Environment and the OECD Guidelines for Multinational Enterprises

CORPORATE TOOLS AND APPROACHES



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INSTRUMENTS ET MÉTHODES POUR LES ENTREPRISES

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FOREWORD

This report has been produced as part of the work programme of the OECD Environment Policy Committee and OECD Investment Committee. Drafts have been reviewed and discussed in multi-stakeholder consultations involving representatives from governments, business, trade unions, civil society, academia and other international organisations. The process included key events such as a Workshop on Sustainable Development, Environment and the OECD Guidelines for Multinational Enterprises in Johannesburg (November 2003) and an Expert Meeting in Paris (February 2004).

The report served as background to the Roundtable on Corporate Responsibility entitled "Encouraging the Positive Contribution of Business to the Environment", which was held in Paris (June 2004) in conjunction with the annual meeting of the National Contact Points for the Guidelines. A summary of the Roundtable discussions can be found in the *Annual Report on the Guidelines for Multinational Enterprises, 2004.*

This report is based on material produced by Peter Börkey and Cristina Tébar Less (Environment Directorate) and Hans Christiansen (Directorate for Financial and Enterprise Affairs). Monica Araya, Jane Earley, Kevin Grey, and Lyuba Zarsky, acting in a consultant capacity, provided the initial drafts of the second part of the report. Germany and Finland provided financial support for the project.

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PREFACE

Protecting and preserving the environment is central to achieving sustainable development and creating a better world for all today and for future generations. At the 2002 World Summit for Sustainable Development in Johannesburg, Heads of State and Government agreed on the need to promote corporate responsibility and accountability in the field of the environment. Further promotion of the OECD Guidelines for Multinational Enterprises figures among the most promising avenues for OECD to follow up on the Johannesburg Summit.

The OECD Guidelines for Multinational Enterprises, revised in 2000, express the shared values of the countries that have adhered to them. This includes all 30 OECD members and, to date, 9 non-member countries. The adhering countries are the source of most of the world's foreign direct investment and are home to most of the major multinational enterprises. Many codes of responsible business conduct are available. The Guidelines stand out amongst them as the only multilaterally endorsed and comprehensive code that governments are committed to promoting. This makes them one of the world's foremost corporate responsibility instruments.

Environment figures prominently in the Guidelines and one chapter is specifically dedicated to enterprises' environmental performance. It broadly reflects the principles and objectives contained in the Rio Declaration on Environment and Development and in Agenda 21.

The aim of this report is to assist enterprises, governments and members of civil society in using the Guidelines to address corporate environmental performance. It provides detailed information about the tools and approaches that are available to companies wishing to implement the Guidelines and enhance their environmental performance.

The report is the result of a joint undertaking by the OECD Environment Policy Committee and the OECD Investment Committee in 2003 and 2004. It serves as a demonstration of the "whole-of-government" approach to policy making that is being increasingly pursued by countries adhering to the Guidelines. We are pleased to have presided over a constructive and co-operative project between the OECD environment and investment policy communities to promote the Guidelines and their contribution to environmental protection.





Mr Mats Olsson
Chair
Environment Policy Committee

Mr Manfred Schekulin
Chair
Investment Committee

EXECUTIVE SUMMARY

Environment and the OECD Guidelines for Multinational Enterprises

Sound environmental management is an important contribution to sustainable development, and it is increasingly seen as both a business responsibility and a business opportunity. Multinational enterprises have a role to play in both respects. The OECD Guidelines for Multinational Enterprises recommend that managers of enterprises give appropriate attention to environmental issues in their business strategies and day-to-day operations. The Guidelines are recognised as one of the world's foremost corporate voluntary codes of conduct. Their ten chapters cover a broad range of corporate activities, several of which are relevant to companies' environmental performance. One of the chapters deals specifically with environmental issues.

The Environment Chapter of the Guidelines encourages multinational enterprises to raise their environmental performance by improving internal environmental management practices and seeking continuous environmental improvements. These can be achieved through a range of tools and approaches relating to environmental management, such as engaging in public information and stakeholder consultation; assessing environmental impacts through the whole life cycle of processes; acting with precaution; providing for contingency planning; ensuring environmental training and contributing to the development of environmental policy.

Enhancing the environmental performance of enterprises: corporate tools and approaches

Environmental management systems

Environmental management systems (EMS) provide an internal framework to enable enterprises to control their environmental impacts and integrate environmental considerations into business operations. They can help improve enterprises' environmental and business performance, increase market access, and improve communication with stakeholders. Some companies choose to implement an externally certified EMS, such as ISO 14001 or the EU's Eco-Management and Audit Scheme (EMAS). Other options are performance-based EMS or sectoral EMS, such as the chemical industry's Responsible Care programme. Further tools contributing to sound environmental management are environmental management accounting, and cleaner

production or eco-efficiency processes. Environmental benchmarking and indicators may assist enterprises in measuring improvements in their environmental performance.

Public information and stakeholder consultation

Collecting and providing information about the activities of enterprises and associated environmental impacts is an integral part of good environmental management and an important vehicle for building public confidence. This is most effective when information is provided in a transparent manner and accompanied by active consultation with stakeholders, promoting a general climate of mutual trust and understanding. One of the fundamental questions facing corporate decision-makers is whether to disseminate information regarding their enterprise's environmental performance as a whole, or about the environmental impact of individual products and activities. So far, no standard for information dissemination has won common acceptance, but a range of tools exist to guide enterprises wishing to communicate with the public on the environmental aspects of their activities. These include sustainability and environmental reporting, eco-labels, direct communications with stakeholders and partnerships.

Life cycle assessment

Environmental life-cycle assessment is a tool for systematic evaluation of the environmental aspects of a product or service through its entire life-cycle. Life-cycle assessment starts with life-cycle thinking — an understanding that the environmental impacts of the entire life -cycle of products and services need to be addressed. A product's life-cycle starts when raw materials are extracted, followed by manufacturing, transport and use, and ends with waste management including recycling and final disposal. Key elements of corporate strategies that implement this approach are *benchmarks,* which include comparing alternatives both within a company and among competitors; identifying suppliers which act consistently with company strategies; research and development, and training. Some of the best known tools to implement a life-cycle assessment are ISO 14040, UNEP's Life-Cycle Initiative, and Design for Environment.

Precaution

Precaution can be described as anticipating environmental harm by taking measures, as appropriate, to avoid it, or by choosing the least environmentally harmful activity. This notion of precaution is based upon the assumption that in certain cases scientific certainty, to the extent it is obtainable with regard to environmental issues, may be achieved too late to provide effective responses to environmental threats. The basic premise of the Guidelines is that enterprises should act as soon as possible, and in a proactive way, to avoid serious or irreversible environmental damage resulting from their activities. For enterprises, precaution is in part a function of how they operate in an everyday setting, and in part how they implement national regulatory requirements. Risk analysis plays an important role in the decision-making process, particularly in

situations of scientific uncertainty, and is an integral part of many companies' business. Risk analysis is a process consisting of three components: risk assessment, risk management and risk communication. A range of tools are available to enterprises to put these in practice, including environmental impact assessment, life-cycle assessment, environmental management systems, environmental audits and corporate reporting.

Emergency prevention, preparedness and response

The three core components of emergency management include *prevention* (minimising the likelihood that an accident will occur), *preparedness and mitigation* (mitigating the consequences of accidents through emergency planning and risk communication), and r*esponse* (limiting adverse consequences to health, environment and property in the event of an accident). As the case for corporate transparency gains ground, corporate environmental, health and safety reports increasingly include information about community involvement in environmental and emergency management. One of the objectives of contingency plans is also to ensure workers' health and safety in emergency situations. Available tools include ISO 14001, which provides general guidance on measures to take in cases of emergency or accidents; the ILO Guidelines on occupational safety and health management systems (ILO-OSH 2001) as well as sector-specific codes and guidelines, such as the OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response.

Continuous improvements in environmental performance

Multinational enterprises are continually adapting themselves to a changing socio-economic environment. This applies to all corporate activities and related environmental management tools. For example, in a departure from previous "end-of-pipe" approaches to limiting pollution, companies have implemented more efficient preventive environmental techniques, affecting the different stages of their value chains. Improved brand and corporate reputation, risk reduction, improved access to finance, and value creation (i.e. development of "green products" for which a price premium can be obtained) are among the key considerations that motivate businesses in their efforts to improve environmental performance. The OECD Guidelines address four categories of environmental improvements: process-related improvements, product-related improvements, consumer awareness, and research and development. A large range of tools and approaches are available to enterprises wishing to improve their performance, including environmental management accounting, life-cycle assessment and product stewardship.

Environmental education and training

Training plays an important role in raising environmental performance of enterprises, by improving staff awareness about conformance with requirements of environmental management systems, their roles and responsibilities, and the environmental impacts of the enterprises' activities. Enterprises provide

environmentally-related training to achieve two general objectives: to promote environmental health and safety and to implement environmental management systems. Under environmental and occupational health and safety regulations in most countries, employers must train their staff with the purpose of protecting their health and safety, as well as that of the local community. Training activities that relate to more general environmental management aspects are mostly voluntary and focus on achieving both internal environmental goals and compliance with environmental legislation. Training activities can also be offered to business partners such as suppliers, sub-contractors and contractors, so as to facilitate environmental improvement throughout the supply chain.

Contributing to the development of environmental policy

Partnerships between various stakeholders have become an integral part of the policy-making process and contribute to developing sound public policy from both economic and environmental standpoints. The involvement of all stakeholders in policy discussions reduces the risk that some problems go unanticipated by regulators. By involving the business sector, policy-makers and regulators are better able to design policies to reflect business realities. Conversely, policy changes without consultations with enterprises may lead to unsatisfactory results, insofar as companies may have little scope and incentive to go beyond minimum requirements. Involving enterprises in policy discussions also allows policy-makers to apprise themselves of new technologies, and the feasibility of the changes that may be needed to achieve compliance. Enterprises can contribute to the development of environmental policies in numerous ways, for example, through participation in national and international consultation processes, partnerships with government and local authorities, and co-operative approaches among enterprises.

PART I: THE GUIDELINES AND THEIR ENVIRONMENTAL COMPONENTS

Introduction to the OECD Guidelines for Multinational Enterprises

The OECD Guidelines for Multinational Enterprises ("the Guidelines") contain voluntary principles and standards for responsible business conduct in areas such as human rights, disclosure of information, anti-corruption, taxation, labour relations, environment, and consumer protection. They aim to promote the positive contributions multinational enterprises can make to economic, environmental and social progress. The contents of the Guidelines are summarised in Box 1.[1]

The Guidelines express the shared values of the 39 countries that have adhered to them — the 30 OECD members and nine non-member countries.[2] The adhering countries are the source of most of the world's foreign direct investment and are home to most major multinational enterprises. Although many business codes of conduct are now publicly available, the Guidelines are the only multilaterally endorsed and comprehensive code that governments are committed to promoting. This makes the Guidelines one of the world's foremost corporate responsibility instruments.

The Guidelines are part of a broader and balanced instrument of rights and commitments — the OECD Declaration on International Investment and Multinational Enterprises. The Declaration promotes a comprehensive, interlinked and balanced approach for governments' treatment of foreign direct investment and for enterprises' activities in adhering countries. The OECD instruments on international investment and multinational enterprises are one of the main means by which the OECD assists adhering countries in working towards a liberal regime for foreign direct investment, while at the same time ensuring that multinational enterprises operate in harmony with the countries in which their facilities are located.

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1 The full text of the Guidelines is reproduced in Annex I. It can also be found at www.oecd.org/daf/investment/guidelines.

2 As of March 2005, the nine non-member adherents are Argentina, Brazil, Chile, Estonia, Israel, Latvia, Lithuania, Slovenia and Romania.

Box 1. What the OECD Guidelines for Multinational Enterprises recommend

The Preface situates the Guidelines in a globalising world. The common aim of the governments adhering to the Guidelines is to encourage the positive contributions that multinational enterprises can make to economic, environmental and social progress, and to minimise the difficulties to which their various operations may give rise.

I. Concepts and Principles*:* sets out the principles that underlie the Guidelines, such as their voluntary character, their worldwide application and the fact that they reflect good practice for all enterprises.

II. General Policies*:* contains the first specific recommendations, including provisions on human rights, sustainable development, supply chain responsibility and local capacity building, and more generally calls on enterprises to take full account of established policies in the countries in which they operate.

