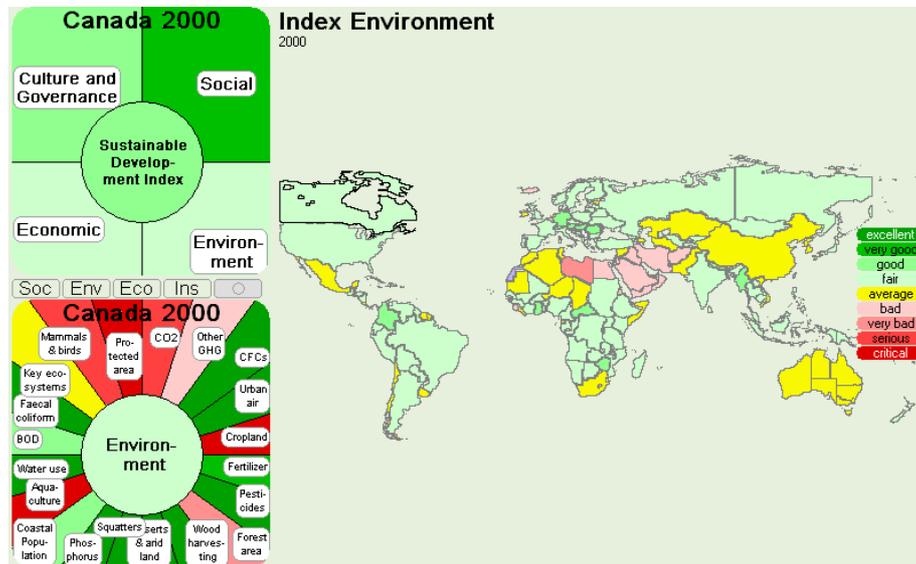
Indicator		Change since		Direction in latest year
		1990	1999	
Greenhouse gas emissions		√	≈	≈
Resource use		√	≈	X
Waste		□	≈	≈
Birdlife populations	Farmland	X	≈	≈
	Woodland	≈	≈	≈
	Coastal	≈	≈	≈
Fish stocks		□	□	□
Ecological impacts of air pollution	Acidity	□	√	≈
	Nitrogen	□	X	≈
River quality	Biological	√	√	≈
	Chemical	√	√	≈
Economic growth		√	√	√
Active community participation		□	√	≈
Crime	Vehicle	√	√	√
	Burglary	√	√	√
	Robbery	X	X	X
Employment		≈	√	≈
Workless households		√	√	≈
Childhood poverty		√	√	√
Pensioner poverty		√	√	√
Education		√	√	≈
Health inequality	Infant mortality	X	X	√
	Life expectancy	X	≈	X
Mobility	Walking/cycling	X	X	≈
	Public transport	X	≈	≈
Social justice		□	□	□
Environmental equality		□	□	□
Wellbeing		□	□	□

Key

- √ = Clear improvement
- ≈ = Little or no change
- X** = Clear deterioration
- = Insufficient or no comparable data

Figure 5.3.3: The Dashboard of Sustainability

The *Dashboard of Sustainability* is a free, non-commercial software (<http://esl.jrc.it/envind/dashbrds.htm>) designed to be understood by experts, the media, policy-makers and the general public. It takes the form of a car instrument panel, displaying country-specific assessments of economic, environmental, social and institutional performance toward (or away from) sustainability. An example of Canada is shown below.



Notes:

The overall SD index for Canada is indicated in the upper left corner (with best scores for Social Development), and the disaggregated picture for "Environment" in the lower left corner. The twenty indicators demonstrate the complexity of environmental policy: Is it correct to assign the same weight to CO₂ emissions (red) and CFCs (green)? And why is Canada deep in the red for "Protected area"? The Dashboard software would reveal that 10% protection is far lower than the 38% of Saudi Arabia. While the judgment is based on objective data, a politically and scientifically sound analysis might come to the conclusion that protecting a desert is not as important for preserving biodiversity as the data suggest..

Use of indicators for assessment

Indicators are often used in environmental and other assessments. Systematic procedures for choosing indicators make clear the issues covered and the values involved, and make the construction of indicator-based assessment more transparent than that of narrative or accounts-based assessments (ie those that construct raw data and convert them to a common unit such as money, area, or energy).

By employing the same set of indicators over time, later indicator-based assessments can be compared with previous ones, providing more consistent coverage from one assessment/reporting period to another. Comprehensive and consistent coverage, together with systematic organization of issues and their indicators, enable priority issues and strengths and weaknesses of performance to be clearly identified

Increasingly, SD indicators are being used at local level, too. For example, in 2000, the UK Audit Commission issued a handbook offering ideas for measuring sustainable development and quality of life in local communities (available at www.sustainable-development.gov.uk/indicators/local/). It provides a menu of 29 indicators, from which local authorities may wish to consider using a selection for reporting on their Local Agendas 21 and Community Strategies.

Steps in developing an indicator framework

Based on experience in Central America, the International Center for Tropical Agriculture (CIAT) has produced a useful booklet (available at <http://www.ciat.cgiar.org/indicators/toolkit.htm>) with lessons on developing indicators. It covers topics ranging from the development of a conceptual framework to case studies, and suggests seven key steps:

1. **Develop a conceptual framework** (clear and flexible) , allowing for different approaches to analysing the development process:
 - Sustainable development components (environmental, social, economic);
 - Sustainability issues (eg land use, economic and social dynamics, and natural events);;
 - Categories of indicators (pressure, state, impact, and response).The framework should also allow for analyses at different levels (regional, national, local)
2. **Select indicators and explore means for analysis.** Use a set of clear selection criteria (eg data reliability, relevance, causality, measurability and scale). Include different means for analysis:
 - *Indices* to visualise scenarios at aggregated levels (eg regional or national);
 - *Core indicators* to analyse the information obtained from the indices in order to identify causal links, dynamics and impacts;
 - *Complementary indicators* to further refine the analysis for decision-making – often country, area or project specific.
3. **Establish a consultative network** – build a network of partners and facilitate a consultative process, eg workshops, visits, capacity-building and training.
 - Discuss and harmonise the framework, issues to monitor, indices and indicators, and work plans;
 - Identify capacities, needs, processes, mandates, responsibilities, uses and interests;
 - Exchange information and data.
4. **Search data and develop databases.** Survey and improve the production, availability, and use of data and information. This includes use of both existing data and information and identifying when the needed information is missing. Avoid being unrealistic – look at what data exists, [judge its reliability], and use it creatively when developing indices and indicators.
5. **Develop tools for causal link analyses and visualisation.**
 - Develop capacities to analyse and visualise available information;
 - Use tools such as land use models and geographical information systems to fill crucial information gaps;
 - Enable causal link analyses through the use of different types and sources of information; and
 - Visualise the results in a user-friendly manner (maps, tables, figures, animation, time series, and model scenarios).
6. **Apply the approach in case studies** – to identify strengths and weaknesses in the proposed framework and indicator sets, and test their usefulness.
 - Identify new or different needs, gaps in or incorrect information and capacity needs for wider dissemination and use.
 - Case studies provide examples of how the information generated can be used at different levels (regional, national, local or sectoral) and for different dimensions (political, administrative, or ecological).
7. **Dissemination tools, information and results.** Communicate and disseminate information to achieve effective results and sustainability. Means of information dissemination to be used include: websites, publications, training sessions, visits, and CR-ROM 9wit user-friendly interfaces).

Key sources of further information and useful web-links

The International Institute for Sustainable Development (IISD) maintains an online directory of “sustainable development indicators initiatives” at national and international levels by governments, non-governmental organizations (NGOs) and individuals (www.iisd.org/measure).

For a list of key literature on indicators. See <http://www.iisd.org/IC/INFO/ss9504.htm>

5.4 Participatory geographic information systems (PGIS)

<i>What is a The Natural Step for?</i>			<i>What issues does the Natural Step focus on?</i>	
Policy development	✓		Environmental	✓
Planning	✓		Social	✓
Field work			Economic	✓
Investment	✓		Institutional	✓
Assessment	✓			
Monitoring	✓			
Campaigning				

Purpose

Participatory GIS (Geographic Information Systems), PGIS, is an umbrella term for a diversity of community interfaces with GIS and geographic information technologies and systems (GIT&S) more generally. PGIS practice is based on using geo-spatial information management tools ranging from sketch maps, participatory 3-D models (P3DM), aerial photographs, satellite imagery, global positioning systems (GPS) and GIS to compose peoples' spatial knowledge in the forms of virtual or physical, 2 or 3 dimensional maps. These can be used as interactive vehicles for discussion, information exchange, analysis and support (adding authority to local knowledge and community confidence) in advocacy, decision-making and action-taking. GIS is used mainly as computer cartography with limited GIS functionality. Users employ the outputs mainly as media (re: the power of the map!) to support their arguments.

McCall (2004) notes that PGIS methods are widely used in North societies (with a few South examples) in urban community neighbourhood identification, problem prioritisation, and participatory planning. In South countries (with some in the North), applications are mainly in natural resource identification and management (especially forests), or for instance, environmental hazard mapping. Native (indigenous) peoples in both North and South utilise PGIS for legitimising customary land and resource claims, e.g. Canada, USA, Australia, NZ, Philippines, Indonesia, South Africa, Brazil, and Peru.

Background facts

The 1990s saw the diffusion of modern spatial information technologies including GIS, low-cost global positioning systems (GPS), remote sensing image analysis software, open access to data via the Internet and steadily decreasing cost of computer hardware. Spatial data, previously controlled by government institutions became progressively more accessible to and mastered by non-governmental and community-based organizations, minority groups and sectors of society traditionally disenfranchised by maps and marginalized from decision making processes. This new environment facilitated the integration of geographic information technologies and systems (GIT&S) into community-centred initiatives.

Standard GIS had been found wanting in many dimensions, - in 'objectivity', value-neutrality, access, ownership, democratic representation, control, privacy, confidentiality, ethics and public service values. There were many calls to develop and legitimise an 'alternative GIS incorporating people's participation' and practitioners and research began to adopt a variety of GIT&S to integrate multiple realities and diverse forms of information to foster social learning, support two-way communication and broaden public participation across socio-economic contexts, locations and sectors. This spurred the rapid development in community-based management of spatial information through what is now generally termed Participatory GIS (PGIS), building on experience of Participatory Rural Appraisal (PRA) methods (i.e. sketch mapping) that emerged earlier in the 1980s.

Brief description of the main steps involved in application of the tool:

PGIS practice is usually geared towards community empowerment through measured, demand-driven, user-friendly and integrated applications of GIT&S, where maps become a major conduit in the process.

The practice is multidisciplinary and relies on the integration of ‘expert’ with socially and gender differentiated local knowledge, and builds on high levels of stakeholders’ participation in the processes of spatial learning, analysis, decision making and action.

From widely accumulated experiences McCall (2004) suggests a number of key factors and conditions related to ‘good practice’ for local communities using PGIS methods (Box 5.4.1).

Box 5.4.1: Preconditions, processes and procedures for PGIS

Pre-conditions for PGIS.

1. “Purpose, - which purpose?, whose purpose?” – a key need is analytical clarity about the purpose of the PGIS exercise. The purpose can be translated into the competing intentions of participation – facilitation, collaboration, and empowerment.
2. Local communities are the principals or partners, not the clients. Thus the PGIS initiatives emanate from them, not from the outside.
3. PGIS is directed towards the marginalized, the unrepresented, the inarticulate, the resource-poor, the power-deficient. There should be positive discrimination towards people identified by gender, age, wealth, resource levels, caste, religion, class.
4. Envision from the start, what are the GI outputs / products going to be? – And, are they of any use to anyone? – if so, for whom? This would usually imply that the products should be simple, clear, understandable, testable, and convincing, as well as relevant, reliable, logical, replicable, and coherent.
5. Consider collaboratively what might be the negative impacts of the outputs – Participatory spatial planning (PSP) and participatory mapping (P-mapping) can lead to more conflicts, and more concentration of power or resources in a few hands.
6. Despite the necessity for a long-range vision, nevertheless, the approach should remain flexible, adaptive, and recursive in the actual approach, without sticking rigidly to pre-determined tools and techniques, or blindly to the initial objectives (participation is learning).
7. Participation is always a learning process – best if it is learning in two directions-: Experts learn the interests, objectives, limitations, constraints, and variability from the insiders. Insiders (community traditional leaders, elected leaders, NGO, CBO, civil society, etc) learn from the expert (planner, GIS, mapper, geographer, doorkeeper to outside knowledge, contact with outside power). Insiders learn technical knowledge, and new technical, economic and social skills, but also a wider vision.
8. Participation is always slow – by procedural design, if not even by definition; this is true also of PRA, P-mapping, and P-GIS. Nevertheless, the output results should be as timely as possible.
9. Adherence to deep Participatory Rural Appraisal (PRA) and Participatory Rapid Rural Appraisal (P-RRA) principles and methodology, especially in terms of their information needs assessment; and not just blindly use the tools of RRA to exploit local knowledge.

Process and Procedures:

1. Essential element is the indigenous technical and management knowledge (ITK) and local expertise, seeking to understand local culture, society, spatial cognition, and livelihoods, local resources, hazards and options, etc.

