

## Chapter 11

### GLOBAL SECTOR-WIDE APPROACHES

In recent years, there have been a number of major studies and processes focusing on particular sectors which can be viewed as large-scale sustainability assessments. We provide some examples below.

#### 11.1 The Sustainable Paper Cycle study

Following the Rio Earth Summit, the World Business Council for Sustainable Development (WBCSD) commissioned the International Institute for Environment and Development (IIED) to undertake an independent study of the pulp and paper sector. Its objectives were defined as:

“In the context of sustainable development, to objectively assess the role of paper and the paper industry worldwide, focusing on the entire cycle from fibre production (including forestry) to pulp and paper production, paper usage, recycling, energy recovery and final disposal” (IIED 1996)

In meeting this objective, the study set out to provide a focal point for further consultation and dialogue aiming to:

- Analyse the causes of market and policy failures that undermine the sustainability of the paper cycle and consider ways of reducing them;
- Clarify the choices that have to be made between competing economic, social and environmental goals at different stages of the paper cycle and in different regions;
- Identify where there may be win-win solutions – that is, where improvements on the different criteria can be met simultaneously;
- Suggest practical ways for the industry to move towards sustainability; this refers not only to specific policy options but also to processes for facilitating negotiated solutions involving stakeholders at different levels.

The specific aims of the review were to

- Assess the dimensions of the paper cycle, both current and future, on the basis of official statistics and available forecasts, identifying the key developments in the cycle that could be expected in the medium term;
- Review the economic, social and environmental impacts of the paper cycle, examining the concepts of sustainable practice at different stages of the cycle and the implications for current practice;
- Survey the recent debates about sustainability in the paper cycle, including a review of the positions, analysis and solutions proposed by the various stakeholder groups;
- On the basis of the review, develop a detailed programme for further research and public discussions of the key issues and questions.

The two year study (1994-96) involved two phases:

*Phase 1* a review of literature related to the paper cycle and synthesis of documentary material, supplemented by interviews with acknowledged experts in the field. A review report identifying key debates and areas requiring further research was widely circulated for comment and to solicit additional information.

*Phase 2* aimed to address key debates and gaps in knowledge, through a wide-ranging programme of original research and consultation with a wide range of stakeholders (more than 500 individuals and groups).

This culminated in conclusions and recommendations directed at industry, government and other groups. The work programme was developed through an interactive process in consultation with a study Task Force, an Advisory Group, participants in regional workshops to discuss key issues (attended by representatives of industry, government, NGOs and the academic community), and other contributors. 20 sub-studies were conducted on different aspects of the paper cycle (eg profile of current fibre sourcing, pulpwood supply model, forestry standards and indicators, benefits of environmental control, and transport).

A diversity of research methods were used, ranging from simple literature reviews and statistical analysis to relatively sophisticated economic modelling. In addition, the study used questionnaire surveys, cost-benefit and risk analysis, historical research, site inspections, individual and focus group interviews, workshops and intensive ‘brainstorming’.

Because the study looked at the whole paper cycle, it touched on a wide range of themes from agriculture to environmental engineering, and incorporated inputs from numerous disciplines. The final report (IIED 1996) found a number of positive aspects of the paper cycle where action had been taken to achieve improvement, and identified a number of areas where scope existed for further improvement or where problems may arise in the future.

## **11.2 The World Commission on Dams**

Established as an independent body in February 1998 through an unprecedented process of dialogue and negotiation involving representatives of the public, private and civil society sectors, the 12-member World Commission on Dams (WCD) had two objectives:

- To review the development effectiveness of large dams (Box 11.1) and assess alternatives for water resources and energy development; and
- To develop internationally acceptable criteria, guidelines and standards, where appropriate, for the planning, design, appraisal, construction, operation, monitoring and decommissioning of dams.

The Commission made recommendations for a new policy framework. It developed seven strategic priorities and related policy principles (see Box 11.2) - providing a practical way forward for decision-making, and these have been translated into a set of corresponding criteria and guidelines for key decision points in the planning and project cycles. Together they provide guidance for putting the framework into practice:

“They help us move from a traditional, top-down, technology-focused approach to advocate significant innovations in assessing options, managing existing dams – including processes for assessing reparations and environmental restoration, gaining public acceptance and negotiating and sharing benefits” (WCD 2000).

The WCD also identified five key decision points. The first two relate to water and energy planning, leading to decisions on a preferred development plans:

- Needs assessment: validating the needs for water and energy services; and
- Selecting alternatives: identifying the preferred development plan from among the full range of options.