III. Disclosure*:* recommends disclosure on all material matters regarding the enterprise, such as its performance and ownership, and encourages communication in areas where reporting standards are still emerging, such as social, environmental and risk reporting.

IV. Employment and Industrial Relations*:* addresses major aspects of corporate behaviour in this area, including child and forced labour, non-discrimination and the right to *bona fide* employee representation and constructive negotiations.

V. Environment*:* encourages enterprises to raise their performance in protecting the environment, including that with respect to health and safety impacts. Features of this chapter include recommendations concerning environmental management systems and the desirability of precaution where there are threats of serious damage to the environment.

VI. Combating Bribery*:* covers both public and private bribery, and addresses passive and active corruption.

VII. Consumer Interests*:* recommends that enterprises, when dealing with consumers, act in accordance with fair business, marketing and advertising practices, respect consumer privacy, and take all reasonable steps to ensure the safety and quality of goods or services provided.

VIII. Science and Technology*:* aims to promote the diffusion by multinational enterprises of the fruits of research and development activities among the countries where they operate, thereby contributing to the innovative capacities of host countries.

IX. Competition*:* emphasises the importance of an open and competitive business climate.

X. Taxation*:* calls on enterprises to respect both the letter and spirit of tax laws, and to co-operate with tax authorities.

Box 2. The Declaration on International Investment and Multinational Enterprises

The Declaration on International Investment and Multinational Enterprises comprises four instruments for international co-operation:

- The **Guidelines for Multinational Enterprises** are a multilaterally endorsed non-binding code of corporate conduct addressed to multinational enterprises.
- Under the **National Treatment** instrument, adhering countries commit themselves to treating foreign-controlled enterprises operating in their territories no less favourably than domestic enterprises in like situations.
- An instrument on **Conflicting Requirements** calls on adhering countries to avoid or minimise conflicting requirements imposed on multinational enterprises by governments of different countries.
- An instrument on **International Investment Incentives and Disincentives** provides for efforts among adhering countries to improve co-operation on measures affecting international direct investment.

To whom do the Guidelines apply?

The recommendations in the Guidelines are addressed to multinational enterprises operating in or from adhering countries. Governments adhering to the Guidelines encourage enterprises operating in their territories to observe the Guidelines, wherever they operate, while taking into account the particular circumstances of each host country.

The Guidelines' recommendations are also addressed to all the entities within the multinational enterprise - parent companies and/or local entities. Although the Guidelines acknowledge that small- and medium-sized enterprises may not have the same capacities as larger enterprises, governments adhering to the Guidelines nevertheless also encourage them to observe the Guidelines' recommendations to the fullest extent possible.

The Guidelines are not aimed at introducing differences of treatment between multinational and domestic enterprises; they are intended to reflect good practice for all. Accordingly, multinational and domestic enterprises are subject to the same expectations in respect of their conduct wherever the Guidelines are relevant for both.

How are the Guidelines implemented?

Thirty-nine National Contact Points (NCPs) — often government offices[3] — are responsible for encouraging observance of the Guidelines in the national context and for ensuring that the Guidelines are well known and understood by the national business community and other interested parties. The NCPs promote the Guidelines; handle enquiries about them; assist in solving problems that may arise; gather information on national experiences with the Guidelines; and report annually to the OECD Investment Committee (previously the Committee on International Investment and Multinational Enterprises, CIME). The NCPs meet annually to exchange experiences and discuss how best to implement the Guidelines.

The Guidelines procedures provide for "specific instances," a facility that allows interested parties to call a company's alleged non-observance of the Guidelines' recommendations to the attention of an NCP. The NCPs offer a forum for discussion, and assist the business community, employee organisations and other interested parties to deal with the issues raised in an efficient and timely manner and in accordance with applicable law. Information about the action a NCP may undertake is included in the Implementation Procedures of the Guidelines[4].

The Investment Committee is the OECD body responsible for overseeing the functioning of the Guidelines and it is expected to take steps to enhance their effectiveness. It can also issue clarifications on the application of the Guidelines in specific circumstances. As the Guidelines are addressed to enterprises, business and labour input is especially important. The Investment Committee regularly consults with the OECD's business and labour advisory committees — the Business and Industry Advisory Committee (BIAC) and the Trade Union Advisory Committee (TUAC) — and NGOs on matters relating to the Guidelines and on other issues concerning international investment and multinational enterprises.

Specific environmental provisions: Chapter V

As mentioned above, Chapter V of the Guidelines is dedicated to enterprises' environmental performance. The text of this "Environment Chapter" of the Guidelines broadly reflects the principles and objectives contained in the Rio Declaration on Environment and Development and in Agenda 21. It also takes into account the Aarhus Convention on Access to Information, Public Participation in Decision-making, and

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3 There are four types of NCP structure presently in use: single government office, multi-departmental government office, tripartite body (typically involving government, trade unions and employer organisations) and quadripartite body (same as tripartite plus civil society organisations). A number of NCPs involve NGOs and other stakeholders in their work—for example, through their structure, or via an advisory committee.

4 The text can be found in the Annual Reports on the OECD Guidelines for Multinational Enterprises and at www.oecd.org/daf/investment/guidelines.

Access to Justice in Environmental Matters and reflects standards contained in instruments such as the ISO Standard on Environmental and Management Systems.

The Environment Chapter of the Guidelines: the full text

Enterprises should, within the framework of laws, regulations and administrative practices in the countries in which they operate, and in consideration of relevant international agreements, principles, objectives, and standards, take due account of the need to protect the environment, public health and safety, and generally to conduct their activities in a manner contributing to the wider goal of sustainable development. In particular, enterprises should:

1. Establish and maintain a system of environmental management appropriate to the enterprise, including:

1. *Collection and evaluation of adequate and timely information regarding the environmental, health and safety impacts of their activities;*
2. *Establishment of measurable objectives and, where appropriate, targets for improved environmental performance, including periodically reviewing the continuing relevance of these objectives; and*
3. *Regular monitoring and verification of progress toward environmental, health and safety objectives or targets.*

2. Taking into account concerns about cost, business confidentiality, and the protection of intellectual property rights:

1. *Provide the public and employees with adequate and timely information on the potential environment, health and safety impacts of the activities of the enterprise, which could include reporting on progress in improving environmental performance; and*
2. *Engage in adequate and timely communication and consultation with the communities directly affected by the environmental, health and safety policies of the enterprise and by their implementation.*

3. Assess, and address in decision-making, the foreseeable environmental, health, and safety-related impacts associated with the processes, goods and services of the enterprise over their full life cycle. Where these proposed activities may have significant environmental, health, or safety impacts, and where they are subject to a decision of a competent authority, prepare an appropriate environmental impact assessment.

4. Consistent with the scientific and technical understanding of the risks, where there are threats of serious damage to the environment, taking also into account human health and safety, not use the lack of

full scientific certainty as a reason for postponing cost-effective measures to prevent or minimise such damage.

5. Maintain contingency plans for preventing, mitigating, and controlling serious environmental and health damage from their operations, including accidents and emergencies; and mechanisms for immediate reporting to the competent authorities.

6. Continually seek to improve corporate environmental performance, by encouraging, where appropriate, such activities as:

1. *Adoption of technologies and operating procedures in all parts of the enterprise that reflect standards concerning environmental performance in the best performing part of the enterprise;*
2. *Development and provision of products or services that have no undue environmental impacts; are safe in their intended use; are efficient in their consumption of energy and natural resources; can be reused, recycled, or disposed of safely;*
3. *Promoting higher levels of awareness among customers of the environmental implications of using the products and services of the enterprise; and*
4. *Research on ways of improving the environmental performance of the enterprise over the longer term.*

7. Provide adequate education and training to employees in environmental health and safety matters, including the handling of hazardous materials and the prevention of environmental accidents, as well as more general environmental management areas, such as environmental impact assessment procedures, public relations, and environmental technologies.

8. Contribute to the development of environmentally meaningful and economically efficient public policy, for example, by means of partnerships or initiatives that will enhance environmental awareness and protection.

The eight points of the Environment Chapter of the Guidelines are discussed individually in Part II of this report. However, certain Guidelines provisions of interest to companies that seek to enhance their environmental performance are found outside the Environment Chapter. An overview of these provisions is provided in Annex II of this report.

PART II: AVAILABLE TOOLS AND CORPORATE APPROACHES

This part of the report lists a large number of environmental "tools" that can be helpful to enterprises wishing to implement the OECD Guidelines for Multinational Enterprises. However, it should not be read to indicate that enterprises need to employ some or all of these tools in order to be considered as having implemented the Guidelines. Nor does it mean to imply that enterprises that do employ these tools necessarily operate in a manner that is consistent with the Guidelines.

Company examples are quoted by ways of an illustration of some of the main topical areas. The information is in most cases provided by the companies themselves. The examples should not be interpreted as "best practices", and should be read without prejudice to companies' position *vis-à-vis* the Guidelines.

1. ENVIRONMENTAL MANAGEMENT SYSTEMS

Chapter V, Point 1:

[Enterprises should]

Establish and maintain a system of environmental management appropriate to the enterprise, including:

1. *Collection and evaluation of adequate and timely information regarding the environmental, health, and safety impacts of their activities;*
2. *Establishment of measurable objectives and, where appropriate, targets for improved environmental performance, including periodically reviewing the continuing relevance of these objectives; and*
3. *Regular monitoring and verification of progress toward environmental, health, and safety objectives or targets.*

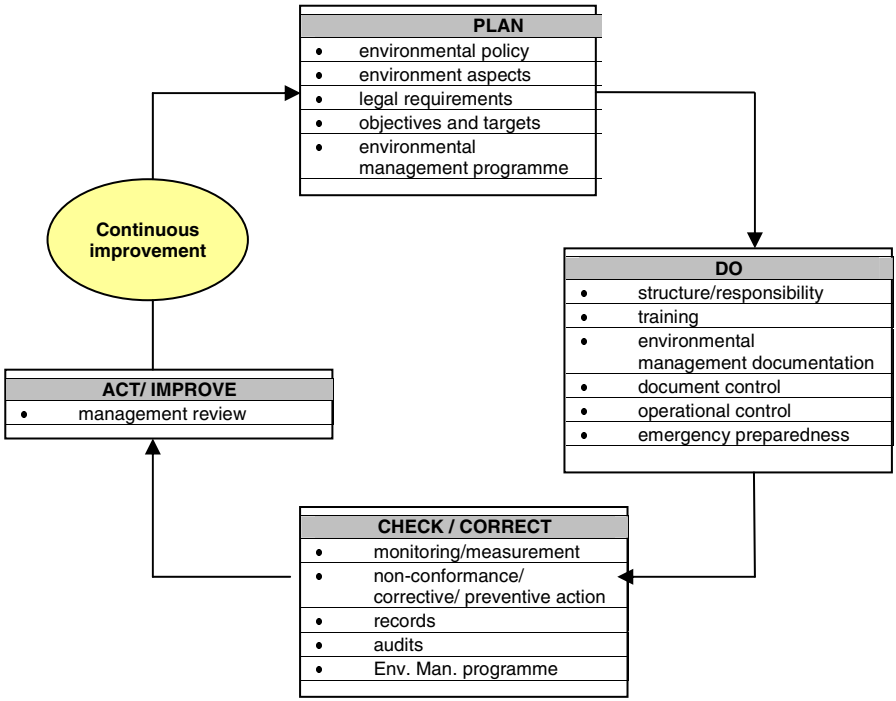
According to the Commentary to the Guidelines "… an environmental management system provides the internal framework necessary to control an enterprise's environmental impacts and to integrate environmental considerations into business operations. Having such a system in place should help to assure stockholders, employees and the community that the enterprise is actively working to protect the environment from the impacts of its activities.

In addition to improving environmental performance, instituting an environmental management system can provide economic benefits to companies through reduced operating and insurance costs, improved energy and resource conservation, reduced compliance and liability charges, improved access to capital, improved customer satisfaction, and improved community and public relations…"

The aim of an environmental management system (EMS) is to help an organisation "achieve its environmental goals through consistent control of its operations, just as internal accounting controls provide intrinsic assurances that financial management systems are functioning well" (US EPA, www.epa.gov). Enterprises that adopt an EMS do so for a variety of reasons. Whatever the specific goals, the assumption behind the implementation of an EMS is that better environmental management will improve overall business performance.