2. Usually there is special need for the historical perspective in indigenous knowledge (IK) and indigenous spatial knowledge (ISK) - conflict analysis especially needs a historical understanding.
3. Make full use of non-conventional information and knowledge acquisition – semi-structured interviews, open-ended discussions, stories, songs, pictures, serendipitous meetings, and the panoply of RRA/PRA methods.
4. Collaborative, scientific selection of appropriate software and hardware by insiders and outsiders together.
5. Acquisition of professional geospatial information - base maps, aerial photos, remote sensing imagery, etc.
6. Prepare in advance for any desired protection of indigenous data layers. How can they be protected? How accessed? etc. Clarify the current and future status of the ownership of ITK and ISK, taking into account guidelines on the protection of Indigenous Intellectual Property Rights.
7. Follow international survey guidelines such as the AAA Code of Ethics which reminds anthropologists that they are responsible not only for factual content of information, but also the socio-cultural and political implications.
8. Apply local indigenous spatial knowledge concepts of boundaries, core areas, conflict and risk zones, resources, priority areas, time-distance relations, dynamic spaces and landscapes, etc.
9. Collaborative selection of the appropriate spatial scale for geo-data inputs, and especially for the map and GIS products, based on social, political as well as scientific criteria.
10. Utilise spatial Participatory-RRA tools – participatory joint interpretation of air photos, remote sensing images; ephemeral maps, participatory sketch maps, time-space diagrams, transects, etc.
11. Prepare a series of countermaps representing the interests and values of various groups of actors, especially the marginalised and power-deficient.
12. Identify and record spatial information directly on the ground using GPS with mobile GIS (using iPAQs or Tablet PCs). Participatory sketch maps can be transferred directly onto ArcPad, etc.
13. Supplement these information sources with digital photography, video, sound recordings, and with sketching where photography is ineffective.
14. If it will be appropriate for specific spatial planning and management purposes, translate the ISK visualisations into user-friendly GIS software, e.g. ArcPad.
15. Transfer participatory maps into appropriate visualisation software, such as FreeHand10, or MacPublisher, which are better attuned to the ISK rich information characteristics of indeterminacy, qualitiveness, fuzziness, metaphor, emotion, holistic and not reductionist.
16. Cross-check the ISK visualisations and the geo-referenced point ITK data with geo-information from standard maps, topographic maps, etc.
17. But do not treat the ISK maps, or ‘mental maps’, simply as perceptual aberrations; i.e. do not take standard official maps as the only authentic base against which to measure.
18. When appropriate for specific spatial planning and management purposes, apply GIS versions (e.g. ArcPad) of the ISK visualisations.
19. Make use of interactive visualisation software for further development and for participatory spatial planning (PSP) with user groups. Presentation and visualisation, interpretation of outputs, and understanding.

20. Apart from visualisation, if applicable, use physical three-dimensional models, sound, multimedia, or web-based (dynamic) GIS and mapping.
21. Distribution, delivery and dissemination of GI and other outputs should be pre-planned collaboratively so as to meet good governance objectives of equity, respect, transparency and accountability.
22. Follow-ups, monitoring and evaluations should be designed into the P-GIS process from the outset, and with an independent component

Source: McCall (2004)

Expected outputs

As a result, if appropriately utilized, the practice may have profound implications and stimulate innovation and social change. More importantly and unlike traditional GIS applications, PGIS aims at placing control on access and use of culturally sensitive spatial data in the hands of those who generated these thereby protecting traditional knowledge and wisdom from external exploitation.

Basic requirements

Data:

??

Cost:)

PGIS is usually assumed to be cost-effective, notwithstanding that its lower costs may be offset by lower standards of precision and maybe accuracy, than for full-blown GIS.

Skills and capacity:

???

Flexibility

???

Pros (main advantages) and Cons (main constraints in use and results)

???

Box 5.4.2: Some examples of using PGIS

- The Dene Mapping Project in northern Canada used digital 1:250,000 maps to designate land use and occupancy, 1890-1975. Boundaries were designated and spatial conflicts reduced, not only with Federal and Provincial governments, but also with neighbouring indigenous peoples.
- In the Philippines, PGIS resulted in strengthening Ifugao community groups when preparing for negotiations with provincial & municipality authorities re. ancestral lands. Participatory 3-dimensional mapping has been used in the Philippines for conflict analysis and resolution between indigenous groups, which should reduce possibilities of inter-group warfare over land resources.
- In Indonesia, natural resource management claims and village boundary conflicts between prior resource rights and recent claims in Kalimantan, have been addressed through participatory mapping and GPS.
- In Cameroon, participatory mapping and PGIS has been applied to the regularisation of

communities' customary entitlements to forest land.

Source: McCall 92004)

Key sources of further information and useful web-links

Rambaldi G., McCall M., Weiner D., Mbile P. and Kyem P. (2004) *Participatory GIS* (http://www.iapad.org/participatory_gis.htm)

McCall M.K. (2004) *Can Participatory-GIS Strengthen Local-level Spatial Planning? Suggestions for Better Practice*. Urban & Regional Planning and GeoInformation Management (PGM), International Institute for Geoinformation Science and Earth Observation (ITC), Netherlands (available at: <http://www.gisdevelopment.net/proceedings/gisdeco/2004/paper/michaelpf.htm>)

Possible reviewer

MICHAEL K McCALL AND PETER A MINANG

International Institute for GeoInformation Science and Earth Observation (ITC), PO Box 6,
7500 AA Enschede, The Netherlands

E-mail: mccall@itc.nl; minang@itc.nl

5.5 Public Environmental Expenditure Review (PEER)

<i>What is PEER for?</i>			<i>What issues does PEER focus on?</i>	
Policy development	√	Aligning public financial strategy with environmental priorities	Environmental	√√√ (improving spending to match env priorities)
Planning	√	Informing budget to ensure plans are implemented	Social	
Field work			Economic	√ (fiscal discipline)
Investment	√	Priority-setting	Institutional	√ (distribute env funds to effective bodies)
Assessment	√	Assessing effectiveness of implementation		
Monitoring	√	Reviewing expenditure against policy priorities		
Campaigning				

Purpose

A Public Environmental Expenditure Review (PEER) examines government resource allocations within and among sectors, and/or at national and subnational levels of government, and assesses the efficiency and effectiveness of those allocations in the context of the environmental management framework and priorities. In addition, it identifies reforms needed to improve the effectiveness, efficiency and sustainability of public spending for environmental management.

PEERs offer a way of systematically assessing the equity, efficiency, and effectiveness of public environmental spending. The data and insights they yield can be valuable for designing policy reforms, government budgets, and investment projects. They examine whether government expenditures are effectively matched to environmental priorities, and identify areas of inconsistency. If done well, they frequently result in highlighting the mismatch between (new) environmental policy and plans and (historical) low levels of spending in those areas of government that are now linked to environmental priorities. In many cases, they have helped to redistribute spending towards institutions responsible for environmental priorities, towards longer-term goals rather than short-term, and in some cases have helped to considerably increase environmental budgets.

According to the World Bank's Public Expenditure Management (PEM) Handbook (1998), the accepted objectives of PEM *in general* are:

- *Fiscal discipline*: maintaining sustainable fiscal prudence;
- *Allocative efficiency*: facilitating strategic prioritization of the total expenditure envelope across policies, programmes and projects to promote efficiency and equity;
- *Cost-effectiveness*: encouraging better use of resources to achieve policy outcomes and produce outputs at the lowest possible cost.

Thus there is a wide range of possible purposes of a PEER – environmental effectiveness, fiscal prudence in environmental spending and revenue raising, and/or management efficiency in terms of making the best investments in the right programmes. A good PEER will be tailored to meet the needs of individual countries. For example, the purpose, approach and coverage of the Tanzania PEER is discussed in the Case Study in Box 5.5.1.

Background facts

Experience with PEERs is still rather limited. PEERs have usually been *ad hoc* documents rather than the product of regular procedures, or they have appeared as sections within other documents. They tend to have been performed in three basic ways: as a stand-alone analysis, as part of the wider public expenditure review process; or within a country environmental analysis (CEA). The coverage of PEERs has also often been quite different.

They include one or more of the following environmental expenditure issues (Markandya *et al.*, 2006):

a. Definition of environmental expenditure. This can be quite complex, especially separating out the difference between integral spend that also affects environment from separate activities. A framework that defines environmental expenditures consistently and ensures comparability may often be in place. Types of environmental expenditure which are often included in the definition are:

- Air and water pollution control
- Hazardous waste management
- Mitigation of greenhouse gas emissions and ozone-depleting substances
- Sanitation and solid waste management
- Water supply
- Watershed management
- Water resources management
- Soil degradation control
- Controlling deforestation
- Protecting biodiversity and landscapes

b. Levels and trends in environmental expenditure. This might be in terms of a proportion GDP, or a proportion of total government expenditures. These proportions can then be compared with levels for similar countries or benchmarks such as the World Bank's recommendation for environmental expenditure in developing countries at between 1.4% and 2.5% of GDP.

c. Disaggregation of environmental expenditures by type of activity. If the data is available, environmental expenditures should be broken down by functions such as analysis, research, monitoring, investment in facilities, policy design, and enforcement.

d. Distribution of environmental expenditures according to environmental priorities. This is one of the key purposes of PEERs. Environmental expenditure is reviewed against development objectives, expressed either in agreed national policies, strategies and plans or in terms of emerging ideas or public opinion surveys. A frequent result is to increase allocations to those institutions whose job it is to handle the existing or emerging priority. Most environmental policies will result in public expenditures of some kind. For example, policies that are based on 'polluter-pays' and 'user-pays' principles will result in few subsidy expenditures but may lead to larger regulatory and monitoring expenditures (Swanson and Lunderthors 2003).

e. Efficiency and effectiveness of environmental expenditures. Here, targeted and actual environmental outputs and performance are compared, providing information on cost-effectiveness and promoting programme delivery and the effective use of public resources.

f. Government capacity for budget execution. Here, key issues are examined, such as the adequacy of expenditure controls and procurement processes; and whether budgeting systems that track variances between planned and actual expenditures are in place. This is because financial management capacity is often a constraint on effective budget execution.

g. Fiscal decentralization. The equity of resource distribution may be examined, taking account of local and national sources of financing. PEERs also examine the efficiency of planning, allocation, and monitoring of central and decentralized spending.

h. Sustainability of the environmental budget. PEERs can examine resource gaps and assess potential sources of revenue (e.g. pollution fees or environmental protection levies) for sustaining the required level of environmental service delivery. In developing countries in particular, where much recent environmental expenditure has depended heavily on donor grants to operational and investment

budgets, it is important to calculate environmental expenditures with and without donor grants – to arrive at a measure of the government’s use of its own resources for the environment. Sustainability is often threatened if donor support diminishes or ends.

i. Assessing types of expenditure. Key issues which PEERs might address include:

- (a) the ratio of current to capital expenditure – a high ratio of current to capital expenditures may mean that government is not investing adequately in the sector and is incurring large recurrent costs;
- (b) the ratio of salary to non-salary expenditures – if much of the operating budget is absorbed by salaries, government employees will not have the resources to do their jobs.

j. Links between particular funding sources and environmental expenditures. It is important to include all environmental expenditure (including donor financing and government commercial revenues) in a consolidated government account; otherwise they can create hidden liabilities for the government and make it difficult to assess the government’s true fiscal position. But in many cases, the amounts collected for the provision of environmental services or in the form of pollution charges are much smaller than is desirable, and ‘earmarking’ for the environment sector often offers the only way to finance much-needed expenditures. In such cases it is important to be clear about the policy and environmental reasons for such links, e.g. revolving funds.

Table 5.5.1

Table 1. Summary of issues covered by World Bank PEERs

Country (year)	Purpose	Definition of environmental expenditure used	Scope	Comparison with policy priorities	International comparisons	Period covered	Project-level analysis	Foreign aid included/specifically examined
Philippines (1996)	Determine impact of macroeconomic strategy on environment	Not explicit	Selected departments	Yes	No	Single year	No	Not clear/no
Bangladesh (1997)	Improve environmental management	Brandon and Ramankutty (1993)	Capital expenditure only, across government	Yes (NEMAP)	No	Single year	No	Yes/no
Malawi (1998)	Determine future resource requirements	Forestry Department expenditures	Department	No	No	Multiyear	Yes	No/no
Kenya (1998)	Prepare for budget cut	Not explicit	Ministry	No	No	Multiyear	No	Yes/no
Thailand (1999)	Examine impact of Asian financial crisis	Not explicit	Across government	No	No	Multiyear	No	No/no
Korea, Rep. of (2000)	Examine impact of Asian financial crisis	Not explicit	Ministry	Some	No	Multiyear	No	No/no
Indonesia (2001)	Examine impact of Asian financial crisis	“Core”	Capital expenditure only, across government	No	Some	Multiyear	No	No/no
Uttar Pradesh, India (to be completed)	Compare with priorities and problems	Brandon and Ramankutty (1993)	Across state government	Yes	No	Multiyear	Yes (revised terms of reference)	Yes/yes
Ukraine (to be completed)	Track funds	OECD pollution abatement and control (PAC) definition	Primarily fund within ministry	Some	Some	Not defined	Some	No (no foreign aid goes to fund)
Mongolia (expected 2002)	Provide baseline on trends and patterns in expenditure	“Core”	Across government	Yes	Yes	Multiyear	No	Yes/no

Note: NEMAP, national environmental management and action plan; OECD, Organisation for Economic Co-operation and Development.

Source: Swanson and Lunderthors, 2003 – [[can we get an updated version?](#)]

Brief description of the main steps involved in application of the tool:

One key issue is whether the PEER is undertaken separately from, or as part of, the overall public expenditure review (PER). Undertaking the PEER and the PER simultaneously can help environment interests to take advantage of the entrée that the PER process provides to central government bodies outside the ministry of environment, especially the ministry of finance. The cooperation of the finance ministry is often crucial for tracking down information on environmental expenditures by entities other than the core environmental ministries and agencies (Swanson and Lunderthors 2003). On the other

hand, PER demands on time and political attention might sideline the PEER. On balance, we suggest that coordination of the PER with the PEER will tend to assist the overall mainstreaming process.

The approach taken, and the choice of issues to be covered, will significantly determine the main steps involved in the PEER process. Ten typical steps are:

1. *Scope the purpose* of the PEER – involving finance, environment and development authorities.
2. *Survey the data available* – this will help to finalise (and indeed limit) the type of analysis that can be carried out and the most appropriate way of collating the data.
3. *Compile an environmental expenditure review database* – often a time-consuming process of poring over lists of expenditures from various ministries.
4. *Understand where environmental expenditures are made* – spending units include core environmental agencies as well as non-environment agencies such as industry or agriculture authorities and decentralized bodies.
5. *Understand where the sources of environmental funds are coming from* – taking care to include donor, off-budget, subsidy and government revenue sources.
6. *Assess the distribution of sources and expenditure* – e.g. as a measure of mainstreaming across institutions.
7. *Compare actual expenditures against declared policy priorities, or against stakeholder preferences* – trends over time, or international comparisons, may be included.
8. *Probe relevance, efficiency and effectiveness issues* – often not a desk-based exercise, examining expenditure at sample project level and assessing preferably against outcome measures.
9. *Suggest ways to better meet priorities* – adjust budgets, target areas of fund-raising, change responsibilities, etc.
10. *Policy-level discussion and decisions* on the above.