### **Box 11.1: World Commission on Dams: performance assessment of large dams**

The WCD's assessment of the technical, financial, economic, environmental and social performance of large dams took account of targets set by dam proponents and was based on a knowledge base which included:

- 8 detailed case studies of large dams;
- country reviews for India and China;
- a briefing paper for Russia and the Newly Independent States;
- a cross-check survey of 125 existing dams;
- 17 thematic review papers;
- results of public consultations and >900 submissions

The Commission found that:

- Large dams display a high degree of variability in delivering predicted water and electricity services – and related social benefits – with a considerable portion falling short of physical and economic targets, while others continue generating benefits after 30 to 40 years.
- Large dams have demonstrated a marked tendency towards schedule delays and significant cost overruns.
- Large dams designed to deliver irrigation services have typically fallen short of physical targets, did not recover their costs and have been less profitable in economic terms than expected.
- Large hydropower dams tend to perform closer to, but still below, targets for power generation, generally meet their financial targets but demonstrate variable economic performance relative to targets, with a number of notable under- and over-performers.
- Large dams generally have a range of extensive impacts on rivers, watersheds and aquatic ecosystems – these impacts are more negative than positive and, in many cases, have led to irreversible loss of species and ecosystems.
- Efforts to date to counter the ecosystem impacts of large dams have met with limited success owing to the lack of attention to anticipating and avoiding impacts, the poor quality and uncertainty of predictions, the difficulty of coping with all impacts, and the only partial implementation and success of mitigation measures.
- Pervasive and systematic failure to assess the range of potential negative impacts and implement adequate mitigation, resettlement and development programmes for the displaced, and the failure to account for the consequences of large dams for downstream livelihoods, have led to the impoverishment and suffering of millions, giving rise to growing opposition to dams by affected communities worldwide.
- Since the environmental and social costs of large dams have been poorly accounted for in economic terms, the true profitability of these schemes remains elusive.

*Source: WCD (2000)*

### **Box 11.2: Strategic priorities for dams and guidelines for good practice in assessing options and planning and implementing dam projects**

The main report of the World Commission on Dams provides guidance covering 26 advisory tools to support decision-making, presented under the sub-headings of the Commission's seven strategic priorities:

#### ***Strategic priority 1: Gaining public acceptance***

- 1 Stakeholder analysis
- 2 Negotiated decision-making processes
- 3 Free, prior and informed consent

***Strategic priority 2: Comprehensive options assessment***

- 4 Strategic impact assessment for environmental, social, health and cultural heritage issues
- 5 Project-level impact assessment for environmental, social, health and cultural heritage issues
- 6 Multi-criteria analysis
- 7 Life cycle assessment
- 8 Greenhouse gas emissions
- 9 Distributional analysis of projects
- 10 Valuation of social and environmental impacts
- 11 Improving economic risk assessment

***Strategic priority 3: Addressing existing dams***

- 12 Ensuring operating rules reflect social and environmental concerns
- 13 Improving reservoir operations

***Strategic priority 4: Sustaining rivers and livelihoods***

- 14 Baseline ecosystem surveys
- 15 Environmental flow assessment
- 16 Maintaining productive fisheries

***Strategic priority 5: Recognising entitlements and sharing benefits***

- 17 Baseline social conditions
- 18 Impoverishment risk analysis
- 19 Implementation of the mitigation, resettlement and development action plan
- 20 Project benefit-sharing mechanisms

***Strategic priority 6: Ensuring compliance***

- 21 Compliance plans
- 22 Independent review panels for social and environmental matters
- 23 Performance bonds
- 24 Trust funds
- 25 Integrity pacts

***Strategic priority 7: Sharing rivers for peace, development and security***

- 26 Procedures for shared rivers

Source: WCD (2000)

Where a dam emerges from this process as a preferred development alternative, three further critical decision points occur:

- Project preparation: verifying that agreements are in place before tender of the construction contract;
- Project implementation: confirming compliance before commissioning; and
- Project operation: adapting to changing contexts.

The Commission recognised that change is needed to implement its guidelines, such that:

- Planners identify stakeholders through a process that recognises rights and assesses risks;
- States invest more at an early stage to screen out inappropriate projects and facilitate integration across sectors within the context of the river basin;
- Consultants and agencies ensure outcomes from feasibility studies are socially and environmentally acceptable;
- Open and meaningful participation is promoted at all stages of planning and implementation, leading to negotiated outcomes;
- Developers accept accountability through contractual commitments for effectively mitigating social and environmental impacts;

- Compliance is improved through independent review;
- Dam owners apply lessons learned from past experiences through regular monitoring and adapting to changing needs and contexts.