An EMS is not based on the adoption of uniform substantive standards or benchmarks. Rather, each organisation tailors the starting point, design and content of its EMS to serve its own aspirations, business goals, capacities and experience. Consequently, there is no generally accepted standard for what an EMS should aspire to achieve. According to the United Nations Environment Programme (UNEP), EMS is "a problem-identification and problem-solving tool, based on the concept of continual improvement that can be implemented in an organisation in many different ways, depending on the sector of activity and the needs perceived by management" (www.unep.org).

Figure 1. The EMS Method: Plan-Do-Check-Act-Improve



Source: UNEP, Department of Trade, Industry and Economics, Production and Consumption Branch, www.unep.org.

UNEP identifies five key elements in an EMS, often referred to as "Plan-Do-Check-Act-Improve" (See Figure 1).

- Undertake an initial *environmental review*.
- Define an *environmental policy*.
- Develop an environmental *action plan* and define environmental *responsibilities*.

- Develop internal information and *training* courses.
- *Audit* the environmental management system and conduct an environmental management *review*.

Efforts to put in place an EMS are relevant to most other recommendations of the Environment Chapter of the Guidelines, all of which deal with specific aspects of sound environmental management. For example, collecting and evaluating adequate and timely information regarding the environmental, health and safety impacts of an enterprise's activity are prerequisites to providing its employees and the public with such information (Chapter V, point 2 of the Guidelines). Collecting and evaluating this information is also essential if an enterprise seeks to assess and address the foreseeable environmental, health and safety-related impacts of production processes over their life-cycle (point 3). Similarly, monitoring and verifying progress toward environmental, health and safety aspects is closely associated with the objective of continually seeking to improve corporate environmental performance (point 6). This chapter deals with the general aspects of environmental management, whereas the more specific aspects will be dealt with in the following chapters.

Challenges and opportunities

The effective implementation of an EMS entails substantial company commitment of financial and human resources. Organisations embarking on such a course will therefore normally want to reap concrete benefits. Companies are generally motivated to implement an EMS by one or more of the following objectives:

- *Improving environmental performance.* Enterprises may implement an EMS in order to improve their environmental performance, either by coming into, or going beyond compliance with existing government regulations. An EMS provides a framework to identify and manage compliance with all relevant government regulation. In OECD countries, and increasingly in developing countries, companies are subject to a complex array of national, provincial, state, and local environmental regulations. An EMS can also be implemented to improve environmental performance "beyond compliance" for reasons internal to the company, such as adhering to environmental codes of conduct or improving stakeholder relations.

- *Improved business performance.* Like any management tool, the adoption of an EMS supports better overall business management, including improvements in operational efficiency and productivity through waste minimisation and pollution prevention; a reduction in the number of accidents, spills, etc.; reduced costs of clean-up; and reduced liability. The Global Environment Management Initiative (GEMI), a non-profit organisation whose members include large US-based MNEs, stresses that "internal value" is the primary benefit of implementing an EMS (www.gemi.org). Improved business performance also has a long-term dimension. An EMS can lead to

the search for new environment-related technologies, which may increase profitability via "front-runner" benefits.

- *Gaining market access.* Some companies have chosen to implement an EMS (especially one verified by a certified third party), in order to enhance their access to a particular market where enterprises are expected to operate according to certain environmental standards. In addition, a growing number of large MNEs require their suppliers to have a certified EMS, thus providing the suppliers with a strong incentive to act.

- *Signalling and communicating with stakeholders.* An EMS can be used to deliver "external value" by communicating with stakeholders, including customers, clients, investors, and advocacy non-governmental organisations (NGOs). A signal of commitment to good environmental performance can help to gain reputational benefits for an enterprise. Moreover, an EMS provides data for sustainability or environmental reporting, as well as for responding to stakeholder requests for information. It can be the basis for engaging stakeholders in fruitful discussions of objectives and targets, and of the best ways to attain them. It can also be used to improve enterprise relationships with government regulators, providing assurance that a company is making a serious effort to meet compliance obligations or to go beyond them. In some countries, companies may even qualify for regulatory relief on the basis of adoption of an EMS (US EPA, www.epa.gov).

Companies may face a number of challenges when planning to implement or put in place an EMS. These may include:

- *Perception of an EMS as a cost centre, rather than a revenue-enhancer.* Managers and employees may consider environmental costs to be external, rather than internal, to the company, and may therefore consider environmental management as a net cost.

- *Proliferation of tools.* At present, there is a variety of EMS models. In addition, the environment ministries of most developed countries, as well as many state or provincial level environment departments, have developed new tools or modified existing ones relevant to EMS. Many business consulting companies have also been active in this field. While experimentation and tailoring play a vital role in developing more effective tools, decisions about which tools to use and how to use them can be bewildering for managers.

- *Management and employee inertia, inexperience and company culture.* Another obstacle is the concern and uncertainty that is created among managers when switching to new and unfamiliar technology. The implementation of an EMS is an innovation in business management; like all innovations, it can be slowed by organisational inertia and inexperience. A positive company "learning culture" can be of major help: some companies

are more adaptable and more able to innovate than others. The structure of management responsibilities can also play a role — not least the degree to which the responsibility for the EMS is integrated with other core enterprise objectives. A related problem is employee apathy. While top management commitment is essential for the success of corporate environmental strategies, employee involvement in — and enthusiasm about — environmental initiatives plays a significant role in their implementation. One mechanism is to create financial incentives for directors of companies' environmental departments.

Case study: Engaging employees in better environmental management

Amanco (a privately owned corporation that is part of the Grupo Nueva and operates in 16 Latin American countries and in the US) produces and markets pipe and construction systems.

Amanco developed a "Program for Participatory Management", inviting employees to offer suggestions to reduce internal waste, thus stimulating creativity to solve problems. As a reward, 5% of any monthly savings is given to the employee who proposed the idea, and 10% to the group that implemented it. If required, the company offers technical support to implement suggestions, but managers and coordinators receive no extra payment. As an extra incentive, all those who offered ideas that did not result in savings participate every six months in a raffle for an extra payment.

The participatory approach has been implemented in Brazil with positive results. The champion since 1995 has been an employee working as a production operator in the fittings plant: some 18 of his 38 suggestions have been implemented, allowing for monthly savings of more than USD 10 000. In 2001, Amanco received 362 suggestions, achieved savings of some USD 130 000 with an investment of USD 50 000, and gave USD 6 000 as awards to employees and USD 11 000 to implementation groups. Thanks to this programme, the company has implemented more than 3 000 ideas since 1995, invested circa USD 140 000, and generated savings of around USD 600 000.

Source: Amanco, www.amanco.com.

- *Isolation of environmental departments from the rest of the company*. Implementing an EMS often requires overcoming the traditional compartmentalisation of the environmental management unit — what some companies call the Environmental, Health and Safety Department. To achieve further environmental improvements, environmental managers have to influence other departments, which requires them to better communicate with other colleagues in procurement and manufacturing departments, which are often familiar with incorporating environmental considerations in their work.

- *Harmonising internal practices*: Once a company has an EMS in place to promote environmental improvements, how does it achieve harmonisation of the existing practices at international level, in often geographically

disconnected plants? The search for consistency across facilities is particularly relevant at a time when webs of stakeholders — e.g., environmental groups, consumers, socially responsible investment funds, and community leaders — expect multinational enterprises to behave consistently across their international operations. Moreover, diffusing good practices for environmental improvements also makes business sense since it avoids the "re-invention of the wheel" — managers may benefit from reproducing already developed solutions.

Case Study: Involving other company departments in an EMS

Since 1991 Baxter International Inc., a pharmaceutical company, has developed environmental programmes. These have paid off financially; as of 2002, the company's energy savings programme has achieved an estimated savings and cost avoidance of approximately USD 4.3 million.

To achieve further improvements, the environmental department proposed the integration of environmental criteria into procurement (e.g., purchasing materials for production). Initially, this proposal was challenging: the purchasing department was unfamiliar with, and sceptical about, applying sustainability concepts to every-day procurement activities. Traditionally, procurement departments emphasise cost reduction, not environmental goals, and were cautious about sharing their turf with "outsiders" — the environmental managers. To overcome this obstacle, the latter sought for ways to communicate with their procurement colleagues. For example, a senior environmental manager demonstrated that the purchase of the cheapest (environmentally-inefficient) bulbs was expensive in the long run. Instead, the company would save USD 50 million by switching to the most energy-efficient bulbs (which initially cost more than cheap bulbs).

As a result, Baxter has now a pilot project with suppliers in Puerto Rico that will test waste reduction opportunities in collaboration with procurement, research and development, manufacturing, and operations. Baxter has held workshops with major suppliers to promote waste-reduction opportunities. Some suppliers have already improved their environmental performance. If successful, the pilot project will be used in other applications within the company.

Source: Baxter, www.baxter.com.

Tools and approaches

As discussed above, companies decide to implement an EMS for a variety of reasons, and choose the type of EMS that corresponds to their needs, aspirations, and capacities. In doing so they need to think about the ways in which they wish to imbed their EMS within overall corporate strategies and how to link it with other management support tools that they have in place. An EMS that is not supported by appropriate corporate governance is unlikely to have a significant impact. For example, the responsibility for corporate environmental policies needs to be placed with managers who have both the resources and the authority to make an impact throughout the company. Also, when environmental management systems are broadly consistent with

other management tools used by an enterprises, important synergies can be reaped.[5] The point about integration has wider implications; a fully integrated EMS will often be functionally equivalent with the case where an EMS-free company incorporates a full range of environmental objectives into its overall corporate strategy.

There is no "one-size-fits-all" approach to environmental management, and companies have a plethora of operationally distinct types of EMS from which to choose. In practice, most EMS have been classified according to two broad categories: "externally certified" and "performance driven". The former are designed *inter alia* to comply with certification requirements. The latter are tailored to fit the specific operational requirements of the company, typically with the specific purpose of giving it a competitive edge. Sector-specific EMS are also emerging as a way to further drive performance gains by addressing specific industry environmental impacts. The following section provides examples of each of these categories.

Externally certified EMS

ISO 14001

More than 60% of European and Asian/Pacific companies and more than 40% of North American companies listed in the FTSE All-World Developed Index have adopted an EMS. Of these about 65% are externally certified, with ISO 14001 accounting for the vast majority of the certifications (OECD, 2004).

ISO 14001 is the main international standard for the design and content of an EMS. Developed under the auspices of the International Organization for Standardization (ISO), the standard was negotiated in the early 1990s and finalised in 1996. It is part of the ISO 14000 family of standards, a set of generic tools for developing, implementing, maintaining and evaluating environmental policies and objectives. The family contains standards for environmental management systems, environmental auditing, environmental performance, evaluation, environmental labelling and life cycle assessment (ISO, 1996).

ISO 14001 requires that an organisation put in place and implement a series of practices and procedures that, when taken together, result in an environmental management system[6]. The major requirements for an EMS to be certified under ISO 14001 include (ISO, 2002):

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5 The study "*An Overview of Corporate Environmental Management Practices*", which was published as part of the 2004 Annual Report on the OECD Guidelines for Multinational Enterprises (OECD, 2004), provides examples of the integration of EMS into corporate strategies.

6 ISO 14001 does not cover occupational health and safety impacts and aspects.

- Policy statement. A publicly available environmental policy statement must be generated by senior management that includes commitments to: prevent pollution, continually improve the EMS and comply with all applicable statutes and regulations. The environmental policy should be "appropriate to the nature, scale, and environmental impacts" of the organisation's "activities, products, or services".

- *Information system.* Identification of all aspects of the organisation's activities, products, and services that could have a significant impact on the environment, including those that are not regulated.

- *Objectives and targets.* Documented performance objectives and targets must be set that are linked to the commitments in the policy statement (i.e. pollution prevention, continuous improvement and regulatory compliance).

- *Implementation programme.* An environmental management programme should demonstrate how the EMS will be implemented to meet the stated objectives and targets. This includes training of employees, establishing work instructions and practices, as well as establishing the actual metrics by which the objectives and targets will be measured.

- *Monitoring programme.* A programme is required to periodically audit the operation of the EMS.

- *Corrective action.* Checking and taking corrective and preventive actions when deviations from the EMS occur, including periodically evaluating the organisation's compliance with applicable regulatory requirements.

- *Review.* Top management must undertake periodic reviews of the EMS and make necessary adjustments to ensure that it promotes performance goals.

In addition to ISO 14001, the ISO 14000 series provides guidance on a broad range of environmental management issues. However, ISO 14001 is the only one of this series against which it is possible to achieve registration by an external certification body. These bodies are established at a national level, according to national auditing standards. External certification has made ISO 14001 the tool of choice by enterprises whose objective is to use an EMS for market access or as a stakeholder-signalling device, including signalling to regulatory bodies.