Expected outputs

- A PEER document that provides clear, understandable, relevant information to influence budgetary and revenue-raising decisions;
- A regular PEER update that shows trends over time;

Some illustrative outcomes include (Markandya *et al.*, 2006):

- In Madagascar – on the one hand highlighting both a financing gap for the protected area system and its 50% dependence on aid, and on the other how it could become a net source of government revenue through ecotourism fees;
- In the Ukraine – rationalising the many hundreds of separate environmental funds, reducing overall administrative costs;
- In Tanzania – demonstrating the value of environmental investment for livelihoods, and increasing the environment authority's (then very low) budget by five times;
- In Colombia – comparing current expenditure to the results of a stakeholder survey of upcoming priorities, thereby providing the justification for a major World Bank 'Sustainable Development Policy Loan';
- In Mozambique – the PEER demonstrated that environmental expenditure was only 0.9% of GDP and identified very weak links between environmental policy and actual budgets, highlighting the lack of prioritisation in environmental policy (Cabral and Dulcídio 2008).

Basic requirements

Data – PEERs are very data-intensive, requiring information on:

- Spending agency (department or other institution);
- Expenditure type (capital or recurrent expenditure);
- Function (policy development, communications, regulation, public works, etc.);
- Environmental domain (air, water, biodiversity, etc.);
- Location (national, HQ, regions, etc.);
- Financial source (foreign aid, earmarked taxes, user charges, revolving funds, etc.);
- Time (period over which expenditure is made, and changes over time).

Cost – the cost of the ten PEERs reviewed by Swanson and Lunderthors in 2003 averaged US\$200,000 for a full review.

Skills and capacity – often a multidisciplinary team is required – particularly where scoping indicates the need to address multiple or complex issues. PEERs have predominantly been prepared by economists and public finance professionals, with technical assistance from environmental professionals. Senior economics expertise is required: only recently has guidance become available (Markandya et al., 2006), and in addition there are many decisions to be made about the scope and limitations of PEERs. With the requirement to access and understand detailed government records and deal with administrative issues, government personnel need to be involved.

Pros (main advantages) and Cons (main constraints in use and results)

- Pro: PEERs are often the first time that detailed budget and expenditure data on environment is brought together, with often an agreed framework that defines environmental expenditures. This can help to clarify in very concrete terms who is – or should be – contributing what to environmental ends;
- Pro: PEERs form perhaps the best means for public finance and environmental officials to understand one another's' priorities and to adjust to meet both sets of priorities as far as possible;
- Pro: PEERs can be quite flexible in terms of shaping the product to meet the issue – addressing total environmental spend against other forms of spend, assessing the match of spend against priorities, looking at potential to increase sources of funds, assessing sustainability, and assessing commitment;
- Con: Detailed budget and expenditure data may be lacking, especially with much of it off-budget in many countries, and often cannot be mapped to classifications that permit a fine-grained analysis by function and by subsector. As such, a PEER can also be very time-consuming

Box 5.5.1: Case Study: Environment in Tanzania's Public Expenditure Review – the Ministry of Finance seeking value for money from environmental investments

Purpose: For some time, public sector reform processes in Tanzania have been promoting outcome-based approaches and results-based management. Public finance reform, too, has stressed performance budgeting. Key tools for this have been public expenditure reviews and medium term expenditure frameworks. The Public Expenditure Review (PER) system is designed to assess the value for money achieved from alternative government investments. It is comprehensive, identifying multiple sources of revenue including non-tax revenues, and now allows for an expanding agenda beyond priority sectors that tend to have protected budgets. Today, its central focus is to ensure the allocation and effective utilisation of financial resources from local and external sources to implement the National Strategy for Growth and Reduction of Poverty (MKUKUTA). The PER for the environment sector aimed to 'establish levels, trends and distribution of environmental expenditure by government; and to establish the level of environmental expenditure required to meet the country's environmental priorities and poverty reduction objectives' (VPO 2004).

Rationale: Under the superseded Poverty Reduction Strategy (PRS), there had been a requirement for each of the priority sectors to undertake an annual PER. The Ministry of Finance (MoF) had not been receiving information from sector ministries on key environmental values, expenditures or revenues in early PER submissions at either sector or macro levels. Given the economic importance of natural resource management to Tanzania, MoF had hoped to see a substantial increase in non-tax revenue collection. It therefore called for an inquiry on environment, energy and land within the PER exercise in 2004. By making the MKUKUTA focus on outcomes (rather than assuming priority sectors), and asking all sectors to show what they could offer to achieve such outcomes, the door was open for improved environmental investment.

Process: The steps involved in the environmental expenditure review involved assessing

1. The contribution of the environmental resources to national income over several years.
2. The pricing of environmental products in relation to replacement cost.
3. Environmental budgetary allocations and expenditures of Central and Local Government, and key sectors for two financial years
4. Government expenditure on capacity building for environmental management and proposing elements for capacity building.
5. The proportion of expenditure on environment from aid flows in relation to requirements for the implementation of multilateral/bilateral environment agreements.
6. Sector programmes/strategies and planning/budget guidelines to identify strengths, weaknesses and gaps in capturing environmental issues

Results: Conducted by Norconsult using figures for two financial years 2000-2, the PER for the environment sector turned out to be a critical turning point in highlighting:

- *Below-potential revenue collection* – the considerable potential for environmental resources to contribute to revenue; but significant under pricing, and very low revenue collection in e.g. forestry, fisheries and wildlife (with e.g. only 5-10% of potential forest revenue being collected).
- *Poor decentralisation of revenue* – the low share of revenue going to districts.
- *Low environmental expenditure* – the relatively low levels of investment and recurrent expenditure on environmental assets and improved revenue capture; some environmentally sensitive ‘priority’ sectors, in spite of identifying environmental needs, spent nothing on environmental management.
- *Procedural constraints* – the constraints to environmental integration posed by established government budget formats and codes.

Impacts:

- Through the environment PER, the potential for investing in environmental management for poverty reduction has become clearer to MoF.
- The importance of an environmental PER has also become clear to the environment authorities, as a means to claim an appropriate share of the national budget.
- The environment PER consequently proposed a significantly increased medium-term expenditure framework for the environment, emphasising those sectors and local government authorities that deal with poverty-environment issues.
- The official environment budget has now grown considerably – by five times from the equivalent of US\$ 850,000 to US\$4.5M in 2006-7.

Furthermore, the Strategic Budget Allocation System now links public sector expenditure planning to the national development and poverty reduction strategy (MKUKUTA) in a way that both focuses on outcomes and clarifies different ministries’, departments’ and agencies’ responsibilities. All of this has helped to take the MKUKUTA far out of the realms of planners’ dreams and into real daily operations.

Source: Aongola *et al.* (2007).

Key sources of further information and useful web-links

Aongola *et al.* 2007. *Environment at the heart of Tanzania's development*. IIED, London.

Cabral L. and F. Dulcidio. 2008. *Environmental Institutions, Public Expenditure And The Role For Development Partners: Mozambique Case Study*. ODI, London

Dalal-Clayton B. and S. Bass. 2006. *A review of monitoring mechanisms for national sustainable development strategies*. Environmental Planning Series. IIED, London

Markandya A, Hamilton K, and E Sanchez-Triana. 2006. *Getting the Most for the Money – How Public Environmental Expenditure Reviews Can Help*. World Bank Environment Strategy Notes No 16. World Bank, Washington DC

Swanson A and L Lundethors, 2003. *Environmental Reviews (PEERS). Experience and Emerging Practice*. World Bank, Washington DC

Vice President's Office (VPO) Government of the United Republic of Tanzania. 2004. *Public Expenditure Review (PER) of the Environment*. Dar es Salaam

World Bank. 1998. "*PEM Handbook*". World Bank, Washington, D.C.

www.oecd.org/env/finance

www.worldbank.org/environment

5.6 Tools for making the economic case

[To be added]

5.7 Environmental management systems

<i>What is an EMS for?</i>			<i>What issues does an EMS focus on?</i>	
Policy development			Environmental	√ (mainly)
Planning	√		Social	√
Field work			Economic	
Investment	√		Institutional	
Assessment	√			
Monitoring	√			
Campaigning				

Purpose

An Environmental Management System (EMS) is a structured framework for managing an organisation's significant environmental impacts. The latter vary between organisations, but typically will include business waste, emissions, energy use, transport and consumption of materials. Climate change factors are increasingly prominent. Wider factors can also be included, such as impacts on wildlife (biodiversity) and use of materials (such as embodied water). In undertaking an EMS a company will identify the significant effects relevant to its business. An EMS does not need to be set up as a stand alone system. It can usually be built into the existing management structure. Adopting an EMS can help a business to:

- Manage and improve its environmental performance (managing negative impacts) and helping to increase resource efficiency (e.g. cutting waste and energy use);
- Comply with environmental laws and regulations;
- Generate financial savings through well-managed use of resources and efficient practices; and
- Improve its standing and reputation with staff, client companies, partner organisations and wider stakeholders.

Background facts

National and international EMS certification schemes emerged in the early 1990s and have since evolved to become standardised and structured so they are compatible and complementary with other mainstream standards (e.g. ISO 9001 Quality Standard).

The ISO 14001 standard forms part of the ISO14000 series (see Box 5.7.1) providing both a specification and guidance and advice on a wide range of environmental issues including auditing, labelling, life-cycle assessment etc. All EU member states are required to implement Eco-Management and Audit Scheme (EMAS) introduced through European Union Council Regulation No.1836/93. But the scheme is, at present, voluntary for individual companies who must be within the industrial sector. It is intended to provide recognition for those industrial companies

Box 5.7.1: ISO 14000 series

A series of international standards on environmental management that provide a framework for the development of an environmental management system and the supporting audit programme. ISO 14001 specifies a framework of control for an Environmental Management System against which an organization can be certified by a third party. Other standards in the series are actually guidelines, many to help achieve registration to ISO 14001. These include the following:

- ISO 14004 provides guidance on the development and implementation of environmental management systems
- ISO 14010 provides general principles of environmental auditing (now superseded by ISO

- 19011)
- ISO 14011 provides specific guidance on audit an environmental management system (now superseded by ISO 19011)
- ISO 14012 provides guidance on qualification criteria for environmental auditors and lead auditors (now superseded by ISO 19011)
- ISO 14013/5 provides audit program review and assessment material.
- ISO 14020+ labelling issues
- ISO 14030+ provides guidance on performance targets and monitoring within an Environmental Management System
- ISO 14040+ covers life cycle issues

Of all these, ISO14001 is not only the most well known, but is the only ISO 14000 standard against which it is currently possible to be certified by an external certification authority.

Source: <http://www.iso14000-iso14001-environmental-management.com/iso14000.htm>

In the UK, by 2006 over two thirds of FTSE250 companies had a formal EMS in place (BSI survey 2006). Smaller and Medium sized businesses have also been increasingly active in adopting EMS, with an increase in 10% between 2005 and 2007 (NetRegs Environment Agency survey).

Main steps in EMS

An EMS is a structured framework for managing an organisation's significant environmental impacts. It provides a process through which organisations can engage with employees, customers, clients and other stakeholders. Whatever scheme is adopted, the elements of the EMS will largely be the same, following the Denning Cycle of:

- plan what you're going to do,
- do what you planned to do,
- check to ensure that you did what you planned
- and act to make improvements.

Through this cycle, all EMSs set a framework through which the organisation can build on-going 'continuous improvement'.



The following is an example (from the UK) of the typical steps that might be taken in setting up an EMS (source: <http://www.iema.net/ems/planning>):

1. Review of existing EMS 'type' structures and commitments within the organisation (such as any existing environmental policy commitment for the organisation, documented procedures and responsibilities etc).
2. Investigate potential trends that effect the organisation (or support the case for an EMS), eg;
 - a. Trends and developments in legislation (increasing pressure for environmental legislation at regional, national and regional level);
 - b. Fiscal trends on businesses such as the increasing financial implications of climate change and landfill tax legislation;
 - c. Trends in commerce and trade such as increasing requirements to demonstrate positive environmental management in commercial contracts with clients (supply chain pressures);
 - d. Increasing public concern with the environment (customer level).
3. Consider the main interests and stakeholders in the process (e.g. shareholders, customers, clients, regulators, and the public).
4. Review the main options available for EMS certification and consider their suitability for the organisation. Factors may include;
 - a. The benefits of branding and public profile offered a scheme such as EMAS (e.g. through its logo and its public 'reporting requirement');
 - b. Sector-specific or supply chain factors that may encourage consideration of ISO 14001;
 - c. The benefits of a phased approach from an existing national standard (eg BS 8555 / Acorn in the UK – which is especially suitable for some smaller and medium sized businesses, and allows for progression on to either of the above schemes - or both).
5. Secure appropriate commitment at senior management level for EMS development (often this is an element within Phase 1 of the EMS but in practice there is usually an earlier commitment / agreement in principle made).

EMS phases

Step 1-5 below are common to the main schemes - EMAS, ISO14001 and BS 8555 (although ISO14001 and EMAS integrate steps 5 and 6 as a single phase):

- Stage 1: Commitment and establishing the baseline
- Stage 2: Identifying and ensuring compliance with legal and other requirements
- Stage 3: Developing objectives, targets and programmes
- Stage 4: Implementation and operation of the EMS
- Stage 5: Checking, audit and management review
- Stage 6: Acknowledgement under a selected scheme

Certification

Organisations may decide to have an external body confirm that their EMS meets the requirements of standards such as ISO 14001. This process is known as certification. But it is not mandatory and ISO 14001 does allow organisations to self-certify that they have met all of the requirements of the standard. However, there are a number of benefits that can be gained by having the EMS externally certified - <http://www.iema.net/ems/index.php/certificationbenefits> Certification of a management system is carried out by an environmental verifier and involves a visit to the organisation, examining documents/records, and interviewing personnel. It provides independent demonstration that the management system of the organisation: conforms to specified requirements, is capable of consistently achieving its stated policy and objectives, and is effectively implemented

Basic requirements

Data ???

Cost

An effective EMS should prove to be at least cost neutral and will often lead through to sustained savings via environmental efficiencies in waste and energy management. The costs of developing and implementing an EMS could include:

- Investment of internal resources, including staff/employee time;
- Training of personnel;
- Hiring consulting assistance, if needed; and
- Technical resources to analyse environmental impacts and improvement options, if needed.

Skills and capacity

ISO14001 requirements state that a organisation's management should ensure the availability of resources essential to establish, implement, maintain and improve the EMS. Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources. A specific management representative(should be appointed) who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for: (a) ensuring that an EMS is established, implemented and maintained accordance with the requirements of this International Standard, and (b) reporting to senior management on the performance of the EMS for review, including recommendations for improvement.