### 11.3 The Mining, Minerals and Sustainable Development (MMSD) project

The Mining, Minerals and Sustainable Development (MMSD) project (2000-2002) was coordinated by the International Institute for Environment and Development under commission from the World Business Council for Sustainable Development (WBCSD) and on behalf of a group of the world's major mining companies. This initiative provided an in-depth review of the mining and minerals sector from the perspective of sustainable development, and arguably can be considered a global-scale sustainability assessment of this sector. In practice, because there is no one path to sustainable development, the project proposed a set of sustainable development principles and repeatedly tested all the activities along the minerals supply chain to determine how they stood up to the principles and other ideas about sustainable development. The process is outlined in Box 11.3)

#### Box 11.3: The MMSD process

MMSD had three main aims:

*To provide a means for surfacing ideas and information* through working and engaging with organisations and individuals from different regions of the world, including:

- A review of existing knowledge;
- Assimilation of submitted suggestions;
- Research by IIED;
- Four regional processes drawing, in turn, from contributions from researchers to produce regional reports;
- Commissioning 12 country baseline studies and over 100 expert studies

*To offer some opportunity to test those ideas with diverse, knowledgeable audiences*, through:

- Posting documents on a website (now housed at [www.iied.org](http://www.iied.org)) and asking for comments;
- Distributing bulletins on progress and soliciting responses from a database of over 5000 contacts;
- Informal conversations with individuals and organisations working in the field;

Responses received when emerging ideas were presented at meetings and conferences around the world;

- Regional consultations in a key mineral-producing and –consuming countries around the globe;
- National consultation processes in several countries;
- Peer review and comment on crucial pieces of background research;
- 23 global workshops on topics ranging from biological diversity and corruption to managing mineral wealth and indigenous concerns about mineral development; attended by 600-700 diverse stakeholders and interested parties;
- Close work with a 25-member Assurance Group consisting of people from a broad spectrum of backgrounds and perspectives;
- Wide publication of a draft report with an invitation to submit comments and criticisms;
- Four regional forums to discuss the draft report;

*To provide a ‘snapshot’ of where this evolution of ideas stood and what conclusions could be drawn*, through the final report.

Source: IIED/WBCSD (2002)

MMSD derived a framework based on the set of guiding principles. Reaching conclusions that are entirely consistent with current thinking about the needs and challenges of developing and implementing sustainable development strategies (OECD DAC 2001; Dala-Clayton & Bass 2002), the MMSD report notes that:

*“This requires that most decisions are based on multiple rather than single criteria. Choices, or trade-offs, are needed where a decision cannot satisfy all criteria simultaneously. But there is a need to maintain some limits with respect to parameters for trade-offs. This agenda assumes that there are some values subscribed to by all, such as basic human rights or honest justice systems, that cannot be cast aside. The idea of ‘critical natural capital’ should join this list once it has been more fully debated and is more widely understood.*

*Decision-makers have to operate within certain constraints. Different stakeholders emphasise different priorities: poverty alleviation and equity for those concerned with development; the ‘triple bottom line’ for industry; the integrity of ecosystems and their continued viability for environmentalists. To reach consensus through negotiation – especially for individuals such as the CEO of a company or the director of an NGO – is a demanding task. This is complicated by the fact that not all groups have the same level of economic power or influence. Time is another constraint: time is needed to build trust, to even out power differentials, to learn to understand different perspectives and identify commonalities”.*

(IIED/WBCSD 2002)

The report notes the, currently, the almost universal tool used at the early stage of any large mining or minerals processing project and many smaller ones is EIA. This is supplemented, on an ad hoc basis, by social impact assessments and a variety of kinds of appraisals, often in a poorly integrated framework. It argues that environmental and social assessment tools need to be combined to enable a transition to integrated impact assessment – a need that has been argued for over a decade (see, for example, Dala-Clayton 1992)

The MMSD report suggest that:

*“An integrated impact assessment should include all significant social, economic and environmental issues. It should be universal for new projects and include an early phase of consultation with the community to identify local concerns, and to design the assessment to ensure those concerns are addressed. It should include a community-level resource inventory and examine the whole spectrum of sustainable development issues in the project’s area of influence, in addition to those required by legislation. Such an assessment should become an inclusive, dynamic, ongoing process of integrating knowledge on potential impacts into decision-making and management practices. It should be endorsed by the local community and government, and entail independent monitoring of impacts. It could become the basis for developing effective communication with a community that will lead to development of a Community Sustainable Development Plan, The Seven Questions framework developed by MMSD North America provides a useful example of an integrated assessment framework that goes beyond ‘impacts’ [Box 11.4]”.*

### Box 11.4: MMSD North America's seven question framework

The MMSD North America regional process developed a framework of seven questions (effectively goal statements) to guide the assessment of whether or not a project or operation's net contribution to sustainability, throughout its entire life-cycle, is positive or negative over the long term:

1. **Engagement:** Are processes of engagement committed to, designed and implemented that:
  - ensure all affected communities of interest (including vulnerable or disadvantaged sub-populations by reason of, for example, minority status, gender, ethnicity or poverty) have the opportunity to participate in the decisions that influence their own future; and
  - are understood, agreed upon by implicated communities of interest, and consistent with the legal, institutional and cultural characteristics of the community and country where the project or operation is located?
2. **People:** Will the project/operation lead directly or indirectly to maintenance of people's well-being (preferably an improvement):
  - during the life of the project/operation; and
  - in post-closure?
3. **Environment:** Will the project or operation lead directly or indirectly to the maintenance and strengthening of the integrity of biophysical systems so that they can continue in post-closure to provide the needed support for the well-being of people and other life forms?
4. **Economy:** Is the financial health of the project/company assured, and will the project or operation contribute to the long-term viability of the local, regional and global economy in ways that will help ensure sufficiency for all and provide specific opportunities for the less advantaged?
5. **Traditional and non-market activities:** Will the project or operation contribute to the long-term viability of traditional and non-market activities in the implicated community and region?
6. **Institutional arrangements and governance:** Are the institutional arrangements and systems of governance in place that can provide certainty and confidence that:
  - the capacity of government, companies, communities and residents to address project or operation consequences is in place or will be built; and
  - this capacity will continue to evolve and exist through the full life-cycle including post-closure?
7. **Overall integrated assessment and continuous learning:** Has an overall evaluation been made and is a system in place for periodic re-evaluation based on:
  - consideration of all reasonable alternative configurations at the project level (including the no-go option in the initial evaluation);
  - consideration of all reasonable alternatives at the overarching strategic level for supplying the commodity and the services it provides for meeting society's needs;
  - a synthesis of all the factors raised in this list of questions, leading to an overall judgement that the contribution to people and ecosystems will be net positive over the long term?

The seven-part numbering is intended as an aid to communication and does not imply a particular sequence of steps or prioritisation of topics. Each of these questions is articulated in detail in a report by MMSD North America (IISD 2002). An ideal answer is offered and a hierarchy of objectives, indicators and specific measurements is suggested as a starting point for application. In this way, the single motivating question – is the net contribution positive or negative in the long term? – cascades down into progressively more detailed elements that can be tailored to the activity being considered and its own particular site-specific conditions. An example for the “environment” is provided in Table 10.1. The seven fundamental questions with the “ideal answers” and associated information matrix is intended to provide a framework to guide and highlight key considerations that must be fed into sustainability assessment. Some considerations deal with system components (eg people); some cut across all aspects of the system (eg engagement). Thus the framework is not a system model.

**Table 11.1: Example (environment) question , with hierarchy of objectives, indicators and measurements**

Question (goal)	Ideal answer (objective)	Example indicators	Example metrics
3. <i>Environment</i> : is the integrity of the environment assured over the long term?	The project or operation will led directly or indirectly to the maintenance or strengthening of the integrity of biophysical systems as indicated by:		
	<b>3.1</b> A reasonable degree of confidence on the part of all communities of interest that <i>ecosystem function, resilience and self-organising capacity</i> will be maintained or improved over the long term	<ul style="list-style-type: none"> <li>Projected long-term well-being of water systems and renewable resources in the area of the activity</li> </ul>	<ul style="list-style-type: none"> <li>Population effects of project or indicator species</li> </ul>
	<b>3.2</b> <i>Ecological entitlement</i>	(examples)	(examples)
	<b>3.3</b> <i>Full ecosystem costs, benefit and risks</i>	(examples)	(examples)
	<b>3.4</b> <i>Responsibilities and sureties</i>	(examples)	(examples)
	<b>3.5</b> <i>Environmental stress and action to ensure ecosystem integrity</i>	(examples)	(examples)

In applying the framework, values come into play and there is not necessarily a unique or “right” answer to the seven questions. Furthermore, in acting on the results of any assessment, a company, community or government will inevitably have to weigh certain trade-offs. In doing so, the rules governing such trade-offs, along with fair processes for their application, need to be established. However, the starting point for all of this is the identification of the considerations that are fed into the decision-making process. It is this starting point set of considerations that the framework offers, not the decision-making process itself.

The approach is offered as guidance to operators, owners, investors, insurers, communities, indigenous people, NGOs and others. Potential applications are seen as: early appraisal, planning, financing and insuring, licensing and approvals, internal corporate reviews, corporate reporting, and external reviews.

The questions are intended to be applied against any set of facilities and activities comprising an individual project or operation (existing or proposed): exploration, mining, milling, smelting, refining, or primary metals manufacturing, fabrication or recycling. The spatial scale for application in any case will be governed by the “reach” of site-specific implications as they ripple out into human society and the environment. The full project life-cycle sets the time horizon from exploration through to post-closure. Operations of all sizes are targeted. Pilot tests of the proposed framework have yet to be carried out.

Source: IISD (2002)