Despite its growing acceptance, ISO 14001 has been criticised for what has been described as "structural weaknesses". A 2001 study conducted by the US National Academy of Public Administration identified the main problem as "variations in interpretation and professional norms" in the registration and auditing process. For example: "…some registrars and auditors believe that they should add value by communicating with clients about best practices observed elsewhere or by pointing out

areas for improvement. Others state that the audit process adds sufficient and appropriate value. Still other auditors believe that they should merely approve the minimal conformance of the registration applicant's paper trail for each of the ISO 14001 elements" (NAPA, 2001).

ISO 14001 has a number of limitations. For example, it requires public disclosure only of a company's environmental policy and not its performance data. Without adequate disclosure, auditors and the general public cannot easily verify company claims. In addition, ISO does not demand compliance with applicable laws and regulations – only a "commitment" to comply. Most importantly, continuous improvement is defined as an improvement in an organisation's EMS, not in its environmental performance.

EMAS

The European Union's Eco-Management and Audit Scheme (EMAS) is a management tool for companies and other organisations operating in the EU and the European Economic Area to evaluate, report and improve their environmental performance. Available for participation since 1995, EMAS was originally restricted to companies in industrial sectors. However, since 2001, EMAS has been open to all sectors, including public and private services.

Like ISO 14001, EMAS provides an opportunity for companies to receive an external "seal of approval" associated with EMAS registration. To receive EMAS registration and permission to use the EMAS logo, a company or organisation must comply with six requirements:

- Conduct an *environment review* of all environmental aspects of the company's activities, products and services.

- Establish an effective *environmental management system* that aims to fulfil the company's environmental policy and which sets responsibilities, objectives, means, operational procedures, training needs, monitoring and communication systems.

- Carry out an *environmental audit* that assesses the company's conformity with its EMS and compliance with relevant environmental regulatory requirements.

- Provide an *environmental performance statement* that details results achieved against objectives and future steps to improve environmental performance.

- *Verify* the environmental review, EMS, audit procedure and the environmental statement with an accredited EMAS verifier.

- *Make publicly available* the environmental review, EMS, audit procedure and environmental performance statement.

The environmental management systems required by EMAS to fulfil the third requirement are no different from those required by ISO 14001. However, two EMAS requirements – the provision of an environmental performance statement and making information publicly available – are not reflected in ISO 14001. Moreover, the audit required by ISO 14001 requires only that a company monitor the EMS against its own objectives and targets, while EMAS also requires that companies comply with relevant environmental regulations.

Performance-based EMS

Performance-based EMS are tailored to fit the company's specific requirements, generally with the aim of giving it a competitive edge. The implementation of a performance-driven EMS is normally conditioned by a high degree of company motivation and management engagement. The premise is that the purpose of implementing an EMS is to increase business value by improving environmental performance. Ideally, the EMS is integrated with core business practices, including strategic planning and investment, financial management, product development and marketing, with the full support of senior management.

ISO 14001 can act as the foundation for a performance-based EMS, but several other components are also normally part of the performance-based package, including:

- *Compliance assurance.* Systems to audit and monitor compliance with all applicable environmental, health and safety laws and regulations.

- *Environmental review "beyond the company fence"*. Comprehensive analysis of all environmental aspects, both direct and indirect, internal and external (*e.g.,* community, supply chain).

- *Ambitious objectives and targets*. Setting of objectives and targets that are at or beyond "best in class" for the sector.

- *Communication plan*. Systems to communicate with stakeholders (such as investors, communities, regulators, civil society, employees) about the objectives and targets of the EMS.

- *Metrics and key performance indicators.* Quantitative ways to measure, monitor and analyse performance (for internal use).

- *EMS report or data set*. The publication of sets of performance results.

In the US, the Multi-State Working Group on Environmental Performance (MSWG) has developed guidelines for a performance-based "*External Value EMS*" (MSWG, 2004). Comprised of state environmental regulators, business leaders, academics, and members of civil society, the MSWG works to develop and promote innovative approaches to improve industry environmental performance. The aim of the External Value EMS is to increase stakeholder assurance that the implementation of an EMS actually delivers gains in environmental performance. To do so, the External Value EMS, which is seen as a complement and supplement to ISO 14001, emphasises and provides guidance on three key components:

- Achievement and maintenance of legal compliance with environmental, health and safety regulations.
- Involvement of external stakeholders.
- Transparent external communications, including through adequate reporting procedures.

Sector-specific EMS

The gap between the generic template provided by ISO 14001 and an EMS tailored to an individual company has generated the search for tools in the "middle ground". Industry sector-based approaches to improve environmental (and social) management seek to provide guidelines for the environmental, health and safety issues most relevant to the sector. Historically, such efforts aimed only to establish general principles and codes of conduct. Increasingly, however, tools are being developed which can guide the implementation of an EMS throughout the industry. About 35% of companies listed in the FTSE All-World Developed Index that have implemented an EMS have opted for a tailor-made solution (OECD, 2004).

One of the best known sector–specific EMS is the Responsible Care initiative of the global chemical industry. Launched in Canada in 1985, Responsible Care is currently implemented in 47 countries by the members of the International Council of Chemical Associations (ICCA), who represent some 85% of global chemical production. The Guiding Principles of Responsible Care include "continuous progress toward the vision of no accidents, injuries or harm to the environment" and to "publicly report [our] global health, safety and environmental performance" (www.icca.org).

In the originating vision, members of Responsible Care were guided by six Codes of Conduct and 106 management practices covering community awareness and response; distribution; employee health and safety; pollution prevention; process safety; and product stewardship.

In an attempt to move beyond the Codes to a performance-based EMS, the American Chemistry Council developed *Responsible Care 14001,* a Responsible Care Management System (RCMS). The RCMS is based on benchmarked best practices of

leading private sector companies; initiatives developed through the Global Environmental Management Initiative, ISO, and other bodies; and requirements of national regulatory authorities.

In conjunction with the Registrar Accreditation Board, the American Chemistry Council has also developed a third-party auditing and certification process that combines ISO 14001 and Responsible Care. Participating organisations may gain accredited certificates for both ISO 14001 environmental management systems and Responsible Care 14001 management systems in a single audit. The new system also established a set of uniform, industry-wide metrics to enable measurement and disclosure of company performance. The metrics address performance across a broad range of issues, including economics, environment, health, safety, security and products.

The global industry may choose to follow the lead of the American Chemistry Council. In May 2003, the ICCA announced a major strategic review to "revitalise and strengthen" the Responsible Care initiative. The ICCA expects the review will lead to the development of "more consistent core commitments that can be implemented at the same level by all nations that adopt Responsible Care."

Another industry-based effort is the *Tour Operators Initiative for Sustainable Tourism Development* (www.toiinitiative.org). Developed by tour operators, TOI is supported by UNEP, UNESCO and the World Tourism Organisation. TOI aims to create "a platform to develop ideas and projects to address the environmental, social, economic and cultural aspects of sustainable development within the tourism sector."

Yet another industry-sector based initiative, spearheaded by the World Business Council for Sustainable Development (WBCSD), stimulates research and brings together stakeholders "to see how a particular industry can better align its practices and policies with the requirements of sustainability." Like an externally-certified EMS, the sector-based stakeholder consultations aim to enhance the legitimacy of industry actions to promote sustainable development and to act as an assurance group to verify the findings. Currently, the WBCSD has seven sector projects: Cement Sustainability Initiative; Electric Utilities; Finance; Sustainable Forest Products; Mining, Minerals and Sustainable Development; Sustainable Mobility; and Urban Water (www.wbcsd.org).

The sector projects are at varying stages of development. Launched in 1999, the Mining, Minerals and Sustainable Development project is the most developed one. A three-year process of extensive and intensive consultation led to a comprehensive report outlining ways to tackle the industry's sustainability challenges, including managing environmental impacts (WBCSD and IISD, 2002).

Initiatives by the financial sector can have an impact that goes far beyond the environmental impact of the sector's own players. Financial institutions are the main providers of project finance, equity investment and (in many countries) also direct advice, to the non-financial private sector, and their decisions about what environmental criteria to apply provide powerful incentives to the business sector at large.

An early activity in this area was UNEP's *Finance Initiative* (www.unepfi.org). The purpose of this Initiative, which started in 1992, is to engage a broad range of financial institutions – commercial banks, investment banks, venture capitalists, asset managers, multilateral development banks and agencies – in a constructive dialogue about the link between economic development, environmental protection, and sustainable development. The Initiative promotes the integration of environmental considerations into all aspects of the financial sector's operations and services. A secondary objective is to foster private sector investment in environmentally sound technologies and services. A core part of the Initiative is to foster endorsement of the UNEP Statement by Financial Institutions on the Environment and Sustainable Development, which commits signatories to incorporating environmentally sound practices into their operations. As of October 2003, 177 entities had endorsed the Statement.

In June 2003, ten leading banks from seven countries adopted the *Equator Principles*, a voluntary set of guidelines developed by these banks for managing social and environmental issues related to the financing of development projects (www.equator-principles.com). The principles apply to project financing in all industry sectors, including mining, oil and gas, and forestry (see Box 3 below).

Box 3. The Equator Principles

The Equator principles apply to projects with a capital cost of USD 50 million or more. They use the IFC's screening process and categories for high/medium/ low risk projects. Projects in categories A and B — broadly, projects of potentially high [A] and medium [B] environmental impact) — require an Environmental Assessment (EA). Projects must comply with the World Bank Group's Pollution Abatement Guidelines and Safeguard Policies. The project sponsor must demonstrate compliance with these guidelines or justify deviation, and the banks involved judge whether these deviations are sufficient. Projects in categories A (and B where appropriate) require an Environmental Management Plan (EMP), consultation with affected people and public disclosure of the EA and EMP. The EA and EMP are subject to independent review. Borrowers have to covenant to comply with the EMP and provide regular reports on compliance with it.

Source : Equator Principles, www.equator-principles.com.

In December 2003, OECD countries adopted a *Recommendation on Common Approaches on Environment and Officially Supported Export Credits*. Under this Recommendation Export Credit Agencies (ECAs) should screen all projects for which official support is requested, classify them according to their potential environmental impact, and, for those likely to have serious negative impacts, request an environmental impact assessment. ECAs should review environmental information about a project before taking a decision on official support, and are encouraged to make relevant environmental information available to the public.

Other tools contributing to sound environmental management

An EMS is a systemic tool, establishing procedures and operational frameworks within which enterprises can develop their environmental strategies. However, to produce real benefits for the environment, an EMS normally has to be coupled with concrete commitments to operate on higher standards or aim for certain environmental performance levels. There are several "building blocks" for upgrading environmental performance, and these can be implemented by companies without, or ahead of, embracing a complete EMS. These tools can also be used within an EMS framework to implement the targets and objectives set by a company's environmental policy. This section describes two tools that can serve either as stepping stones (or "entry points") toward implementing an EMS, or building blocks in an established management system: environmental management accounting and Cleaner Production.

Environmental management accounting

Management accounting is a broad term that entails the identification, measurement, accumulation, analysis, preparation, interpretation and communication of financial information. Managers use the information for planning, evaluation, and control, as well as to ensure internal accountability. Environmental Management Accounting (EMA) is "a better and more comprehensive approach to management accounting, with a particular focus on costs related to wasted raw materials and other environmental issues" (UNDSD, 2003a). Unlike most of the other tools surveyed in the present report, EMA's main thrust is minimising the private – as opposed to the social – costs of pollution. However, a properly applied EMA may result in considerable societal environmental gains as well.

EMA expresses environmental information in terms of financial costs to the company. It is a tool to identify, collect, and analyse information about environment-related, internally absorbed costs, especially costs related to wasted raw materials. Like all management tools, EMA works to improve the quality of business decision-making. It can also be used to communicate with external stakeholders.

EMA takes account of *all* environmental costs – not only of disposing of wastes but of producing them, including the cost of materials purchased but not used to make products. Every emission to air, water or land from production is considered a wasted material input. Economists call this "joint production": in the process of production, material inputs and labour combine to generate both useful products and waste. To the costs of waste disposal must be added all the costs of buying, transporting, managing, and manufacturing inputs that did not generate value in the form of a product.