In order to implement an EMS to control significant risks, ensure compliance with relevant legislation and to meet the requirements of ISO 14001, knowledge and expertise is needed covering:

- Environmental legislation
- Assessment of environmental aspects
- Pollution prevention
- Emission control
- Statutory nuisance
- Waste management
- Emergency procedures
- Environmental management systems and ISO 14001
- Internal environmental auditing

A wide range of training course are available (see internet)

Organisations can approach the development of their EMS in many different ways. For example, in larger companies staff may be directly employed whilst in smaller businesses existing staff may be trained and duties extended to include the EMS. In some instances consultants are appointed to assist with EMS development and some businesses have benefited from grant aided / funded programmes promoting EMS development.

Pros and Cons of EMS

Standards such as ISO 14001 take a comprehensive view of all of the processes of an organization - hence they are system dependent, and not person-dependent EMS creates structured management systems, from which a cycle of continuous improvement can be established. It brings the many environmental issues of concern expressed by stakeholders into day-to-day operations and development of long term work plans and programmes. It also improves the understanding amongst an organisation's personnel of where operations interact with the natural environment and the role that various groups play. EMS can result in both business and environmental benefits, eg helping to:

- Improve environmental performance;
- Enhance compliance;
- Prevent pollution and conserve resources;
- Reduce/mitigate risks;
- Attract new customers and markets (or at least retain access to customers and markets with EMS requirements);
- Increase efficiency/reduce costs;

- Enhance employee morale, also possibility of enhanced recruitment of new employees;
- Enhance image with public, regulators, lenders, investors;
- Achieve/improve employee awareness of environmental issues and responsibilities.

However, developing and implementing an EMS may have some costs (see above). Some organisations (eg notably national and local governments) can face political and/or administrative barriers in effectively implementing the requirements and commitment of an EMS (particularly if a standard is being followed, such as ISO 14001). For example, planning restrictions and management systems may require legislative, legal and other sanction before it they can be modified. There may be a reluctance to make the necessary financial commitments. They may also lack adequate and appropriate knowledge and technologies.

One disadvantage of EMS is that it has been developed with larger organizations in mind. A common approach used by small and medium sized enterprises (SMEs) to facilitate the implementation of an EMS is joint EMS and group certification (eg in Sweden).

Box 5.7.2: Case Study: EMS of the Tennessee Valley Authority

The TVA is the USA's largest public energy power provider, Its EMS provides a set of processes based on best practices to help TVA meet the commitments expressed in its Environmental Policy and Principles. It has also provided a way to standardize environmental practices, a means for continuous improvement, and a tool for reducing environmental risk.

Benefits: TVA's implementation of the EMS has provided some important benefits:

- Improved environmental performance
- Enhanced regulatory compliance
- Better environmental cost management
- Conservation of materials and energy
- More innovative solutions to environmental issues
- A competitive advantage.

Achievements: with the adoption of its EMS, TVA has:

- Become the first federal agency to implement an EMS at all of its facilities.
- Saved more than US\$20 million through solid waste reductions and environmental training efficiencies.
- Reduced internal audit regulatory findings, including repeat findings, by 43%, the lowest in nine years. These audits verify that TVA operations are in compliance with regulatory requirements and that effective environmental measures are in place.
- Reduced the average of annual reportable environmental events by 17%. Reportable environmental events are occurrences that trigger a notification to or enforcement action by a regulatory agency.
- Saved us\$4.6 million in 2005 by reducing the number of environmental training courses from 457 to 79, a result of standardization.
- Reduced sulphur dioxide and nitrogen oxide emissions to the lowest levels since all 59 coal-fired units have been in operation.
- Reduced environmental impacts by 45%.

Source: <http://www.tva.gov/environment/ems/index.htm>

Key sources of further information and useful web-links

Sheldon C. and Yoxon M. (2006) *Environmental Management Systems A Step-by-Step Guide to Implementation and Maintenance*. Earthscan Publications, UK
(<http://www.earthscan.co.uk/?TabId=1103&v=450772>)

USA EPA - information on MES resources and publications
(<http://www.epa.gov/EMS/resources/index.htm>)

UNEP EMS training resource kit

This kit is a practical guide to EMS designed as a "train the trainer" tool to give trainers and company managers the elements necessary to conduct EMS courses for a variety of organizations

IEMA guidance on EMS (www.iema.net/ems)

5.8 National sustainable development strategies (NSDS)

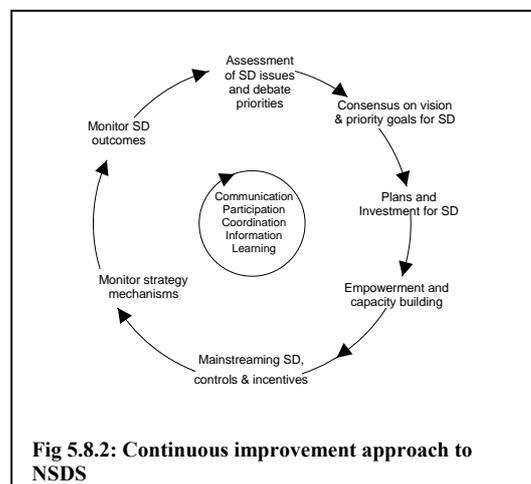
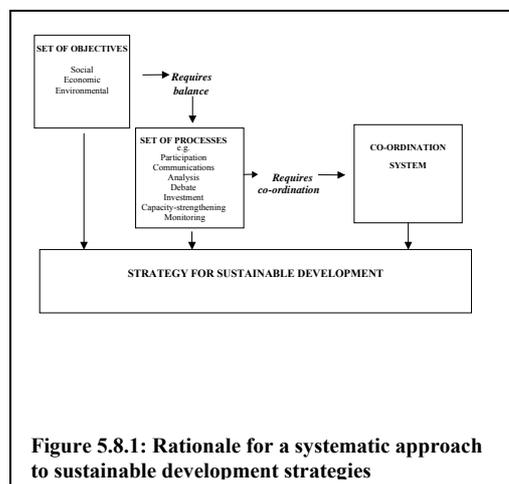
<i>What is an NSDS for?</i>			<i>What issues does an NSDS focus on?</i>	
Policy development	✓	Sets vision and objectives for SD	Environmental	✓
Planning	✓	Provides framework for action plans	Social	✓
Field work			Economic	✓
Investment	✓	Indicates where investment required	Institutional	✓
Assessment				
Monitoring	✓	To track if SD is on track		
Campaigning				

Purpose

An NSDS was once seen as a single, new, master plan for sustainable development. Today there is increasing consensus that it comprises a set of coordinated mechanisms and processes that, together, offer an integrated and participatory system to develop visions, goals and targets for sustainable development, and to coordinate implementation and review (Fig 5.8.1).

Rigid, standardised or blueprint approaches are best avoided. Instead, each individual country will need to structure its approach according to its own needs, priorities and resources. Thus, the term NSDS is increasingly being used to imply a continuous (or at least iterative) learning system rather than one-off exercises (Figure 5.8.2).

Recognising this challenge, the OECD DAC (2001) defines a NSDS as a "co-ordinated set of participatory and continuously improving processes of analysis, debate, capacity-strengthening, planning and investment, which integrates the economic, social and environmental objectives of society, seeking trade offs where this is not possible".



Background facts

Agenda 21 called on all countries to develop NSDSs to translate the ideas and commitments of the 1992 Rio de Janeiro Earth Summit into concrete policies and actions. Subsequently, the Plan of Implementation agreed at the 2002 World Summit on Sustainable Development (WSSD) recommitted governments to begin NSDS implementation by 2005. Many countries have now developed NSDSs or similar cross-cutting strategies and plans. Some of these are in their second or third iterations (eg UK). Others (eg federal countries) have not produced 'national' strategies but have focused on provincial strategies,

and some prepare ministry-based strategies (eg Canada). There are also examples of regional strategies (eg for the EU). Progress is monitored by UNDESA as part of the Commission for Sustainable Development process (see: <http://www.un.org/esa/sustdev/natlinfo/nsds/nsds.htm>). In many of the poorest countries, the focus is now on poverty reduction strategies. These have tended to pay limited attention to environmental concerns and so are not consistent with a key integration principle for NSDSs (Box 5.8.1). Nevertheless, they provide a mechanism that can be built on and improved to develop an effective NSDS. The same can be said for a range of related approaches such as conservation strategies, environmental action plans, strategies and plans related to the Rio conventions (biodiversity, climate, desertification), and new MDG-related strategies.

Box 5.8.1: Summarised NSDS principles

OECD DAC (2001) policy guidance sets out key principles for NSDS:

- Integration of economic, social and environmental objectives, and balance across sectors, territories and generations;
- Broad participation, effective partnerships, transparency and accountability;
- Country ownership, shared vision, commitment and continuous improvement;
- Developing capacity and an enabling environment, building on existing knowledge and processes;
- Focus on priorities, outcomes and coherent means of implementation.

Brief description of the main steps involved in application of the tool

Box 2 lists steps needed to scope out and establish a strategy by building on existing mechanisms, and/or initiating new mechanisms if necessary. But the same or similar tasks are then iterative during strategy co-ordination and continuous improvement. In practice many should be pursued in parallel. A useful first step is to undertake an initial *scoping exercise* to identify stakeholders' views on priority issues that need to be addressed. It would involve a preliminary examination of the opportunities for, and challenges of, undertaking the steps in Box 5.8.2.

Box 5.8.2: Illustrative steps for NSDS

- a) Establish or strengthen a secretariat or coordinating body.
- b) Establish or strengthen a Steering Committee or equivalent multi-stakeholder forum.
- c) Seek or improve high-level political commitment to the strategy.
- d) Secure or confirm a mandate for the strategy.
- e) Identify the stakeholders and seek agreement on their roles.
- f) Ensure broad-based ownership by key ministries and agencies, civil society and the private sector.
- g) Mobilise resources (skills, knowledge, management, legal and institutional support, finance).
- h) Map out the strategy process, taking stock of existing processes and mechanisms:
 - a. Identify the issues covered, vision, goals, and responsibilities.
 - b. Identify mechanisms and processes used by existing strategies.
 - c. Review achievements of these mechanisms in terms of synergies, clashes and gaps, and their outcomes.
 - d. Determine the existence/extent of sectoral policy conflicts and inconsistencies, and the work necessary to resolve them.
 - e. Identify what is required to improve synergies and plug gaps.
- i) Develop or improve coherence and coordination between strategy frameworks at all levels from international to local; and between and within sectors.
- j) Establish or improve the ground rules governing the strategy process:
 - a. Debate and agree how all decisions will be made and agreed, and uncertainty dealt with.
 - b. Co-ordinate means for negotiation of trade-offs and conflict management.
- k) Establish and promote a schedule or broad calendar for the strategy process – determine activities,

responsibilities, capabilities and resources needed, and their timing.

- l) Promote the strategy as a unified concept. Possibly publish a 'prospectus' for the strategy outlining all the above.
- m) Establish or improve provisions for regular analysis, debate, communication, planning, implementation, monitoring and review; to ensure that all stakeholders are best able to play their part in the strategy. These processes will involve establishing or improving:
 - Means for analysing sustainability, stakeholders, mechanisms and processes, and scenarios
 - Regular stakeholder fora and other means for participation (thematic, national, decentralised and local) to reach and improve consensus on basic vision, goals, principles, system components, pilot activities, targets and responsibilities, and to review progress.
 - Communication and information systems to ensure regular flows of information concerning both the strategy and sustainable development between stakeholders and between fora.
 - Major decision-making arrangements, notably: structures and roles; handling global and local values and risk; means of delivering consensus and handling negotiations; and ways of linking those involved.
 - Implementation services and control mechanisms – means for selecting policy implementation instruments (regulations, incentives and voluntary mechanisms) and applying them.
 - Means for planning investments – tasks involved in making the case to different investment sources, and the criteria that should be used.
 - Monitoring and accountability mechanisms to assess both strategy processes and their results. These will include: developing and reviewing sustainability indicators, baselines, standards and codes of practice; identifying and encouraging innovative processes to promote the culture of action-learning; independent monitoring; and feedback to decision-making.

Source: Modified from OECD DAC (2001)

Expected outputs

- Vision for sustainable development (based on stakeholder consensus), analysis of trends and challenges, integrated set of development objectives and targets, policies, plans, institutional arrangements, legislative framework, action (and investment) plan and monitoring mechanisms.
- A communications and information strategy and system (with products for all appropriate media and audiences).
- Mechanisms for internal coordination (between individuals and institutions within government) and external coordination and communication (between government and other stakeholders).
- Multi-stakeholder structures for dialogue (and sometimes decision-making).
- Mechanisms for negotiation and conflict resolution.

Basic requirements

Data needs: Broad range of environmental, social and economic information on key SD trends at national/local levels (obtained via quantitative measurement or qualitative assessment). Data for tracking agreed indicators.

Time: A thorough and effective NSDS process is likely to take 2-3 years to undertake. Many NSDSs have been prepared in shorter time-frames (often 6-12 months) set by political imperatives, but suffer from poor quality and lack of stakeholder support and buy-in,

Costs: Depend on process adopted. But likely to require at least US\$500,000 to be meaningful and engage stakeholders effectively at all levels.

Skills and capacity; Secretariat or coordinating structure with dedicated staff with range of inter-linked SD experience and skills (environmental, social, economic, institutional, communications, etc)

Pros (main advantages) and Cons (main constraints in use and results)

???

Case studies

No country has a perfect NSDS that would satisfy all of the principles in Box1. But many strategies exhibit good practice for some or many of those principles. The case of El Salvador illustrates how a diversity of mechanisms can contribute to the development of an NSDS (Box 5.8.3). The UK NSDS is an example of a third-generation strategy with linked sub-national strategies (Box 5.8.4)

Box 5.8.3: Case study: El Salvador's NSDS (Better example?)

Following the end of civil conflict in 1992, a variety of mechanisms emerged and were used to help develop a NSDS. Different sectors and levels of society debated and promoted a wide range of proposals, mechanisms and initiatives aimed at greater participation and decentralization in order to consolidate democratic processes and generate inclusive, sustainable development (*vision and goals* for the country).

Converging towards a unified objective, a variety of mechanisms were initiated or drawn upon.