EMA uses an input-output approach to identify wasted materials, and then assigns a financial cost to them. In uncovering hidden costs, an EMA highlights ways to improve efficiency and reduce pollution at the same time. In a survey of Austrian and German companies, costs of waste disposal were found typically to be 1-10% of total environmental costs, while the purchase cost of wasted materials accounted for 40-90%

of environmental costs, depending on the business sector (UNDSD, 2001). As one EMA expert has noted, "The people in charge are often not aware that producing waste and emissions is usually more expensive than disposing of them" (UNDSD, 2001).

There are different ways to utilise EMA. For example, it can be used to assess the environmental costs associated with producing a particular product, or with a particular manufacturing process. In standard financial management accounting systems, environmental costs are not separated out – they are assigned to general overheads. By accounting separately for the full range of environmental costs, EMA allows managers to identify least-cost approaches to production, and to make better decisions about capital investment, cost allocation, purchasing activities, supply chain management and product pricing. This is of particular importance for environmental management; if environmental costs are obscured, true costs of production are skewed, and this may allow cleaner products to cross-subsidise environmentally unfriendly products.

EMA is most effective when integrated into an EMS or an equivalent corporate structure aimed at enhancing environmental performance. An assessment of environmental costs is the foundation for implementing the EMS, including making decisions about cost-effective ways to prevent pollution and minimise waste. However, as emphasised by the UN Division of Sustainable Development (UNDSD) "there is more than one approach to accounting for environmental costs, depending on a company's objective. For example, a company that wishes to focus on process efficiency improvements would need to prepare process-level materials and energy flow maps, as well as to collect cost data. In contrast, a company that wishes to first perform a facility–wide assessment of environmental costs before proceeding to more detailed analyses may be able to extract relevant data from the existing profit and loss account" (UNDSD, 2003b).

Companies may also select different approaches to EMA based on their available resources and past experience. For example, a company that has never tried EMA or has limited resources may choose to do small-scale case studies as a first step. Once the benefits have been demonstrated, the company can move on to more comprehensive projects, perhaps setting up an EMA database in parallel with the existing management accounting and information systems, or integrating EMA information into existing systems. The approach chosen will depend on the organisation's existing accounting, information and management systems, all of which should be used to support EMA and, in turn, may be improved by EMA (UNDSD, 2003b).

The uptake of EMA by companies is on the rise, especially by large MNEs seeking to gain greater efficiencies in supply chain management. Commissioned by the US EPA, the Tellus Institute is developing a strategic plan for promoting EMA among US companies and their international strategic partners. The Plan will focus not only on preventing pollution but also on newer EMA end-uses such as supply chain management and environmental management systems (www.tellus.org).

Case Study: Cost savings through EMA

The Mackenzie Paper Division (MPD) paper mill in British Columbia is an integrated thermo-mechanical pulp mill that produces newsprint paper from woodchips through a complex and capital-intensive process. The company's operations have significant environmental impacts, particularly effluents to water and energy consumption.

MPD applied the EMA framework set out in a workbook produced by UNDSD's Expert Working Group on Environmental Accounting. The objective was to identify environmental costs from financial and other data that were already readily accessible in the company.

The exercise identified total environmental costs of USD 4.8 million occurring in several categories proposed by the workbook: waste and emission treatment (the largest single cost); prevention and emission management; material purchase of non-product output; and processing costs of non-product output.

In the words of the enterprise, the benefits of undertaking an EMA exercise were to learn about the utility of the EMA tool, and to identify areas in which cost-effective environmental measures could be taken. The most important finding was that, even though environmental costs were deliberately estimated on a conservative basis, the total was substantially higher than the amount indicated by the firm's conventional year-end financial report. The conventional estimate was derived from an analysis of effluent treatment and other "line-item" environmental costs. This estimate included no "environmental account" category that broke down either costs or the mass balance of inputs and outputs, and for the most part, environmental costs were rolled up into overhead accounts such as administration, infrastructure and materials accounts.

Although considerable effort went into changing from the well-established conventional system to one that more properly accounted for environmental costs, the study also found that EMA tools were highly relevant to increased eco-efficiency at MPD.

Source: UNDSD (2001) and Gale (2001).

However, there are several obstacles to effective implementation of EMA, including the tendency of both regulatory and voluntary initiatives to favour end-of-pipe approaches to improving performance. For example, environmental reporting requirements will slow implementation if they mandate only data about emissions and non-environmental costs of production. The same is true of voluntary reporting guidelines. For example, the United Nations is working with the Global Reporting Initiative to develop reporting requirements which encourage companies to account for their environmental costs. Another obstacle is the lack of international standards for EMA methodology, compounded by the fact that there are no international standards for financial cost accounting. According to the UNDSD, the main problem of EMA is the lack of "a standard definition of environmental costs" (UNDSD, 2001).

Cleaner Production

In 1989, UNEP's Division of Technology, Industry and Economics launched the Cleaner Production (CP) programme. The programme has since gained widespread acceptance around the world as a tool for assisting companies in upgrading their environmental performance. By 2002, a CP network had developed that included more than 100 Cleaner Production Centres (a joint UNEP/UNIDO undertaking) operating in over 40 countries. The Centres exchange information and build skills on CP techniques and experiences, often working as consultants to governments, especially technical bodies. CP and related initiatives have been promoted by a number of OECD governments.[7]

CP is an approach to environmental management focused on preventing pollution, reducing resource use and generally minimising environmental impact within existing technological and economic limits. It is a broad term and encompasses, or is identical to, what some countries and institutions call *eco-efficiency, waste minimisation, pollution prevention,* or *green productivity.*

CP assists companies in undertaking specific initiatives to design and operate industrial processes and to develop and produce products and services in ways that increase eco-efficiency. CP methodology can be used as part of stand-alone projects or to achieve particular objectives and targets set by an EMS. Seeking CP is one way to implement the "continuous improvement" requirement of ISO 14001 and other EMS.

Unlike the implementation of an EMS, which entails creating a framework for the management of all environmental aspects and issues, the CP approach generally entails implementing a specific project to improve environmental performance. For many companies (especially small and medium sized firms), a project is an easier way to begin managing environmental performance than the implementation of an entire EMS. The realisation of benefits, both financial and environmental, through CP projects can build confidence in the value of an investment in an EMS. On the other hand, companies that have implemented an EMS can utilise the CP framework to help set specific, project-level targets and objectives within it, such as reducing waste or increasing resource efficiency.

Implementing CP may not solve all environmental problems at a facility, but will decrease the need for end-of-pipe equipment and create less toxic waste to treat and dispose of. It often reduces workers' exposure to hazardous chemicals, as well as the number of accidental releases to surrounding communities. Products that are designed

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7 Environment Australia's "Eco-Efficiency and Cleaner Production" data base has 155 case studies of companies that have successfully undertaken CP initiatives (www.ea.gov.au). The US EPA maintains a National Database of Pollution Prevention Products and Services with companies listed in 11 industry sectors (www.epa.gov). UNEP-DTIE's database showcases 200 case studies (www.uneptie.org) and the International Network for Environmental Management has 19 case studies (www.inem.org).

and produced according to CP are often less harmful for consumers to use, and their residues are normally less of a burden to waste streams.

Measuring environmental performance

Environmental management is not a static, one-off action, but requires constant monitoring to ensure that the objectives set by the company are indeed achieved or even extended further. Among the tools and approaches to measure environmental performance are environmental management accounting (described above), and, more specifically, environmental benchmarking and environmental performance indicators.

Environmental benchmarking is a performance measurement tool used in conjunction with improvement initiatives to measure comparative operating performance and identify best practices. The objective of environmental benchmarking is to identify "best-in-class" business processes, which, if implemented, could lead companies to better environmental performance. Benchmarking a company's environmental programme against that of another company is an effective means of assuring it is on track toward environmental improvement. If used properly, benchmarking allows companies to gauge the progress of an environmental programme and to benefit from innovative ideas for improvement. This tool is capable of measuring the efficiency, design, and outputs of the programme. It also provides environmental managers with the opportunity of sharing successes and failures with respect to programme integration into operations.

Application of benchmarking involves four basic steps: understand in detail the company's own processes; analyse the processes of others; compare the company's own performance with that of others; implement the steps necessary to close the performance gap (O'Reagain, 2000).

Benchmarking involves looking outward to examine how others achieve their performance levels and to understand the processes they use. In this way benchmarking helps explain the processes behind excellent performance. Best practice examples are frequently found outside the industry sector in which the company operates. Thus, it is neither necessary nor desirable to confine a benchmarking exercise to competitor companies. At its most effective, benchmarking is an integral part of an ongoing improvement process with the goal of keeping abreast of ever-improving best practice.

Environmental indicators help measure a company's environmental performance, and, over time, improvements in that performance. The Global Reporting Initiative (GRI) Guidelines recommend that companies' sustainability reports contain, among other sections, one on performance indicators (www.globalreporting.org). The GRI framework represents a multi-stakeholder agreed series of indicators, covering the economic, environmental and social dimensions of sustainability. The GRI's environmental indicators concern an organisation's impacts on living and non-living natural systems, including eco-systems, land, air and water. Included within environmental indicators are the environmental impacts of products and services;

energy, material and water use; greenhouse gas and other emissions; effluents and waste generation; impacts on biodiversity; use of hazardous materials; recycling, pollution, waste reduction and other environmental programmes; environmental expenditures; and fines and penalties for non-compliance. The GRI is discussed in detail in Chapter 2.

Case study: Benchmarking as a step towards harmonising different EMS within a company

The nine production sites of Nokia Mobile Phones (a unit of the Nokia Corporation) had different ISO 14001-certified EMSs. To harmonise them, share best practices and avoid non-conformities, regional EMS representatives started to work together intensively with the goal of building a single EMS for all production sites.

Their action plan was straightforward. First, they engaged in a benchmarking exercise. Senior managers collected best practices and shared them with other teams, so that they could improve their existing practices or adopt new practices if needed. Second, managers exchanged information about positive cases. Different units documented successful stories with details about the most significant achievements with their environmental systems.

A committee then chose a few cases. Managers from different locations selected a set of priorities on which to focus. Unified communications came top of the list. To meet this goal, every production site built or improved its environmental Intranet. The team found that exchanging audited documents helps diffuse best practices and helps managers profit from existing solutions elsewhere. Along the process, managers found that translating the documents into and from local languages was particularly time-consuming.

As a result of this information exchange, several processes have been improved and the global guidelines for EMS for Nokia Mobile Phones operations were finished.

Source: Nokia, www.nokia.com.

References

EU (European Union), "*EMAS - The Eco-Management and Audit Scheme*", http://europa.eu.int/comm/environment/emas.

Gale, R. (2001), "*Environmental Management Accounting in Forestry"*, A Case Study of Abitibi-Consolidated Incorporated Mackenzie Paper Division, prepared for Environment Canada.

GEMI (Global Environment Management Initiative) (2001). "*New Paths to Business Value. Strategic Sourcing- Environment, Heath and Safety"*, www.gemi.org.

International Environmental Systems Update (2003), "*Plan for Adding External Value to ISO 14001 Voluntary Standard",* Vol. 10, No. 4.

ISO (International Organization for Standardization) (1996), "*Environmental Management Systems – Specifications with Guidance for Use"*, www.ios.org.

ISO (2002), "*ISO 14000/14001, Environmental Management Guide"*.

MSWG (Multi-State Working Group) (2004), "*The External Value Environmental Management System Voluntary Guidance",* www.mswg.org.

NAPA (National Academy of Public Administration) (2001), "*Third-Party Auditing of Environmental Management Systems: U.S. Registration Practices for ISO 14001"*.

OECD (Organisation for Economic Co-operation and Development) (2002), "*The OECD Guidelines for Multinational Enterprises: Focus on Responsible Supply Chain Management"*. Annual Report, www.oecd.org.

OECD (2004), "*Annual report of the OECD Guidelines for Multinational Enterprises: Encouraging the contribution of Business to Environment"*.

O'Reagain, S. (2000), "*What is environmental benchmarking?"*, European Commission, Enterprise Directorate; www.benchmarking-in-europe.com.

PPRC (Pacific Northwest Pollution Prevention Resource Center), "*Establishing Environmental Standards, Criteria for a Management System for Suppliers",* www.pprc.org.

UNDSD (United Nations Division for Sustainable Development) (2001), "*Environmental Management Accounting Procedures and Principles"*, www.un.org/esa/sustdev.

UNDSD (2003a), "*Environmental Management Accounting for Business"*.

UNDSD (2003b), "*Clean and Competitive: EMA for Business"*.

UNEP (United Nations Environment Program), "*Environment Management System"*, www.uneptie.org/pc/pc/tools/ems.htm.