- Several institutions/organizations provided channels for *communication and awareness raising*. An advocacy campaign - using consensus documents as a platform – was pursued by the National Association of Private Enterprises (ANEP), together with two prestigious national research institutes: the Salvadoran Fund for Economic and Social Development (FUSADES) and the El Salvador Centre for Democratic Studies (CEDES).
- ANEP drew up the "Entrepreneurs' Manifesto to the Nation" and FUSADES/CEDES presented "The Salvadorian challenge: from peace to sustainable development".
- The NGO Network for Local Development promoted decentralization and local development, laying the groundwork for *participation* mechanisms.
- At the invitation of the country's President, the National Commission on Development promulgated the 'Basis for the National Plan' (a *strategic assessment*).
- Subsequently, the Commission presented "Initial Actions in the National Plan", following extensive consultations with citizens and the participation of numerous national professionals as part of *planning, prioritization and decision-making* mechanisms.
- The "Proposal for a National Strategy for Local Development" (ENDL) was developed and presented by the Social Investment Fund for Local Development (FISDL) and the Consultative Group (formed by other organizations representing civil society and government). This set out a comprehensive and integrated approach to development, including *institutional change management* mechanisms.

Among the numerous processes and proposals formulated, various *coordination mechanisms* can be identified. For example, in 1997, government and donor agencies collaborated in:

- Forming the National Council for Sustainable Development (CNDS), created by decree.
- Supporting amendments to the Law on the Fund for Economic and Social Development (FODES) that allocates 6 per cent of the national budget to municipal development (*financial resources mobilization and allocation*);
- Advocating and supporting the "Proposed Guidelines for a Rural Development Strategy" by the Rural Development Committee (CDR) based on three fundamental pillars: (1) establishment of the basis of development; (2) adoption of policies to benefit rural areas; and (3) co-responsibility of civil society in rural development (*negotiation and conflict management*);
- Backing the citizens' consultative process at the local level under the framework of the National Plan, as well as the establishment of the National Mechanism for Follow Up on the National Plan for Reconstruction and Transformation (*monitoring and accountability*).

Box 5.8.4: Case study: UK NSDS

The UK prepared its first NSDS in 1994 followed by a more comprehensive strategy ('A Better Quality of Life') in 1999. Newly devolved administrations in Wales, Scotland and Northern Ireland subsequently published their own strategies whilst, in England, 8 new Regional Development Agencies developed regional SD frameworks.

This 1999 UK NSDS set out a long-term perspective of SD challenges, with options to address priority issue. It contained a set of 150 SD indicators and a smaller set of 15 Headline Indicators (reported on every year) and annual progress reviews. It also established a Sustainable Development Commission (SDC) (independent appointed advisers and a secretariat), and 'Green Ministers' – responsible for encouraging the use of integrated policy appraisal. SD has become a key theme in annual budget allocation discussions.

A 'traffic lights' system was developed to show how the Headline Indicators are changing:

- **Green:** good - the programme requires refinement and systematic implementation to deliver.
- **Amber/Green:** mixed - aspects will require substantial attention, and some aspects are good.
- **Amber/Red:** problematic - substantial attention with some aspects needing urgent action to deliver;
- **Red:** highly problematic - urgent and decisive action is needed if the programme is to deliver.

In 2005, as part of context setting for a review of the strategy, the annual report looked back more than one year and reviewed progress since the strategy was published. This showed inconsistencies and no systematic follow up or management of the delivery of the 1999 strategy - some actions were not pursued. The SDC also published its own review indicating patchy progress - best on air quality, river water quality and some social issues (especially education and poor housing). Public awareness raising had been less effective than hoped.

The review began in mid 2003 with draft aims set out in a consultation document. A process was initiated to gather initial stakeholder views and organise workshops to identify key themes and establish a set of aims for the review.

- improve delivery of SD outcomes;
- increase awareness of and engagement with SD;
- build a sense of common purpose while supporting devolved, regional and local diversity;
- embed SD more effectively in Government action and policy-making;
- build on what has been achieved, but challenge the government and others to do more;
- be inclusive, involve stakeholders and those responsible for delivery at all levels;
- provide leadership through a clear vision and priorities.

The consultation process was launched in April 2004. It included a web site, events on specific issues, regional and local events, and training of facilitators for discussions in community groups. Responses were evaluated and policy proposals prepared – as an internal government process, led and coordinated by the Department for Environment, Food and Rural Affairs (DEFRA). A new draft NSDS (*Securing The Future*) was submitted to Ministers, approved and launched in March 2005.

The new strategy contains a new vision with stronger international and societal dimensions. It is based on five key principles with an explicit focus on environmental limits. It includes four agreed priorities: sustainable consumption and production; climate change; natural resource protection; and sustainable communities. It also contains a more outcome-focused indicator set with commitments to look at new indicators such as well-being. Again, devolved regions have their own strategies, and government departments are required to prepare SD Action Plans. The SDC is given a stronger remit with responsibility to report on progress on SD in the UK. [needs further update – the whole thing has gone v quiet...]

Key sources of further information and useful web-links

Dalal-Clayton D.B. and Bass S. (2002): *Sustainable Development Strategies: A Resource Book*. Organisation for Economic Cooperation and Development, Paris, and United Nations Development Programme, New York. in association with Earthscan Publications, London. pp c.400 (ISBN: 1 85383 947 7] (available at www.nssd.net)

OECD DAC (2001) *The DAC Guidelines: Strategies for Sustainable Development: Guidance for Development Cooperation*, Development Cooperation Committee, OECD, Paris, available] (available at www.nssd.net)

Useful websites

www.nssd.net

http://www.iisd.org/measure/principles/sd/national_sd.asp

<http://www.un.org/esa/sustdev/natlinfo/nsds/nsds.htm>

5.9 Natural Step (an approach to vision-building)

<i>What is a The Natural Step for?</i>			<i>What issues does the Natural Step focus on?</i>	
Policy development	√		Environmental	√
Planning	√		Social	√
Field work			Economic	√
Investment	√		Institutional	√
Assessment	√			
Monitoring	√			
Campaigning				

Purpose

The Natural Step (TNS) Framework is a simple science-based tool to help individuals and organisations understand sustainability and build sound programmes. It is a well-developed planning methodology used for assessment, visioning and action that encourages dialogue, consensus-building, and systems-thinking and creates the conditions for profound change to occur. It does not prescribe or condemn other approaches but rather introduces and expands on new possibilities.

The Natural Step uses a science-based framework to help individuals and organizations understand sustainability and build sound programs, tools and metrics. This TNS is a methodology for successful organisational planning, based on systems thinking. It begins by understanding the broader system within which problems occur and the principles governing success within that system. This upstream approach to sustainability means problems are addressed at the source and are turned into opportunities for innovation and success.

Using the TNS framework (Box 1), businesses, government agencies, policy-makers, individuals and communities are engaged in training and partnerships, research and development, and community involvement to lead the transition to an ecologically, socially and economically sustainable future. Many businesses use the framework to integrate environmental considerations into strategic decisions and daily operations. It provides a way for business leaders to see "risks" as new opportunities for success and is used to:

- reduce operating costs and environmental risk;
- get ahead of regulatory frameworks;
- enhance the organization's standing among stakeholders;
- incorporate environmental concerns into the workplace;
- differentiate products and services and build a positive brand image.

Background facts

TNS was pioneered by Karl-Henrik Robèrt who established it as a nonprofit organization in Sweden in 1989. This has now grown to an international network of non-profit, educational organizations working together to build a sustainable society (see: <http://www.naturalstep.org/com/Start/>).

The TNS framework identifies four basic system conditions that must be met if economic activity is to continue indefinitely into the future (Box 5.9.1).

Box 5.9.1: The Natural Step Framework

(A) Fundamental system conditions for sustainability

- ***Substances from the Earth's crust must not systematically increase in nature.*** This principle means that fossil fuels, metals and other materials must not be extracted faster than their slow re-deposition into the Earth's crust.
- ***Substances produced by society must not systematically increase in nature.*** This principle means that chemicals and nuclides must not be produced at a faster rate than they can be broken down and reprocessed.
- ***The productivity and diversity of nature must not be systematically deteriorated.*** This principle means that society must not harvest more resources than are regenerated and must maintain a surface area of nature with sufficient capacity to reprocess waste products and convert them to essential ecological functions.
- ***Basic human needs must be met everywhere.*** This principle means that resources and services obtained from nature must be used where they are needed most for global equity.

(B) Fundamental sustainability objectives (The four system conditions can be translated into four ultimate sustainability objectives applicable at all levels from societal to individual)

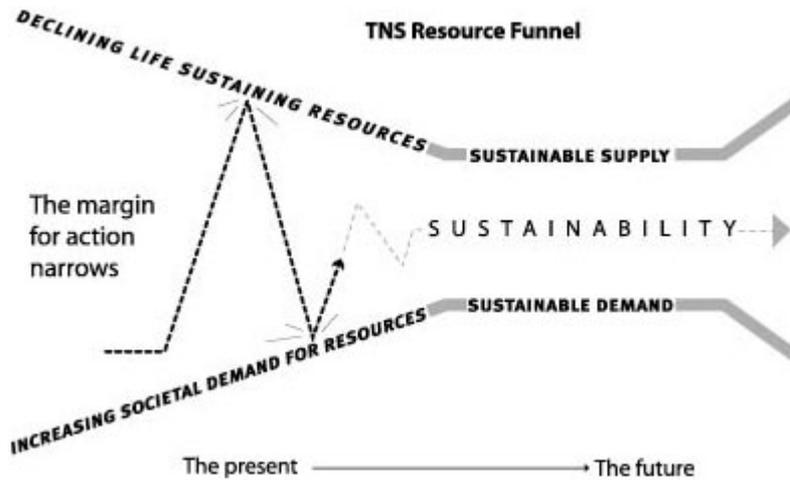
- ***Eliminate our contribution to systematic increases in concentrations of substances from the Earth's crust.*** This means substituting certain minerals that are scarce in nature with others that are more abundant, using all mined materials efficiently and systematically reducing dependence on fossil fuels.
- ***Eliminate our contribution to systematic increases in concentrations of substances produced by society.*** This means systematically substituting certain persistent and toxic compounds with ones that are normally abundant or break down more easily in nature, and using all substances more efficiently.
- ***Eliminate our contribution to the systematic physical degradation of nature through over-harvesting, pollution and other forms of ecological modification.*** This means drawing resources only from well-managed eco-systems, systematically pursuing the most productive and efficient use of land and resources and exercising caution in all kinds of interventions in natural cycles and processes.
- ***Contribute as much as we can to the meeting of human needs locally and worldwide,*** above all through substitution and dematerialization measures to meet the first three objectives. This means using all of our resources efficiently, fairly and responsibly so that the needs of all people on whom we have an impact, and the future needs of people who are not yet born, stand the best chance of being met.

Source: Robert *et al.* (1997) Robert *et al.* (2002)

Brief description of the main steps involved in application of the tool:

TNS uses the metaphor of a funnel (Figure 5.9.1) to help visualise the economic, social and environmental pressures that will inevitably impinge on society as natural resources continue to diminish and population grows.

Figure 5.9.1: The TNS resource funnel (www.naturalstep.org.nz/tns-f-the-funnel-p-asp)



TNS involves a four-phase *A-B-C-D Analytical Approach* (see: <http://www.naturalstep.ca/implementation-methodology.html>) which is repeated as the business progresses along various pathways towards sustainability. The process usually begins with a short, intensive session with key decision-makers, and proceeds according to the capacity, priorities and resources within the business, covering all four steps with a team drawn from across the organisation.

A = Awareness:

This involves aligning the business around a common understanding of sustainability and the 'whole-systems' context for the organisation. A presentation of the TNS principles of sustainability, basic science and whole-systems approach provides a platform from which strategies for living in balance with nature and the global community are developed. Participants review details of the state of the earth's systems, including the ecological, social and economic trends that are undermining our ability to create and manage healthy and prosperous businesses and communities.

B = Baseline Mapping (What does your business look like today?)

A Sustainability Gap Analysis of the major flows and impacts of the business is conducted, using the System Conditions (see Box 1), to see how activities are running counter to sustainability principles. This allows the business to identify critical sustainability issues, the business implications and opportunities for moving forward. Bounded by natural systems and communities, this analysis includes the impacts of a business's entire supply chain and an evaluation of products and services, energy, capital and human resources from 'cradle to grave'. Another critical component of the assessment is the social context and organisational culture, which provide dimensions to the analysis essential for understanding how changes can be positively introduced into the system.

C = Creating a Vision (What does the business look like in a sustainable society? Imagine what operations will look like in a sustainable society based upon the four System Conditions)

Key decisionmakers and stakeholders work together to create a compelling long-term vision for a sustainable enterprise. It is here that businesses often begin to identify the service they are providing the world independent of any one product (for example, providing energy services versus oil). Incorporating this awareness into the visioning process unleashes innovation and releases the company from certain existing limitations. From this vision, businesses develop a strategy and action plan for moving towards sustainability. Individuals are encouraged to come up with ambitious goals for their businesses, which may require radical changes in how an institution operates. Some goals may take many years to achieve. Once sustainability stretch goals are set, TNS advocates a step-by step implementation strategy.

Strategies are developed based on looking backwards from a vision of success (called "Backcasting" from principles). This prevents the group from setting a direction based on simply overcoming the problems of today. Instead, they begin moving towards a shared vision and goal of sustainability, with each action intended to provide a platform for further improvement.

Opportunities and potential actions are identified and prioritised, with priority given to measures that move the business toward sustainability fastest, while optimising flexibility as well as maximising social, ecological and economic returns.

D = Down to Action (Supporting effective, step-by-step implementation. Businesses set their priorities for improvement, based on the vision they have created)

Advice and support is provided for executing specific initiatives through appropriate training, techniques, and tools for implementation, followed by measuring progress towards goals and suggesting modifications as needed. Backcasting is used on an ongoing basis to continually assess whether decisions and actions are moving the business towards the desired future outcome identified in Step C.

Sustainability principles provide new design parameters that drive product and process innovation throughout the business system. This phase also incorporates organisational learning and change methods, which are both essential for effectively moving people into new ways of thinking and behaving together.

Once a person masters the principles, they can get more and more skilled at handling the details. In a sense, the principles help people to stay on course as they process the myriad bits of information and decisions involved in long-term planning. What is considered to be realistic today never determines the direction of change, only its pace. The approach is fundamentally based on systems thinking, setting ambitious goals, and developing realistic strategies for moving forward.

Businesses are not expected to achieve long-term goals immediately. On the contrary, they are encouraged to move systematically by making step-by-step investments that will provide benefits in the short-term, while also retaining a long-term perspective.

Expected outputs

Significant change, particularly in business practices, so that they are environmentally, socially and economically more sustainable. Companies achieve greater effectiveness, competitive advantage, bottom line results, security, employee satisfaction and public acceptance. Problems are avoided, a vision and core values developed within a framework for social and ecological sustainability, and/or the vision refreshed in a step-by-step way while doing good business.