US EPA (US Environmental Protection Agency), "*Environmental Management Systems*", www.epa.gov/ems.

WBCSD (World Business Council for Sustainable Development) and IIED (International Institute for Environment and Development) (2002), Mining, Minerals and Sustainable Development Project, "*Breaking New Ground"*, www.wbcsd.org.

2. PUBLIC INFORMATION AND STAKEHOLDER CONSULTATION

Chapter V, Point 2

[Enterprises should]

Taking into account concerns about cost, business confidentiality, and the protection of intellectual property rights:

- *Provide the public and employees with adequate and timely information on the potential environmental, health and safety impacts of the activities of the enterprise, which could include reporting on progress in improving environmental performance; and*

- *Engage in adequate and timely communication and consultation with the communities directly affected by the environmental, health and safety policies of the enterprises and by their implementation.*

Providing information about the activities of enterprises and their associated environmental impacts is an important way to build confidence with the public. This is most effective when information is provided in a transparent manner and when it encourages active consultation with stakeholders, so as to promote a climate of long-term trust and understanding of environmental issues of mutual interest. On the other hand, for businesses, most of which operate in a highly competitive environment, it is important to balance the benefits of this approach against the need to safeguard their business secrets and intellectual property rights.

Information is an integral part of good environmental management. First, companies have incentives to obtain and evaluate information related to their own internal environmental management procedures. Second, having obtained and evaluated the information, companies that seek to improve their environmental performance often find it in their interest to disseminate the information to the public. Third, through consultation and communication with stakeholders and communities, companies can gain additional insights about the environmental impact of their actions and the public perception of their environmental performance.

An important stakeholder group is the workforce within a given enterprise, or throughout its supply chain. In this respect, point 2.c of the Guidelines' Chapter on Employment and Industrial Relations is of relevance. It stipulates that enterprises should "promote consultation and co-operation between employers and employees and their representatives on matters of mutual concern".

Challenges and opportunities

Environmental communication and stakeholder consultations have gained wide acceptance within the business sector. Many large companies issue some form of regular environmental report and disseminate it electronically. About 40% of companies listed in the FTSE All-World Developed Index have reported that they are engaged in environmental reporting (OECD, 2004). Among these, 91% publish quantitative data and 34% rely on third-party verification of the data that they provide. The number of companies producing detailed sustainability reports has gone from a few dozens in the early 1990s to a few thousand in 2002 (SustainAbility and UNEP, 2002).

Some obstacles remain to greater use of environmental communication and consultation tools. One concerns the perceived risks to companies of environmental transparency. These may include:

- *Legal risk* in the form of criminal or financial liability. This problem is probably most salient in countries where the application of "strict liability" to environmental non-compliance creates a disincentive for companies to find and report environmental problems. Likewise, a company may perceive that embarking on a consultation strategy with which the public finds faults can leave it worse off than doing nothing at all.

- *Reputation risk* and other commercial damage due to customer perceptions. MNEs in virtually all countries are potentially vulnerable to targeted public criticism. This may apply if they divulge information about environmental performance that the public may perceive as insufficient, or even if they put forward objectives or value statements against which their actions can be assessed.

- *Cost and access to credit*. Given the increasing attention paid by investors and financial intermediaries to borrowers' environmental performance, a perception of poor environmental stewardship can be costly to companies.

A second category of obstacles revolves around the lack of clear criteria and consensus about environmental standards, for example, for complex issues such as energy. Lack of consensus impairs product comparability and makes it more difficult for companies to identify what is "material" – that is, what stakeholders are interested to know, and even what companies need to know internally. On the other hand stakeholders (not least NGOs) may be subject to "consultation fatigue", which can be exacerbated unless businesses are focused in their approach to external consultations. In

developing countries there may moreover be a need for capacity-building efforts to create appropriate platforms for stakeholder engagement.

However, as evidenced by the upsurge in corporate environmental communication and consultation, companies have increasingly found it worthwhile to overcome these challenges. One reason is a trend in public expectations and government approaches. In some countries, informing the public is increasingly perceived as part of an enterprise's social "licence to operate". Some national governments and inter-governmental organisations also consider stakeholder engagement and public-private partnerships as a central strategy for solving environmental problems.

Another inducement is the opportunity for enterprises to use good environmental performance to differentiate their products in highly competitive global markets. By volunteering information to the public, a company may improve its standing *vis-à-vis* actual and potential clients at large. Moreover, some enterprises perceive active consultation with stakeholders as a way to "brand" their company and its products. Some companies have also been prodded into action by civil society demands or by their own shareholders.

Tools and approaches

Public information

Publishing company information enables a wide variety of "interested parties" to make judgments and decisions. With adequate information, customers, consumers and investors, for example, can steer purchasing and investment preferences towards "greener" companies or products. Advocacy groups can use public information to identify poorly performing companies and highlight good performers. Publicly available information strengthens the capacity of civil society groups, government regulators and companies themselves to "raise the bar" for industry environmental performance.

Enterprises aiming at particularly high levels of environmental performance often have the strongest incentives to inform the public. Providing public information about environmental and social, impacts is increasingly seen as an integral element in good business. According to one viewpoint, the rationale for companies to provide environmental information to the public also stems from the perception that businesses are not separate from society but are embedded in a network of stakeholder relationships (Rahman *et al.,* 2003).

Establishing good practices for public information

So far no standard for how much and what kind of information to disseminate has won common acceptance. Recent initiatives aimed at establishing such standards are described below.

One such initiative is that of the International Standards Organisation (ISO), which is currently developing an environmental communication standard, *ISO 14063* planned for publication, as part of the 14000 series. The ISO standard writers recognise that:

- There are many ways to communicate environmental information.
- There are many reasons an organisation might choose to communicate environmental information.
- There is significant work being done globally on the subject of environmental communication.
- SMEs and companies in developing countries need help to understand how to develop an environmental communication programme.

The draft ISO environmental communication standard attempts to address these issues. It does not prescribe how an organisation communicates its environmental information, but offers guidance on what should be considered in developing an environmental communication programme and it will provide sources of information on how each consideration has been addressed by others.

In March 2003 the UK Institute of Social and Ethical Accounting (AccountAbility) released the *AA1000 Assurance Standard*, which provides guidelines for the verification of published company reports, including (but not limited to) environmental or sustainability reports. The standard aims to enhance the credibility of the information that companies provide to the public.

Developed via an extensive process of consultation with stakeholders, AA1000 provides a framework intended to guide good practice not only for company reports but for environmental communication more broadly. The standard is based on a commitment "to the practice of 'inclusivity' by which is meant an organisation's commitment to (i) *identify and understand* its social, environmental and economic performance and impact, and the associated views of its stakeholders; (ii) *consider and coherently respond* (whether negatively or positively) to the aspirations and needs of its stakeholders in its policies and practices; and (iii) *provide an account* to its stakeholders for its decision actions and impacts" (AccountAbility, 2003).

This overarching "accountability commitment" can be fulfilled by the application of three principles:

- *Materiality.* All information required by stakeholders to make informed judgments, decision and actions is provided.
- *Completeness.* Information is provided about all activities, products, services, sites and subsidiaries for which the organisation has management and legal responsibility.
- *Responsiveness.* The organisation's willingness to communicate in response to stakeholder concerns, policies and relevant standards.

Information dissemination strategies

Environmental and sustainability reporting

The principal way in which enterprises make environmental information publicly available is the production of company reports. Reports often cover environment, health and safety issues and are published annually. They can be incorporated into company annual reports, but separate environmental reporting has become increasingly common. The reports are generally available on company websites, as well as in print. Company reports provide insight into environmental policies, programmes, and performance. However, in the absence of commonly accepted standards, their scope and content are determined solely by companies, and this may lead to problems of credibility and comparability.

The Global Reporting Initiative (GRI), founded in 1997 by the US-based Coalition for Environmentally Responsible Economies (CERES) and the UN Environment Programme (UNEP), has as its mission "to develop and disseminate globally applicable Sustainability Reporting Guidelines" (www.globalreporting.org). In pursuit of this objective GRI engages in a multi-stakeholder process with participation from business, accountancy, investors, environmental, human rights, research and labour organisations. GRI's initial aim was to establish a template for environmental reporting, but it has since embraced a "triple bottom line" approach and also incorporates social and economic reporting. In addition to its activities in communication and sustainable reporting, GRI offers "technical" protocols" (*e.g.,* the Child Labour protocol, the Energy protocol) and sector supplements (*e.g.,* Automotive, Tour Operators, Telecommunications).

The GRI Guidelines constitute an information reporting framework, providing both overarching reporting principles and specific content requirements to guide companies and other organisations in preparing publicly available sustainability reports. GRI's fundamental principles are "transparency and inclusiveness", which inform decisions about what information to report, as well as its quality and accessibility. According to GRI, decisions about what to report should be guided by principles of "completeness, relevance and the sustainability context". Decisions about quality should be guided by "accuracy, neutrality and comparability". Decisions about accessibility should be guided by "clarity and timeliness". All three sets of decisions should be guided by the principle of "auditability" (i.e. the potential for third-party verification).

A GRI-consistent report includes five core components:

1. *Vision and strategy.* Description of the reporting organisation's strategy with regard to sustainability, including a statement from the CEO.
2. *Profile.* Overview of the reporting organisation's structure and operations and of the scope of the report.
3. *Governance structure and management systems.* Description of organisational structure, policies and management systems, including stakeholder engagement efforts.

4. *GRI content index.* A table identifying where the information required by the Guidelines is located in the report.

5. *Performance indicators.* Measures of the impact or effect of the reporting organisation, divided into integrated, economic, environmental, and social performance indicators.

Direct response to stakeholder information requests

Rather than (or sometimes in addition to) regularly producing a detailed company-wide report, companies may choose to respond directly to stakeholder requests for information. There are many ways to do so. Some companies respond on an *ad hoc* basis, but others have established ongoing communication mechanisms[8]. Some have entered into community partnerships, such as Good Neighbour Agreements to reduce pollution in the US State of Massachusetts. Such approaches to company environmental performance are also widespread in Japan.

Establishing processes of bilateral exchange of information may be both cheaper and easier for companies and more satisfying for certain stakeholders. For example, local communities are likely to be more concerned about the site-specific emissions of a company's neighbouring facilities than its overall global environmental performance. National and international policymakers provide little guidance to enterprises on how to respond to requests for information, and this means that the formulation of enterprises' own information policies matters greatly in this respect.[9]

Eco-labels

Another approach to environmental communication is to label products with their environmental attributes, thus giving information directly to consumers. Environmental labelling ("eco-labelling") allows companies to communicate their environmental commitments directly to consumers.[10] Moreover, eco-labelling may encourage continuous improvement, including research and development. As all public information tools, eco-labelling programmes must be credible. This has two direct implications. On the one hand, labels need to be based on meaningful and scientifically sound criteria. On the other hand, misleading claims from enterprises undermining consumer trust must be avoided. To build trust, environmental criteria for certification must be robust, and verification and monitoring must be reliable and consistent.

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8 One example are Intel's Community Advisory Panels, www.intel.com.

9 The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the "Aarhus Convention") focuses on the obligations of public authorities, although utilities and privatised entities are also in some cases affected.

10 For the purposes of this report the terms "eco-labelling" and "environmental labelling" are used interchangeably.

Eco-labelling programmes develop environmental performance criteria that a product or service must meet and offer a logo that can be affixed to all promotional materials about the product. They also provide a framework and method for monitoring. The aim is to inform consumers about environmental attributes, thereby encouraging "green choice" purchasing. Besides raising consumer awareness and providing an objective assessment of environmental performance, eco-labels can also help to create a more transparent supply chain.

Several current environmental labelling programmes are administered by governments[11]. Among these, some are mandatory *(e.g.,* the US Fuel Economy Information Programme for automobiles), and some are voluntary (*e.g.,* organic labelling programmes for agricultural products in the US, Japan and the EU).

The ISO 14020 series of standards addresses a range of different approaches to voluntary environmental labels and declarations, including self-declared environmental claims, eco-labels (seals of approval) and quantified environmental information about products and services. ISO has defined three types of labels.[12]

Type I environmental labelling is a voluntary multiple-criteria-based third-party programme. It awards a licence that authorises the use of environmental labels on products, indicating a product's overall environmental preferability within a particular product category, based on life-cycle considerations. Under these programmes, manufacturers are licensed to use a mark (owned by an independent body) on their products, to demonstrate that these products are environmentally preferable.[13]

Type II environmental labelling covers environmental claims made, without independent third-party certification, by manufacturers, importers, distributors, retailers or anyone else likely to benefit from such a claim. This standard is broadly used around the world and many countries have adopted it as a national standard.[14]

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11 The ISO, which concerns itself solely with privately administered labelling programmes, defines "eco-labels" as those meeting its definition of Type I labels. However, for purposes of this report, the term "eco-labelling" refers to both government-run and privately administered programmes, unless otherwise indicated. The description of eco-labels in this section is without prejudice to the compliance of governmental programmes with WTO rules.

12 The following description of these three types of labels is based on a submission by ISO to the WTO, (WTO, 2002).

13 The agreed definition of Type I environmental labelling programmes, often referred to as eco-labelling programmes, is contained in ISO 14024:1999, which provides the guiding principles and procedures for third-party environmental labelling certification programmes. This international standard also establishes the certification procedures for awarding the label.

14 The definition of Type II labels is contained in ISO 14021:1999, which provides guidance on the terminology symbols and testing and verification of the environmental aspects of products and services.

Type III environmental labelling is not currently an ISO standard. It identifies and describes elements and issues for consideration when making declarations of quantified product information based on Life Cycle Inventory data.

Case study: Third party verification of information

The Mitsubishi Corporation is a highly diversified Japanese trading and investment company. Mitsubishi is organised in six business groups: New Business Initiatives; Energy; Metals; Machinery; Chemicals; and Living Essentials. The company established a global environmental department in 1990, with a particular focus on forests and forest products. In 1996, Mitsubishi adopted an Environmental Charter, which set out company-wide action guidelines and led to ISO 14001 certification in 1998. In 2001, Mitsubishi published its first Environmental Report, followed in 2002 by a Sustainability Report.

In November 2002, Mitsubishi announced that the company would seek third-party certification of good practice by the Forest Stewardship Council (FSC) for all of its forest product operations. An international non-profit organisation, FSC is an association of a wide variety of forest stakeholders: environmental and social groups; timber trade and forestry professions; indigenous peoples' organisations; community forestry groups; and forest product certification organisations from around the world. Founded in 1993, the FSC is open to all members who support its aim to support sustainable forest management, defined as "*environmentally appropriate, socially beneficial, and economically viable*."

The FSC has developed an international labelling scheme for forest products. Use of the FSC logo requires an independent certification that forest products come from forests which meet rigorous FSC Principles and Criteria of Forest Stewardship. These criteria include environmental criteria, such as limits on the use of chemicals, as well as social criteria, including bans on the purchase of illegally harvested timber. The FSC accredits certification bodies based on an evaluation of certifier competence to assess forest management according to FSC Principles and Criteria.

Prior to the announcement of its new, company-wide policy, Mitsubishi had already obtained FSC certifications for chain of custody and forest management for the company's woodchip operation and plantation in Chile, as well as chain of custody certification for its Paper Business Unit and Wood Chips and Afforestation Unit in Tokyo. One of the new initiatives is to certify Mitsubishi's forest operations in Canada.

Source: Mitsubishi, www.mitsubishi.com.

Stakeholder consultation

Effective consultation with stakeholders implies an expectation that company managers not only divulge and receive information, but also, that they stand ready to act upon the information they receive. The key question is "who are stakeholders"? According to a classic narrow definition, stakeholders are those who bear risk as a result of company activities (sometimes also referred to as "voluntary stakeholders"). A more recent and broader view defines stakeholders as all those who are able "to influence the enterprise's behaviour, direction, process or outcome". Simply put, stakeholders are

"those who affect or are affected by the company". The two definitions tend to merge when the content of the engagement is the environment, since many environmental impacts (*e.g.* climate change) impose risks on broad segments of society.

There are many techniques by which companies can consult with and engage their stakeholders. They can be broadly clustered into two groups — those where enterprises limit themselves to soliciting the inputs of stakeholders, and those that include an ongoing interactive process. Within the first category some of the techniques most commonly used by companies are issuing surveys and obtaining feedback by means of focus groups. Interactive processes can for example consist of participation in workshops, seminars and conferences; participation in ongoing multi-stakeholder organisations or dialogue groups; and formalised partnerships, including with civil society, labour groups or government. Chapter 8 of this report describes in detail consultation mechanisms between governments and enterprises, and with other stakeholders.

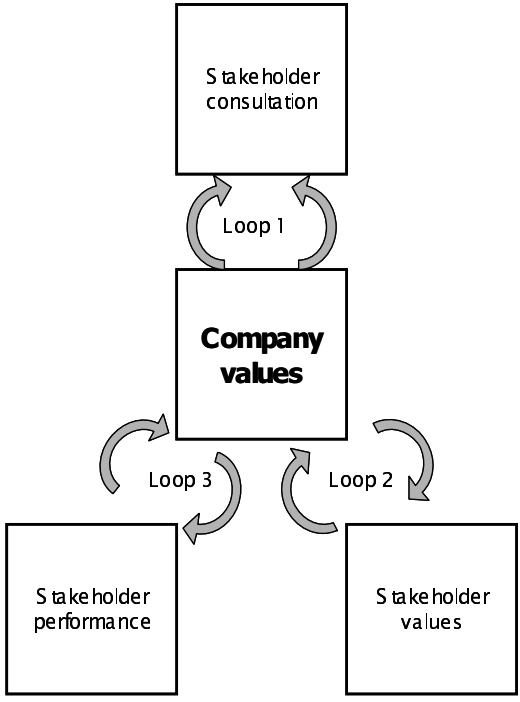
What constitutes "quality" stakeholder engagement?

Most companies who have engaged in stakeholder consultations seem to agree that the success of the processes hinges on the setting out of clearly defined goals, and on a careful and inclusive procedure for selecting the participants. Stakeholder dialogue needs to be active. One technique by which companies can consult with and engage their stakeholders can be represented through three "assessment loops" (Figure 2).

At the centre of the assessment process are the enterprise's core values. In the course of Loop 1 these core values are determined through consultation with a wide range of stakeholders. In Loop 2, the enterprise can at the same time compare its core values with those of its stakeholders in order to identify gaps. Loop 3 involves actions to influence the assessment of stakeholder performance against core values.

Efforts at developing commonly agreed standards for stakeholder engagement are still in their infancy – even more so than is the case for information policies. The AA1000 Assurance Standard, discussed above, describes "good" stakeholder engagement by the same principle by which it describes good communication, namely "inclusivity" — that is, the reflection at all stages of the process over time of the views and needs of all stakeholder groups. Stakeholder views are obtained through an engagement process that allows them to be expressed without fear of restriction. "Inclusivity" requires the consideration of 'voiceless' stakeholders including future generations and the environment (AccountAbility, 2003).

Figure 2. Organising a stakeholder consultation procedure



Source: Welford, Young and Ytterhus (1998).

AA1000 provides guidelines for stakeholder engagement. They define the aims of stakeholder engagement in the context of AA1000; describe a number of methods of stakeholder engagement; and describe techniques and provide advice to support the good practice of the methods defined above. Moreover, AccountAbility is working on specialised modules providing more detailed standards, including in the area of stakeholder engagement. However, at present little is known about the acceptance these may eventually win among enterprises.

Case study: Involving stakeholders in "ethical investment" decisions

The Co-operative Bank, based in the UK, offers its customers a broad array of personal and business financial services. The Bank's logo proclaims that it is "Customer Led, Ethically Guided."

In 1997, the Co-operative Bank announced a "Partnership Approach" to its core business strategy based on the ethos of serving and engaging stakeholders. In this Approach, the Bank commits itself to serve the interests of all seven partners involved in the bank's activities: shareholders; customers; staff; suppliers; local communities; national and international society; and "past and future generations of co-operators."

The Bank's investment decisions are governed by an ethical policy setting out conditions for where the bank will and will not do business, which in turn evolve as a result of the ongoing discussions with customers and other stakeholders. Stakeholder partnerships have also influenced the Bank's product range. At the end of 2001, it launched an 'eco-mortgage' project in partnership with Climate Care.[15] The programme was designed to offset the carbon dioxide emissions arising from electricity consumption in the homes on which the Bank lends money. For each mortgage it provides, it pays for trees to be planted in Uganda, equivalent to a carbon offset of 1.45 tonnes per year. The Bank also provides its mortgage customers with a free home energy report assessing how energy-efficient the dwelling is, and offers energy-saving advice. The project is monitored by the Climate Care steering committee.

The Bank issues an annual Partnership Report, which is externally verified and conforms to the accountability standard AA1000. Summaries of the Report are mailed to all customers and staff. The 2001 report won the UK Social Reporting Award and was the joint winner of the UK Environmental Reporting Awards.

According to Bank research, "ethically motivated customers" (that is, those who are attracted by the ecological and ethical branding) are likely to buy more than one financial service, to recommend the Bank, and to be more satisfied with the services they receive. Overall, the Bank estimated that its ethical and ecological policies drew one in three new customers in 2001, accounting for about 20% of profitability. Another benefit appears to be employee morale. In 2001, the Bank was rated for the second consecutive year as one of the *Sunday Times*' "100 Best Companies to Work For" in the UK, compiled on the basis of staff feedback. Staff turnover is well below the industry average.

Source: Business in the Community, www.bsdglobal.com.

Partnerships

Companies have consulted with, and responded to stakeholders via partnerships with civil society and governments. In the past, companies partnered with NGOs and

15 Climate Care is a limited company that aims to help individuals and organisations reduce their own impact on global warming, www.co2.org.

other civil society groups primarily as sponsors. In the past decade, a new form of "strategic partnership" has emerged that involves internal, core company operations.

Environmental partnerships involving business and civil society and governments aim to tackle a specific or on-going local, national or global environmental problem. Some companies are involved in a variety of partnerships that target problems at all levels. Partners can be small, local, community-based NGOs or large, global environmental organisations – or both, depending on the problem to be addressed.

The success and perceived quality of NGO-business partnerships varies widely. A conceptual framework to analyse success factors for NGO-business partnerships, based on reviews of 25 such partnerships is provided in Table 1 (Rahman *et al.,* 2003).

Table 1. Environmental partnership success factors

Success factors	**Phases of partnership life-cycle**		
	Initiation	**Execution**	**Closure**
People	Include all critical stakeholders	Respect partners' needs and interests	Share success and credit
Goals	Define a viable and inspirational vision	Steward based on process learning and new science	Evaluate results against goals and alternatives
Capacity Building	Invest in relationships needed for long-term success	Translate knowledge into signs of progress	Sustain progress by institutionalising arrangements

Source: Long and Arnold (1994).

References

AccountAbility (2003), "*Assurance Standard AA1000",* www.acountability.org.uk.

Cohen, J. (2003), "State of the Union, NGO-Business Partnership Stakeholders," in J. Andriof *et al*. (eds.), "*Unfolding Stakeholder Thinking, Relationships, Communication, Reporting and Performance".*

Long, F. and M. Arnold (1994), "*The Power of Environmental Partnerships".*

Rahman, S. S., J. Andriof, S. Waddock and B. Husted (2003), "Introduction," in J. Andriof *et al*. (eds.) "*Unfolding Stakeholder Thinking: Relationships, Communication, Reporting and Performance".*

SustainAbility and UNEP (2002), "*Trust Us",* The Global Reporters 2002 Survey of Corporate Sustainability Reporting. www.uneptie.org/outreach/reporting/sustainability-reports.

Welford R., W. Young and B. Ytterhus (1998): "Toward sustainable production and consumption", in N.J. Roome (ed.), "*Sustainability strategies for Industry"*.

Wilson, G. W. (2000), "*It's Time for a Root-Cause Analysis of the External Communication Issue*", in International Environmental Systems Update, Vol. 7, No. 4, April.

WTO (World Trade Organisation) (2002), "*Progress in Environmental Management Systems Standardisation"*. Statement by the International Organization for Standardization to the Committee on Trade and Environment.

Zadek, S. and P. Renard (2003), "*Measuring the Quality of Stakeholder Engagement*," in AccountAbility Quarterly, February.

3. LIFE-CYCLE ASSESSMENT

Chapter V, Point 3:

[Enterprises should]

Assess, and address in decision-making, the foreseeable environmental, health, and safety- related impacts associated with the processes, goods and services of the enterprise over their full life cycle. Where these proposed activities may have significant environmental, health, or safety impacts, and where they are subject to a decision of a competent authority, prepare an appropriate environmental impact assessment.