Basic requirements

Data:

Cost:)

Skills and capacity:

Flexibility

Pros (main advantages) and Cons (main constraints in use and results)

Box 5.9.2: TNS in practice: some cases

Companies and organizations that are embracing The TNS framework have already started innovating and incorporating sustainable practices into their methodologies and objectives. For example:

Collins Pine Company (Oregon/USA.) found that TNS provides a logical framework for all of its operations. Its first accomplishment was to train the 600 employees in its Klamath Falls composite-panel plant in TNS principles. Collins has also established methods for evaluating capital expenditures based on the four system conditions and is working on more decision-making and measurement methods.

Electrolux (Sweden) adopted the TNS framework after it lost a multi-million-dollar deal because it did not offer a refrigeration system without chlorofluorocarbons (CFCs). The company used TNS principles to phase out CFCs and won back that customer. It has introduced washing machines that use 12 gallons of water instead of 45, and substituted canola oil for petroleum-based oil in its chain saws -- all while reducing total energy consumption and hazardous waste.

IKEA (Sweden), the largest furniture company in the world, adopted the TNS framework in 1991 in response to consumer pressure against rain-forest wood. Its four-year environmental plan called for implementing the TNS framework throughout the company. IKEA first redesigned one furniture line to eliminate metals, persistent glues, and toxic dyes, reducing energy consumption and increasing material efficiency. By applying this experience company-wide, IKEA is becoming more profitable.

Interface (Georgia/USA.), the world's largest commercial flooring company, aims to produce zero waste and to "never take another drop of oil from the ground." Innovations include leasing carpets instead of selling them and powering a factory with solar energy. Design and manufacturing improvements have saved the company approximately \$50 million. Sales have grown \$200 million, topping \$1 billion, without increasing consumption of the earth's resources.

Nike (Oregon/U.S.), the athletic apparel company, is integrating the notion of sustainability throughout its business operations. Nine out of ten Nike shoes are now put together with water-based adhesives rather than petrochemical-based solvents, eliminating 1.2 million gallons of toxics and improving the safety of workers--all while saving Nike \$4.5 million.

Source: <http://www.ortns.org/framework.htm>

Key sources of further information and useful web-links

Natrass, B. and M. Altomare. (2002). *Dancing with the Tiger: Learning Sustainability Step by Natural Step*. Gabriola Island, BC: New Society Publishers.

Robert K-H., Daly H., Hawken P. and Holmberg J. (1997) A Compass for Sustainable Development, *International Journal of Sustainable Development and World Ecology*, 4: 79-92
Robert, K-H. (2002). *The Natural Natural Step Story: Seeding a Quiet Revolution*. Gabriola Island, BC: New Society Publishers

James, S. and T. Lahti, (2004). *The Natural Step for Communities: How Cities and Towns can Change to Sustainable Practices*. Gabriola Island, BC: [New Society Publishers](#)

Natrass, B. and M. Altomare (1999). *The Natural Step for Business: Wealth, Ecology and the Evolutionary Corporation*. Gabriola Island, BC: New Society Publishers.

Waage, S. (Ed.) 2003. *Ants, Galileo, and Gandhi: Designing the Future of Business Through Nature, Genius, and Compassion*. Sheffield, UK: Greenleaf Press. [Greenleaf Publishing](#).

Website: <http://www.naturalstep.org/com/Start/>

5.10 Scenario Planning

<u>What is Scenario Planning for?</u>			<u>What issues does scenario planning focus on?</u>	
Policy development	✓	Tests robustness and adaptability	Environmental	✓
Planning	✓	Ditto	Social	✓
Field work			Economic	✓
Investment	✓		Institutional	✓
Assessment				
Monitoring				
Campaigning				

Purpose

“All knowledge is about the past; and all our decisions are about the future” (Ian Wilson, 1975)

Scenarios focus on the *joint* effect of many factors and provide alternative views of the future. They identify some significant events, main actors and their motivations, and they convey how the world functions. Building and using scenarios can help us explore what the future might look like and the likely changes of living in it. Scenario planning (also called scenario thinking/analysis) is a method for thinking systematically about and understanding the nature and impact of the most uncertain and important driving forces affecting our future. It is a flexible and adaptable **group process** to encourage knowledge exchange and development of mutual understanding of central issues important to sustainable development. But the purpose of scenario planning is not to imminently decide which scenario is correct; rather it is to look at each plausible future scenario and examine how prepared an organisation or company is or how robust a policy/plan/programme (PPP) is, for the potential change and consequences

Scenario planning helps policy-makers to anticipate hidden weaknesses and inflexibilities in organizations, methods and policies/plans/programmes (PPPs). Most development PPPs are fixed in that they tend to assume a self-validating future – one usually based on extrapolation or prediction that dominates decision-making (an usually termed the **default scenario**). But we live in world of discontinuities, with sudden change and **uncertainties** – so PPPs fail to hold up under the stream of real events – and lead us into **shocks and surprises**. Scenario planning deals with “what if?” questions and helps clarify a vision of the way ahead, capable of modification but allowing progress. This can be compared to *moving from a ballistic artillery shell to a guided heat-seeking missile –in order to deal with a moving target*.

There will always be major events that few people anticipated or expected, that cause severe shocks and strongly influence political systems, the way we live and conduct our lives, etc. Some examples include:

- Collapse of the world’s banking system in 2008
- Collapse of USSR
- Fall of Berlin wall and merger of E & W Germany
- Iraq invasion of Kuwait
- Severe Acute Respiratory Syndrome (SARs)
- Emergence of internet communication (www)
- Explosion of cell phone use

Scenario planning provides a **learning mechanism** to enable PPPs to be more robust and capable of responding to or adapting to shocks and surprise (ie to make it “future proof”). It helps policy-makers, planners and decision-makers make more resilient strategic decisions. It also enables the crafting of divergent stories about the future – not the past or present. These portray images of the future and a pathway of events through time to get there – by extrapolating uncertain and heavily influencing driving forces.

Background facts

To a large extent, scenario planning is an adaptation of classic simulation games methods used by military intelligence. It emerged in the 1960s and its theoretical foundations were mainly developed in the 1970s. At this time the power of scenario planning for business was established by Royal Dutch/Shell as part of a process for generating and evaluating its strategic options. The company has since led the commercial world in the use of scenarios. By the early 1980s approaches had developed to using sophisticated forecasting techniques (such as Delphi and cross-impact matrices), bringing together groups of experts to seek reduced risks.

Numerous organizations have applied scenario planning to a broad range of issues, from relatively simple, tactical decisions to the complex process of strategic planning and vision building. Scenario planning works best if it includes systems thinking, which recognizes that many factors may combine in complex ways to create sometimes surprising futures (due to non-linear feedback loops). The method also allows the inclusion of factors that are difficult to formalize, such as novel insights about the future, deep shifts in values, unprecedented regulations or inventions. Systems thinking used in conjunction with scenario planning leads to plausible scenario story lines because the causal relationship between factors can be demonstrated. In these cases when scenario planning is integrated with a systems thinking approach to scenario development, it is sometimes referred to as structural dynamics.

Brief description of the main steps in scenario planning

There are many methodologies & approaches to scenario planning but they share a number key steps.

- **Establish an initial scenario planning team.** This will likely include all those involved in the strategic planning process of the organisation, key decision makers and stakeholders. Find a location or one or two day retreat, and establish the 'rules' (eg respect, no idea is too crazy, all alternatives to be recorded).
- **Decide on the key question to be answered by the analysis.** This makes it possible to assess whether scenario planning is preferred over the other methods. If the question is based on small changes or a very few elements, other more formalized methods may be more useful. The narrower the scope of strategic decision, the easier will be the scenario construction
- **Set the time and scope of the analysis.** Consider how quickly changes have happened in the past, and try to assess to what degree it is possible to predict common trends, eg in environmental change, demographics, product life cycles, etc. A usual timeframe can be 5 - 10 years
- **Identify major stakeholders.** Decide who will be affected by and have an interest in the possible outcomes. Identify their current interests, whether and why these interests have changed over time in the past
- **Map basic trends and driving forces.** Many trends and factors can be expected to bring about change, for example: new technologies & products; societal and economic dynamics; political and legal developments, international relations, globalisation, environmental shifts (eg climate, land degradation). Describe each trend/driver (sometimes called variables), how and why it will affect the organisation or PPP. In this step of the process, **brainstorming** (often in interviews or workshops) is commonly used, where all trends that can be thought of are presented before they are assessed, to capture possible group thinking and tunnel vision.

Participants will be more effective when they adopt different *mindsets*, eg a politician trying to see things from another (eg business) perspective, or an older person trying to see world through a teenagers' eyes. Some driving forces are *predetermined* by nature – others are *uncertain*. For example: (i) if the question depends on number of voters, then those eligible to vote can be predicted, but the number who will actually vote is uncertain; (ii) if question depends on use of public transport, it is possible to predict number of people (the population in the area concerned), but the number who will use public transport is uncertain

- **Find key uncertainties.** Map the driving forces on two axes, assessing each force on an uncertain/(relatively) predictable and important/unimportant scale. For example, if it has been determined that the two most critical uncertainties are the state of world economy and the weather in Central America. Then there are four possible combinations: good weather/good economy; good weather/bad economy, bad weather/good economy, and bad weather/bad economy. All driving forces that are considered unimportant are discarded. Important driving forces that are relatively predictable (eg demographics) can be included in any scenario, so the scenarios should not be based on these. This leaves a number of important and unpredictable driving forces. At this point, it is also useful to assess whether any linkages between driving forces exist, and rule out any "impossible" scenarios (eg. full employment and zero inflation).
- **Group linked forces** and, if possible, reduce the forces to the *two* most important - to allow the scenarios to be presented in a neat x-y axes diagram to visualise interconnections.
- **Identify the extremes** of the possible outcomes of the (two) driving forces and check the dimensions for consistency and plausibility. Three key points should be assessed:
 - (a) *Trends*: are the trends compatible within the time frame in question?
 - (b) *Internal consistency*: do the forces describe uncertainties that can construct probable scenarios.
 - (c) *Stakeholders*: are any stakeholders currently in disequilibrium compared to their preferred situation, and will this evolve the scenario? Is it possible to create probable scenarios when considering the stakeholders? This is most important when creating macro-scenarios where governments, large organisations, etc., will try to influence the outcome.
- **Define the scenarios**, plotting them on a grid if possible. Usually, 2 to 4 scenarios are constructed. For example, the scenarios used for a major bilateral aid agency (not a public document) used economic growth-economic collapse on one axis, and global interdependence-national isolation as the other axis, enabling four scenarios. For environmental mainstreaming, one might use a similar economic growth-economic collapse axis, together with one regarding commitment to environment. The current situation does not need to be in the middle of the diagram (inflation may already be low), and possible scenarios may keep one (or more) of the forces relatively constant, especially if using three or more driving forces. One approach can be to create all positive elements into one scenario and all negative elements (relative to the current situation) in another scenario, then refining these. In the end, the pure best-case and worst-case scenarios should be avoided

Plots are sought that convincingly portray possible futures. The key "characters" in the plots are identified, eg Institutions (eg corporations, govt. bodies, entire industries); Ecological forces (eg global/regional weather); Mass entities (eg population of voters or high school males); Societal trends (eg religious fundamentalism, private cars); Key individuals (major players). A plot develops when there is conflict or synergy between the characters. Factors are pushed to plausible extremes to develop the scenarios and consideration is given to what such 'worlds' would be like to live in. For example, one could imagine the greatest plausible level of technological progress (i.e. with routine use of computer-chip implants to monitor blood chemistry and heart rates). In developing the plots, time frames must be clear. This produces 'stories' that might unfold. Some process is needed to flesh out story lines (eg working in groups)

- **Write out the scenarios.** Narrate what has happened and the probable reasons for the proposed situation, including good reasons *why* the changes have occurred - this helps further analysis.

This can best be illustrated by showing the effects of the scenario on a day in the life of a hypothetical person, group or community. The story should show how conflicts and/or synergies would be manifested in the lives of people, and answer several questions. For example:

- How did we get here? What plausible chain of events, what combinations of action and counter-reactions, could lead to this future?
- How does it affect particular groups of people directly related to the core question/factor
- How diverse a future is it? For example: does it play out differently for wealthy and poor areas? in cities and rural areas? Or among well- and poorly-educated? Or among technological haves and have-nots?

- What does this future tell us? Is there an element or degree of surprise? Are there any unexpected convergences and barriers?
- What is going on in critical arenas? For example: What kind of economy is consistent with this scenario? How is technological change unfolding? What types of political reactions would have to take place, to make this scenario plausible?
- What will the scenario be called? It is usually given a catchy name/ or slogan.

Finally, give each scenario a descriptive (and catchy) name to ease later reference. For example, the four UNEP Global Environmental Outlook scenarios are clear: Security First, Markets First, Policy First, and Sustainability First (UNEP 2007). See Figure 1 for the often-cited four Millennium Ecosystem Assessment scenarios.

- **Assess the scenarios.** Are they relevant for the goal? Are they internally consistent? Are they archetypal? Do they represent relatively stable outcome situations?
- **Identify research needs.** Based on the scenarios, assess where more information is needed. Where needed, obtain more information on the motivations of stakeholders, possible innovations that may occur in the industry and so on
- **Develop quantitative methods.** If possible, develop models to help quantify consequences of the various scenarios, such as growth rate, cash flow etc. This step requires a significant amount of work compared to the others, and may be left out in back-of-the-envelope-analyses
- **Converge towards decision scenarios.** Retrace the steps above in an iterative process until reaching scenarios which address the fundamental issues

Use the scenarios to test the robustness of policy options. This will usually require modelling and extensive use of data.

Expected outputs

A set of scenarios of plausible futures against which to test organisations and PPPs – enabling judgements to be made about how organisations might need to change or how PPPs may need to be modified/improved or alternatives addressed so that they are robust, adaptable and able to respond to unforeseen changes.

Basic requirements

Scenario planning requires interest and commitment to new ways of thinking by political leaders, top management, senior decision-makers – and for them to explain and propagate that interest to others.

It may take some time to create a scenario, and even more to arrive at a comprehensive set of scenarios. It can be quite time-consuming to analyse various policy options within the context of one or more scenarios, especially since this is usually a group exercise.

Range from half-day ‘frame-breaking’ sessions involving select top management team members to lengthy 6-12 month ‘visioning’ exercises involving greater numbers of different stakeholders

Data

Extensive data gathering involved.

Cost

The costs of scenario planning depends on numerous variables such as the organization size, timeframe of the scenarios, teams and those partnering in the strategic planning process (outsourcing and

consulting professionals would increase costs) and methods of analysis and data collection involved in the planning process (methods such as Delphi survey, Monte Carlo Simulation are expensive).

Skills and capacity

Usually involves an experienced, or at least well-briefed, facilitator(s)

Pros (main advantages) and Cons (main constraints in use and results)

- Systematic yet highly flexible approach, and highly participative, forces reflection at individual and collective levels.
- Scenario planning improves the quality and robustness of PPPs
- Generates buy-in of participants
- Uses known information
- Provides rigour as well as opportunities to draw upon the creativity of those involved, resulting in new views and interpretations on important external developments
- A popular, creative yet structured approach that generates new ideas
- Stretches decision makers' thinking about their organization's business model and its future environment, overcoming corporate blind-spots, and enhancing strategic flexibility

Scenario planning has a number of limitations:

- It has emerged from practice and its appeal is based more on anecdotal than scientific evidence
- It has rarely been subjected to academic validation
- Decision makers tend to prefer one future scenario; they find it difficult to entertain multiple futures. They often take scenarios too literally as though they were static beacons that map out a fixed future. In actuality, their aim is to bound the future but in a flexible way that permits learning and adjustment as the future unfolds.
- Sets of scenarios simplify a complex picture and inevitably introduces distortions, as with for example, a geographic map.
- It is highly dependent on the way the process is conducted (eg team composition, role of facilitators, etc.).
- It is usually only weakly integrated into planning and budgeting systems and with other forecasting techniques.
- Time consuming
- Requires a high resource commitment (personnel and costs)

Key sources of further information and useful web-links

Davis G. 2002. *Scenarios as a Tool for the 21st Century*, Shell International

Fahey L. and Randall R. M. (1998) *Learning from the Future*. Wiley & Sons

Ringland, G. (1998) *Scenario Planning: Managing for the Future*. Wiley & Sons

Schoemaker, P.J.H. and van der Heijden K. (1992) "Integrating Scenarios into Strategic Planning at Royal Dutch/Shell," *Planning Review*. Vol. 20 (3): pp.41-46.

UNEP 2007. Global Environmental Outlook 4: environment for development. UNEP, Nairobi

van der Heijden, K. *Scenarios: The Art of Strategic Conversation*. Wiley & Sons, 1996.

van der Heijden, K, Bradfield R., Burt G., Cairns G., and Wright G. (2002) *The Sixth Sense: Accelerating Organizational Learning with Scenarios*, New York: John Wiley

Wikipedia entry: http://en.wikipedia.org/wiki/Scenario_planning

Scenario planning resources – provides references and texts about scenario planning (http://www.well.com/~mb/scenario_planning/)

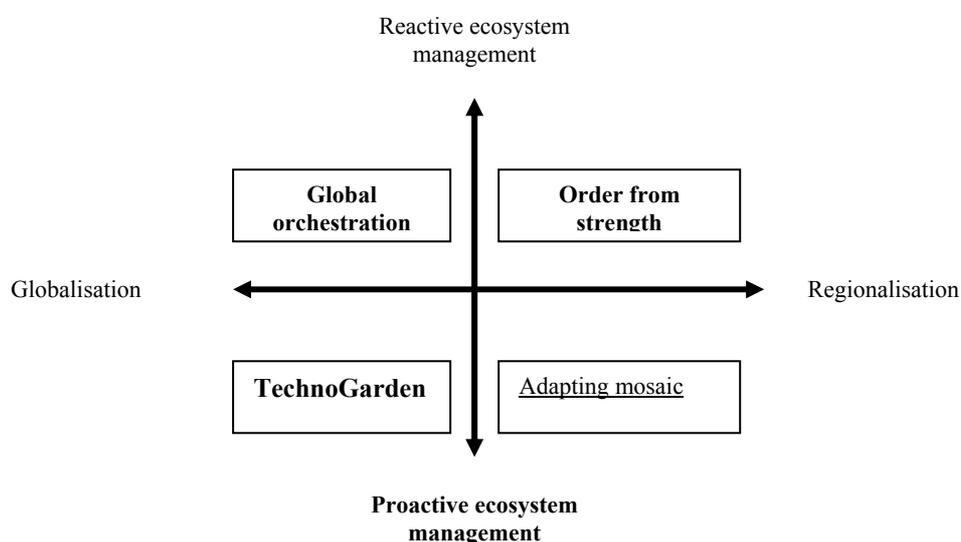
JISC Infonet – provides information on tools and techniques (<http://www.jiscinfonet.ac.uk/tools/scenario-planning>)

Academic futures resources – http://www.universityfutures.org/prospective_methods

Box 5.10.1: Case example: Millennium Ecosystem Assessment scenarios

The MEA Scenarios Working Group considered the possible evolution of ecosystem services during the twenty-first century by developing four global scenarios exploring plausible future changes in drivers, ecosystems, ecosystem services, and human well-being.

Three of four detailed scenarios suggest that significant changes in policies, institutions, and practices can mitigate some but not all of the negative consequences of growing pressures on ecosystems, but the changes required are substantial and are not currently under way.



Global Orchestration – This scenario depicts a globally connected society that focuses on global trade and economic liberalization and takes a reactive approach to ecosystem problems but that also takes strong steps to reduce poverty and inequality and to invest in public goods such as infrastructure and education. Economic growth in this scenario is the highest of the four scenarios, while it is assumed to have the lowest population in 2050.

Order from Strength – This scenario represents a regionalized and fragmented world, concerned with security and protection, emphasizing primarily regional markets, paying little attention to public goods, and taking a reactive approach to ecosystem problems. Economic growth rates are the lowest of the scenarios (particularly low in developing countries) and decrease with time, while population growth is the highest.

Adapting Mosaic – In this scenario, regional watershed-scale ecosystems are the focus of political and economic activity. Local institutions are strengthened and local ecosystem management strategies are common; societies develop a strongly proactive approach to the management of ecosystems. Economic growth rates are somewhat low initially but increase with time, and population in 2050 is nearly as high as in Order from Strength.

TechnoGarden – This scenario depicts a globally connected world relying strongly on environmentally sound technology, using highly managed, often engineered, ecosystems to deliver ecosystem services, and taking a proactive approach to the management of ecosystems in an effort to avoid problems. Economic growth is relatively high and accelerates, while population in 2050 is in the mid-range of the scenarios.

Source: <http://www.millenniumassessment.org/en/Scenarios.aspx>

5.11 Citizen's jury

These boxes need completing with ticks where appropriate

<i>What is a Citizens Jury for?</i>			<i>What issues does a Citizens' Jury focus on?</i>	
Policy development			Environmental	
Planning			Social	
Field work			Economic	
Investment			Institutional	
Assessment				
Monitoring				
Campaigning				

Purpose

A citizens jury is a decision-making model that is used for involving members of the public in decisions about strategic planning or service prioritisation. The jury consists of 12-20 members of the public who hear evidence over a few days about proposals and make a judgement based on the evidence given.

The aim is to enable a small sample of a population to hear evidence and deliberate on a (usually contentious) issue. Like a legal jury, the belief is that such a group – through participatory representativeness – can fairly represent the conscience and intelligence of a community. This long-standing reasoning contrasts with today's most common quantitative and qualitative methods for representing the public's views – opinion poll and the focus group – which don't allow participants to represent their own views directly to policy-makers.

The distinguishing characteristics of participants in a citizens jury compared with other methods of qualitative research or deliberative democracy are that jury members are:

- Given time to reflect and deliberate freely with each other on the questions at hand, occasionally assisted by a neutral advisor;
- Given the opportunity to scrutinise the information they receive from witnesses, whom they interrogate themselves;
- Expected to develop a set of conclusions or 'vision' for the future — which need not be unanimous.

Background facts

Citizens juries were first conceived in the US in the 1970s and developed during the 1980s in Germany. Subsequently, they have been used in many countries including Brazil, UK, Spain, India, New Zealand, Canada and Australia. Outside the US they have been organised by a variety of different groups – governments and local authorities trying to acquire legitimacy for their actions, campaigners trying to demonstrate widespread and informed public support for their cause, and qualitative social researchers trying to gain greater insights into participatory governance and direct methods of democracy.

In the late 1990s, over 100 juries took place in the UK on issues as diverse as Northern Ireland educational reforms, health rationing, waste disposal and genetic testing. More recently, much less is heard of such juries in the UK. Governments became wary of such juries as their conclusions often contained criticisms of Government. Some critics have questioned the representativeness of participants, the transparency in the provision of information, or juries' independence, given that jurors can be limited in the extent to which they can express their opinions without them being channelled through the commissioning body. Others suspect that citizens juries have sometimes been used as show-trials that allow those in power to avoid engaging in processes that might hold them accountable to communities.

Brief description of the main steps involved in application of the tool:

1) *Secure funding.* Multiple sources of funding help to ensure that the jury's organisers are not seen as having a financial interest in producing a verdict that supports the interests of a single funding body. To maximise the scrutiny they provide, the two or more funders should have somewhat opposing interests regarding the subject likely to be under discussion.

2) *Appoint an Advisory Panel* - composed of all relevant stakeholders - to oversee the process and ensure it is fair, and so as to defuse conflict that might arise over the conclusions.

3) *Carefully determine the key question(s)* The way these are presented to the jury can, as in an opinion poll, influencing the response, introduce biases or lead debate in a particular way, and may discouraged jurors from discussing opposing arguments and prevent the full diversity of opinions on a topic to emerge. Equally, the way in which discussions are framed by witnesses and the information provided can also have an influence on the extent to which citizens have opportunities to develop their own visions for the future. The Advisory Panel can carefully scrutinise the question(s) to be put to the jury.

4) *Select the jury:* usually of 12-20 people to serve as a microcosm of the public. Jurors can be recruited via a more or less randomised selection of people taken from the electoral roll. But this also suffers from two disadvantages. A proportion of the potential voting population may not be registered (this can be high in some countries) so that already voiceless citizens risk being excluded from potential membership of the jury. Supplementary methods may be used to ensure that marginalised groups are properly represented. Secondly, even if people are registered to vote, they may be excluded or put-off for other reasons, including sensory impairment or physical disability, illiteracy, or lack of confidence. Sensitivity to the situation of potential jurors is therefore crucial for everyone involved in the jury selection process. To encourage recruitment from as broad a range of backgrounds as possible, various provisions can be made available including an honorarium payment, crèche facilities, and easy-access jury locations.

5) *Plan the jury hearings:* In most cases, a citizens jury, meets for sessions totalling 30-50 hours.

6) *Agree the evidence – interrogation balance,* i.e. the proportion of jury deliberation that will be devoted to the presentation of witness evidence compared with the time that is allocated for the interrogation of witnesses by the jurors.

7) *Hearing process.* Jurors hear from a variety of specialist witnesses and are usually able to discuss as broad or narrow range of issues as they see fit. They may wish to request additional witnesses on topics they themselves specify. Citizens juries work best when evidence is communicated in a clear and accessible manner. The jury is not required to achieve a consensus regarding the answers it gives and in closing, the jury can vote on different possible answers, which can be formulated by the jury itself

8) *Deliver recommendations* - to those in power – and preferably convene a press conference.

9) *Provide transparency* - this can be promoted by making complete audio or video recordings of all jury hearings, (though not of “jury room” deliberations if participants would prefer privacy) publicly available.

10) *Monitoring* – enable jurors to undertake work towards ensuring that some of their conclusions are implemented

Expected outputs

Conclusion(s) or verdicts on a contentious proposal/issue. This may be a consensus or present divergent views.

Basic requirements

Data: marshalled and presented by witnesses on behalf of the proponent (or opponents) of the proposal.

Cost: Organisers', jurors' and witnesses' time. Venue/facility hire and recording deliberations and publishing outcomes. To overcome such costs (which can be high: eg £16,000 – 23,000 in the UK), an online Citizen Jury toolkit is now available to help local authorities to run high quality, low cost consultations that enable citizens to take part where they want, when they want (<http://www.rol.co.uk/pp/gold/viewgold.asp?id=4168>)

Skills and capacity: no specific skills – the jurors are selected to represent society. Neutral facilitators are often engaged.

Flexibility

ask Michel Pimbert!

Pros (main advantages) and Cons (main constraints in use and results)

ask Michel Pimbert!

Box 5.11.1: Case Study: Prajateerpu, India

In 1999, the government of Andhra Pradesh (AP), India, published its Vision 2020 - a strategy for development over the subsequent 20 years, partly funded by the World Bank and UK DFID. In 2001, a group of smallholder farmers in Andhra Pradesh (AP), India, took part in a participatory exploration of three broad scenarios for the future of food and farming in their region. This participatory process, a modified citizens' jury known as *Prajateerpu* (translation: 'people's verdict'), allowed people affected by the vision 2020 for food and farming to shape a vision of their own.

Extensive discussion between partners at the national, national and international level, including community organisations, development NGOs, academics and policy-makers informed the formulation of a methodology for Prajateerpu. It used a combination of a citizens jury and a scenario workshop, supplemented by three video films about different potential paths for food, farming and rural development in AP over the next 20 years.

The jury was overseen by a panel that included a retired chief judge from the Indian Supreme Court, a senior official from a donor agency and a number of local NGOs. The jury of 19 consisted of mostly of indigenous farmers – most from *Dalit* (untouchable) or *Adivasi* (tribal people) castes with a majority of women, and drawn from communities all over the state of AP. Over four days, they cross-questioned 13 witnesses, including representatives of biotechnology companies, state government officials and development experts. Rather than simply accepting or rejecting GM crops in the abstract, the jurors were able to build their own scenario for sustainable and equitable agriculture, and insert elements of the future scenarios to which witnesses had referred.

Facilitators used a variety of methods to give jurors the opportunity to validate their knowledge and challenge the misunderstanding of decision-makers.

Many people arrived at the event not knowing whether they would have anything useful to say and went away having acknowledged that they had important contributions to make. The depth of engagement and insight they achieved went beyond what would have been possible using opinion polls, questionnaires, public meetings or focus groups. For example, rather than hearing arguments about the potential risks and benefits of particular technologies, such as genetically modified (GM) crops, participants were able to consider them alongside alternative development models. Each different scenario for rural futures could be seen as an interdependent economic, social, and environmental system.

The process reaffirmed that citizen empowerment and deliberative and inclusionary processes can enrich democracy and hold decision-makers accountable for their actions. Jurors used their ability to directly cross-examine the witnesses to give illustrations of, or counter-examples to, the evidence they had heard.

The participants accounts were in many ways more diverse than those of specialists because they had looser commitments to subject boundaries and, to a certain extent, a more insightful and open-minded approach to the tensions these boundaries can mask. There was a significant diversity of opinion among participants. However, there was widespread agreement on the final statement which included:

“We oppose:

- The proposed reduction of those making their livelihood from the land from 70 to 40 % in AP;
- Land consolidation and displacement of rural people;
- Contract farming;
- Labour-displacing mechanisation;
- GM crops – including Vitamin A rice and Bt cotton;
- Loss of control over medicinal plants including their export.

And, we desire:

- Food and farming for self-reliance and community control over resources;
- To maintain healthy soils, diverse crops, trees and livestock, and to build on our indigenous knowledge, practical skills and local institutions.

We conclude that the potential of Vision 2020 to damage, or potentially improve, the livelihoods of small and marginal farmers in AP is at least as great as other mega projects such as the Narmada Dam or the introduction of ‘Green Revolution’ technologies. We urge opinion-formers and decision-makers in India and internationally to respond to the results of Prajateerpu by reviewing the assumptions that underlie their policies about rural futures. Such a review should include further democratic innovations of this kind”.

Source: Pimbert & Wakeford (2002, 2003)

NOTE – CAN WE ADD SOMETHING SHORT (1 PARA) ON THE FURTHER IMPACTS/OUTCOMES OF THIS PROCESS

Key sources of further information and useful web-links

Armour, A. 1995, ‘The Citizens’ Jury model of public participation: a critical evaluation’, in Renn, O., Webler, T. and Widemann, P. (eds.) *Fairness and Competence in Citizen Participation* Dordrecht, Kluwer Academic Publishers

Coote, A. & Lenhagan, J. 1997 *Citizens’ Juries: From Theory to Practice*. Institute of Public Policy Research, London.

Pimbert, M. P. & Wakeford, T. 2002 *Prajateerpu: A Citizens Jury / Scenario Workshop on Food and Farming Futures for Andhra Pradesh, India*, IIED, London (download this and associated articles from <http://www.prajateerpu.org>).

Pimbert, M. & Wakeford, T. (2003) ‘Prajateerpu, power and knowledge: The politics of participatory action research in development. Part I: Context, process and safeguards.’ *Action Research*, 1(2), 184–207

5.12 National Councils/Commissions for Sustainable Development

[Ella Antonio requested to draft – proto text below only]

Box 5.12.1 National Councils for Sustainable Development

Although NCSDs vary widely in form and function, common roles are:

- Facilitating participation and co-operation of civil and economic society and governments for sustainable development;
- Assisting governments in decision-making and policy formulation;
- Integrating economic, social and environmental action and perspectives;
- Looking at the local implications of global agreements such as Agenda 21 and other international conventions related to sustainable development;
- Providing a systematic and informed participation of civil society in UN deliberations.

Since the creation of first NCSD in the Philippines in September 1992, the Earth Council has facilitated and supported the establishment and strengthening of NCSDs in some 70 (especially developing) countries.

A 1999–2000 review of NCSDs pointed to common approaches that have built trust and created the basis for agreement:

Operating by consensus: *Broad agreement (but not necessarily unanimous consensus) has been found to be slower and more difficult than resolution of issues by majority vote. But – since NCSDs are neither executive nor legislative bodies – divided decisions are relatively meaningless because they simply replicate the disputes that divide society as a whole, without offering resolution. Indeed, where this has occurred, it has sometimes hardened that division. The power of the NCSD is derived not from the power to require others to act, but from its unique opportunity to create agreements that enable and persuade others to act – and which would not otherwise have occurred. Consensus is needed to cross the boundaries of old disagreements that have obstructed sustainability. Where NCSD members may have a history of mistrust and conflict, consensus building is also an effective means for building understanding, trust and an emerging set of values conducive to sustainability. It treats each member as equally important, and requires all members to understand one another.*

Fair process: *members must be assured that they have an equal opportunity to express their views, to participate in meetings, to review drafts, to have access to information and to contribute to decisions. For those without adequate resources, they should have access to staff support and financial assistance. Thus, a clear and agreed set of rules is needed to ensure that the NCSD's proceedings are fair and balanced.*

Transparency: *Part of fairness is assuring that the NCSD's own practices are transparent, both internally and externally. All members need to know what is being said and agreed, and the public need the opportunity to learn about and comment on the NCSD's activities (some NCSDs have provision for public participation).*

Engagement and problem solving: *Disagreements stem from strongly held values and ideas and significant sectoral interests. Resolving them requires engagement, persistence, good faith and – often – dispute resolution skills. Members need to show up for meetings and need to see that there is real benefit for them in overcoming disagreement. Access to group facilitation, negotiation and dispute resolution skills has been useful.*

Source: Earth Council (2000) and www.ncsdnetwork.org

5.13 Public interest litigation (PIL)

<i>What is Public Interest Litigation for?</i>			What issues does public interest litigation focus on?	
Policy development	√	Possible medium and/or long term impacts	Environmental	√
Planning	√		Social	√
Field work			Economic	√
Investment			Institutional	
Assessment	√	As part of the judicial procedures		
Monitoring	√√	Compliance and enforcement		
Campaigning	√	Supports campaigns		

Purpose

Public Interest Litigation (PIL) is a legal tool which allows individuals, groups and communities to challenge government decisions and activities in a court of law for the enforcement of the public interest. PIL represents a departure from traditional judicial proceedings, as it is not necessary for the person holding the grievance to approach the court personally. To date PIL is recognised in a limited but growing number of jurisdictions. Its scope of application and the rules and procedure for initiating a PIL differ widely.

In general PIL cases deal with major environmental and social grievances. They are often used strategically as part of a wider campaign on behalf of disadvantaged and vulnerable groups in society. Where individuals, groups and communities do not have the necessary resources to commence litigation, PIL provides an opportunity for using the law to promote social and economic justice. PIL cases are often concerned with preventing the exploitation of human, natural and economic resources.

PIL's value for sustainable development lies in its ability to correct decisions and render government authorities accountable to civil society organisations. PIL can encourage governments to make their human rights obligations meaningful to all parts of society and thus contribute to social and environmental justice. It may encompass elements of other legal remedies such as class actions which determine the rights of large numbers of people whose cases involve common questions of law or fact. PIL often also entails a form of judicial review, examining the legality of decisions and activities of public authorities or the constitutionality of the law.

Background facts

In principle the state has the role of defining, protecting and enforcing the public interest. In civil proceedings the public interest has therefore been traditionally represented by, for example, the *ministere public* (civil law) and the attorney general (common law). Historically the development of PIL is often attributed to the case of *Brown v. Board of Education* (1954) in which the US Supreme Court found that a state's segregation of public school students by race was unconstitutional. The defendant in the case was a public institution and the claimants comprised a self-constituted group with membership that changed over time.

Many countries have since integrated the concept in their domestic legal order. The Indian judiciary has been particularly creative in entertaining PILs and developing them into a legal tool for the poor and the public at large. Prior to the 1980s only an aggrieved party had standing (*locus standi*) to file a case. As a result, justice could rarely be delivered to the vast majority of citizens who were illiterate and without resources. These days even the court itself can initiate legal action 'on its own motion' (*suo motu*) following the receipt of letters or public interest issues being raised in the media.

PIL has developed differently in diverse countries, drawing on common background issues but within specific conditions and different legal traditions. Depending on the national social, economic and political circumstances and the independence of the judiciary there are different pressures and opportunities for PIL. In some countries PIL can be instituted in relation to almost all social, economic and environmental rights whilst in others its application is restricted to a specific subject. Substantive and procedural legal requirements for the use of PIL therefore differ widely between different jurisdictions.

Box 5.13.1: Basic stages in PIL

GERMANY

Who, when and why?

In Germany PIL is confined to alleged violations of the Federal Natural Protection Act and associated provisions. Only associations officially recognised by the environment authorities are eligible to initiate a PIL. To be eligible for official recognition an association must carry out activities for at least three years that go beyond the territory of a single federal state with the purpose of promoting the interests of nature protection. A recognised association may initiate PIL proceedings against government authorities for the protection of nature conservation areas or certain planning decisions with an impact on the environment.

Some procedural issues

- Associations can only institute public interest proceedings in certain circumstances including where the association is affected within the scope of activities set out in its Articles of Association to the extent to which these are covered by the recognition granted.
- The association must have put forward an opinion during the administrative procedures preceding the adoption of the decision challenged in court.
- Judicial proceedings must be initiated within one year.
- The court considers all possible grounds for action, regardless of whether the association has invoked that ground or not.
- The court can only rescind the administrative decision challenged (in whole or in part).

INDIA

Who, when and why?

The Indian Constitution allows any public spirited person, NGO or a public interest law firm to file a case on behalf of a group of persons whose rights are affected. The court can also act on its own motion. A PIL can be filed only against government authorities but private parties can be included subsequently. Cases in which a PIL can be filed include

- Violation of basic human rights of the poor,
- Content or conduct of government policy,
- To compel municipal authorities to perform a public duty, or
- Violation of religious rights or other basic fundamental rights.

Procedural issues

- A PIL is filed like any other writ petition and a copy is to be served to the opposite party.
- The petition is screened in the PIL cell of the court.
- The matter is placed before a judge nominated by the Chief Justice.
- During the proceedings a commissioner may be appointed by the judge to inspect the allegations.
- The court may appoint senior advocates as *amicus curie* to assist the court in PIL cases and to ensure that the process of the court is not misused.
- The court can order an early interim measure to protect the public interest until the final order is made.

TANZANIA

Who, when and why?

The Constitution of Tanzania gives citizens the right to PIL as an independent and additional source of standing. Proceedings may be instituted by any public-spirited individual to challenge either the legality of public decisions or actions or the consistency of legislation with the constitution. In public interest matters, the Attorney General is made the Respondent on behalf of the Government, its organs or civil servants.

Procedural matters

The Basic Rights and Duties Enforcement Act of 1994 applies to PIL procedures.

- The Act gives a right to the litigant to apply to the High Court for redress by filing a petition.
- The Court can make all such orders that are necessary and appropriate to secure the enjoyment of basic rights, freedoms and duties.
- Where a petition challenges a law, the Court can allow the Parliament or the legislative authority to correct that defect instead of declaring the law or an action invalid or unconstitutional.

Pros (main advantages) and Cons (main constraints in use and results)

PIL can:

- encourage government accountability – government agencies perform better when they know that they can be held accountable by the courts;
- provide enforcement assistance – no government has enough resources to monitor and enforce all potential violations of the law;
- allow courts to clarify and interpret the law, close existing gaps and raise human rights, environmental and social protection standards;
- supplement the criminal justice system if, for example, fines are relatively low compared to the amount of environmental degradation caused; and
- result in restitution and compensation for damages and injustices suffered by individual, groups and communities.

But PIL may also:

- be abused by individuals or groups to further their personal or commercial interests;
- lead to a large number of complex, long lasting cases which can ‘clog up’ the legal system and create substantial costs;
- give judges wide discretion in interpreting and defining the public interest which arguably could violate the separation of powers doctrine and may be better done by a democratically elected legislature;
- be constrained through existing law which often does not reflect the current actual conditions on the ground;
- leave public interest litigants that are unsuccessful with an obligation to pay the often substantive costs of the state and other parties;
- depend heavily on the lawyers involved and the financial backing of parties; and
- result in court judgments which government agencies fail to implement properly.

Box 5.13.2: Examples of PIL

INDIA

In *Vellore Citizens' Welfare Forum vs. Union of India* (1996) the Supreme Court allowed standing to a public spirited social organisation for protecting the health of residents of Vellore. In Vellore tanneries situated around a river were found discharging toxic chemicals into the river jeopardising the health of the residents. The Court noticed that the leather industry was a major foreign exchange earner and Tamil Nadu's export of finished leather accounted for 80% of the country's export of that commodity. Nevertheless, the Court pointed out that the leather industry had no right to destroy the ecology, degrade the environment and pose a health hazard. The Court asked the tanneries to close their business.

UNITED KINGDOM

In 2003 a British company (Able UK) was commissioned by the US government to scrap thirteen 'ghost ships' containing environmentally threatening waste products. The site in Hartlepool where the ships were supposed to be scrapped was adjacent to sensitive wildlife habitats protected under European and international law. The site's original planning permission only allowed for the dismantling and refurbishment of oil platforms and other marine structures. Public Interest Lawyers, a UK non-governmental organisation acting on behalf of local residents, successfully brought a public interest law suit against Hartlepool Council and Able UK in the High Court. The court ruled that the Environment Agency's decision to modify Able UK's original waste management licence was unlawful as it did not consider the effect that dismantling the ships might have on nearby internationally protected wildlife sites (*R (Gregan) v. Hartlepool Borough Council*, 2003).

References and further information

Ashok H. Desai & S. Muralidhar, 'Public Interest Litigation: Potential & Problems' published in BN Kirpal *et al.* eds.- *Supreme but not infallible: Essays in Honour of the Supreme Court of India*, Oxford University Press, New Delhi, 2000, p.159

John E. Bonine, 'Broadening "Standing to Sue" for Citizen Enforcement', Fifth International Conference on Environmental Compliance and Enforcement, available at <http://www.inece.org/5thvol2/bonine.pdf>

Carola Glinskj, 'Public Interest Environmental Litigation in South Africa', available at <http://www.sae.org/Interns/IntPro/intpro99/Glinski/Glinski%20Paper.doc>

Helen Hershkoff: 'Public Interest Litigation - Selected Issues & Examples', article available at <http://siteresources.worldbank.org/INTLAWJUSTINST/Resources/PublicInterestLitigation%5B1%5D.pdf>

Peter Kessler, Michael Mehling & Dora Schaffrin, 'Assignment: Support the SEPA legislation department in strengthening the legal framework of public interest litigation in China', EcoLogic Research Report, 2006

Legalpundits, 'Has public interest litigation attracted any criticisms?', article available at <http://www.Legalpundits.com>

Peter Mageloh *et al.*, 'Public interest litigation and the environment', available at The Encyclopedia of Earth http://www.eoearth.org/article/Public_interest_litigation_and_the_environment

Alex Wang, 'Storm King & the Beginnings of US Environmental Law' International Fund for China's Environmental NGO Forum, China, 5th November 2005