Environmental life-cycle assessment is a tool for systematic evaluation of the environmental aspects of a product or service through all stages of its life cycle (UNEP, 1996). A product's life cycle starts when raw materials are extracted, is followed by manufacturing, transport and use, and ends with waste management, including recycling and final disposal. There are emissions and consumption of resources at every stage of the life cycle. Life-cycle assessment starts with life-cycle thinking — an understanding that the environmental impacts from the entire life cycle of products and services need to be addressed (Figure 3).

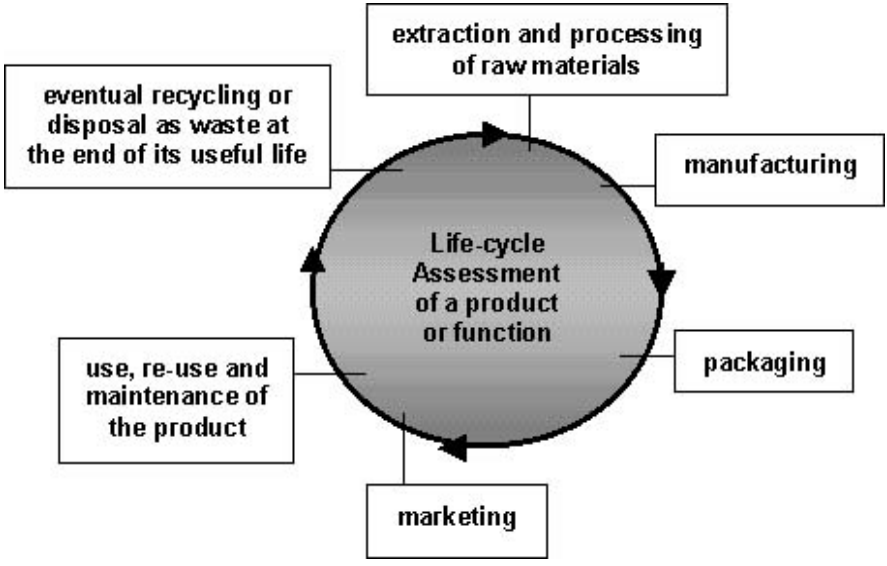
Life-cycle assessment (LCA) tools have evolved significantly in the past 20 years. ISO has developed general standards and UNEP is leading an effort to develop more specific methodologies. Individual companies, often in partnership with universities or government, have used these tools (or created their own) to develop new products and services based on "Design for Environment". An increasing number of companies are using LCA tools to improve their environmental performance.

Challenges and opportunities

Life cycle assessment has engaged the interest of academics, consultants and other professionals, and governments for the past three decades. As early as 1969, the Coca Cola Company funded a study that compared resource consumption and environmental releases associated with a variety of beverage containers (EEA, 1999). In the 1970s and

1980s, energy use became the primary focus of life cycle assessments. In the 1990s, concern about a wider range of resource impacts began to drive wide interest in LCA as an environment management and communication tool.

Figure 3. Components of Life Cycle Thinking



Source: UNEP, Division of Trade and Industry, Production and Consumption Branch, www.unep.org.

By encompassing upstream and downstream, internal and external impacts of products and production processes, LCA promotes a holistic approach to environmental management, whether by industry or government. Moreover, LCA analysis reveals opportunities — and imperatives — to improve environmental performance hidden by other tools, such as assessments focused only on value chains. While the concept is simple, the methodology can be complicated. There are many choices to be made in the course of an LCA study, including which environmental parameters to include and how to compare them. The lack of a standardised approach to LCA studies, including at the sectoral level, may have held back its use by business and made the concept less familiar to the general public.

Another reason LCA is less used than it might be is a problem that presents itself right at the beginning of the process: how far should companies go in their assessments? Unless boundaries are carefully placed on the assessment, the inventory of impacts can grow exponentially. However, the need to establish boundaries can be subjective and thus controversial. Ultimately, each company will have to decide what the requisite

scope and depth of its LCA should be. The following example illustrates how a company implemented LCA in order to identify opportunities for reducing the environmental impacts of its products.

Case study: Using LCA to reduce environmental impacts

3M launched a formal LCA initiative, called the Life Cycle Management System (LCM). The company manufactures a wide range of products ranging from office, display and graphics products, electronics and telecommunications, health care to industrial products. 3M chose a *qualitative* approach to LCA; the tool was designed to identify risks and opportunities, particularly during the use and disposal phase of product life. Hence, it does not score or rank products according to their environmental impacts.

To implement this tool, 3M created an "LCM Screen" that allows managers to identify the environmental, health, and safety opportunities and risks through the various stages of the product's life cycle.

Recent achievements through LCA include the development of new film, labels, and adhesive. For example, 3M developed new film that is manufactured with 80% less solvent and with less waste. Trim waste is recycled as a raw material back into the process. Also, working with plastics suppliers and a European-based global manufacturer, 3M Europe created new labels that reduce customers' costs for raw materials, labour, and disposal. Compatible labels make plastic recycling easier and more profitable. Appliance manufacturers can now recycle product cases and meet the European Union's Directive on waste electrical and electronic equipment.

The LCA process was supported by a corporate product responsibility staff, which helped business units market safer and more environmentally responsible products. Each business unit appointed a "product responsibility liaison" to help product teams apply LCA. The research centres that developed processes and products shared results electronically and in meetings and events with the 3M technical community. Any success stories are circulated throughout the company.

Source: 3M, www.3m.com.

Another obstacle is the large data requirement for LCA — and the lack of data. For example, a report by the UN Working Group on Environment Management Accounting found that three data gaps undermine a life-cycle approach to determining environmental costs (UNDSD, 2001):

- Data provided by companies are provided on a corporate-wide, rather than site-specific basis. Different sites treat products differently, for example, by outsourcing processes such as transport and delivery, cleaning and sanitation, and this significantly influences material input and emissions data.

- There is little or no data from consumers about the actual use and disposal of products.

- There is little or no data available from suppliers, e.g. for reasons of confidentiality. For an example of how confidentiality problems can be overcome, see the case study below.

Case study: Overcoming the issue of confidentiality of information with suppliers

Eastman Kodak had to struggle with the question of which type of LCA to choose in the design of digital cameras. Scoring systems usually propose the calculation of the eco-efficiency of a material or component. Kodak tested these scoring systems at the same time as it researched the environmental impacts of digital imaging. To calculate product eco-efficiency indices, Kodak needed quantitative information concerning environmental impacts of components and materials in the supply chain.

Many key components were sourced from suppliers. Initially, Kodak's environmental managers contacted their environmental representatives at supplier companies to explain the objectives of the "Product Eco-efficiency Project" and to recruit participation. Although the suppliers' representatives of environmental units understood the relevance of the project, they were not in a position to approve the release of environmental information to Kodak, or lacked the information altogether. Significant time was lost identifying appropriate decision makers within the supplier companies. Once the decision makers were identified, they often had concerns sharing information that they viewed as confidential or proprietary.

Learning from the failure of this initial effort, Kodak improved its information collection process. It now strives to reduce turn-around time for supplier component information and ensure confidentiality, while also providing an incentive for suppliers to participate. Kodak environmental managers now work with their procurement or commodity counterparts. They are asked to send a letter requesting participation to their contacts at the supplier companies. The letter specifically states the strategic importance to Kodak of the product eco-efficiency project and that the suppliers' participation will indicate their interest in working in partnership with Kodak.

To ensure confidentiality, Kodak has contracted the services of an expert in LCA (Eco-balance) to assist with the product eco-efficiency project. Eco-balance collects component information from the supplier and performs the necessary analysis. Eco-balance then provides Kodak only with the aggregated information addressing environmental impacts, eliminating the need to share specific raw material formulae or process parameters. In addition, each supplier company has the opportunity to review the results of the analysis before they are disclosed to Kodak.

As an incentive, Kodak also agrees to provide the results of the analysis carried out by Eco-balance to the suppliers for their use. This gives suppliers new insights into their products' environmental profiles. It is also useful for public communications, responding to requests from other customers, and for environmental labels.

Based on analysis of the digital camera data, Kodak's Design for Health, Safety, and Environment Group selected an eco-indicator index for its continuing experimentation with LCA. Additionally, Kodak developed a document with environmental recommendations for suppliers on life-cycle issues.

Source: GEMI (2001) and Kodak, www.kodak.com.

Finally, LCA often dovetails with supply chain issues. A special challenge arises when parts of a product's life cycle are located with enterprises in countries operating comparatively low environmental standards. In this situation, MNEs face the choice between taking a mentoring approach to these facilities or eliminating them from the supply chain as non-conforming suppliers (OECD, 2002).

Tools and approaches

There are many ways to implement an LCA, depending on the needs, aspirations, and capacities of the company or organisation undertaking it. One of the key methodological decisions concerns the parameters or scope of the assessment (*i.e.,* which environmental impacts will be examined). Another has to do with the interpretation of the assessment (*i.e.,* which environmental impacts will be prioritised for action).

LCA is a tool that supports environmental decision-making by both business and government. According to a guide on LCA produced by the European Environment Agency, the primary application by business is for new product development. The information obtained through an LCA can be incorporated into the process of product design (see "Design for Environment" section below). As the EEA guide emphasises: "In the idea-phase, there is almost an unlimited number of possibilities with respect to design, choice of materials, function etc. The number of options decreases with the development process. Changes to the final product and of the necessary production tools often require a whole new development process. It is therefore necessary that relevant environmental tools are available and used as early as possible in the development process" (EEA, 1999).

A second application is for *corporate strategy*, including to:

- compare alternative materials, products, processes and activities within a company;
- compare resource use and pollution information with those of other companies in the same industry;
- identify and/or train suppliers;
- determine research priorities;
- train staff (including product designers and engineers) responsible for reducing environmental burdens associated with the company's products, processes and activities (IISD, www.bsdglobal.org).

The case study below illustrates this approach in the context of a multinational producer of chemicals and related products.

A third application is to support the *selection of quantitative targets and benchmarks* in the context of an EMS. In this way, an LCA provides the information basis for "Cleaner Technology" objectives, such as pollution prevention or waste minimisation. Companies have also used LCA to provide information about the environmental burden of products to policymakers, professional organisations and the general public, including in eco-labels and environmental declarations.[16]

Since the beginning of the 1990s, a new school of thought, the *industrial ecology*, is expanding and going beyond the concept of LCA. Industrial ecology proposes to view industrial systems as eco-systems and to take account of all material and energy flows that are generated in a production process, with the ultimate goal of minimising any forms of waste.

Case study: Using LCA to develop corporate strategy

BASF, a producer of a wide range of chemicals, plastics, and fibres for industrial and agricultural uses, has developed and implemented an "eco-efficiency life cycle tool" to help the company make strategic decisions. The tool enables BASF to compare the economic and environmental costs and benefits of various products and processes that deliver the same use to consumers. The tool plots the environmental burden and total economic costs on a two-axis graph called an eco-efficiency portfolio. The scope of life-cycle environmental burden encompasses six categories: raw materials consumption; energy consumption; air and water emissions and disposal; toxicity; potential risks and land use.

BASF used the eco-efficiency tool to determine the cheapest and most environmentally friendly way to transport about 25 000 metric tons of styrene between two locations in the Netherlands, a distance of some 100 kilometres. The two options BASF compared were: 1) rail transport for 115 km, which would require tank cars with a loading capacity of 60 metric tons; 2) road tanker transport for 114 km, with tankers carrying 33 metric tons each.

The analysis found that pure freight rates for transport by rail were lower than by truck, although additional rail-specific costs, such as shunting costs and car rental and handling, gave a slight cost advantage to road. However, environmental pollution — comprised of energy consumption, air emissions and health risks to workers — was found to be significantly lower by rail. For example, a truck would use about 50 000 litres of diesel per year. As the railways are electrified, the rail journey consumes in total about 20% less primary energy. BASF chose the rail option, even though it entailed higher economic costs.

Source: WBCSD, www.wbcsd.org.

16 Governments frequently use LCA to support policy decisions, including "green procurement" and infrastructure investment choices. Policy decisions that affect resource emissions and use, such as choice of energy sources and technologies, can be highly significant in determining the environmental burden of individual companies. LCA can help identify gaps in information and knowledge and help establish research priorities and monitoring requirements.

Environmental Impact Assessment

Environmental Impact Assessment (EIA) is a process that is normally applied to the planning phase of construction projects and is specific to the locations in which the facility might be constructed. Prior assessment of the environmental impact of a specific project is a mandatory requirement in virtually all OECD countries and in many non-OECD countries. It is therefore an important tool for domestic and foreign investors. It is also an increasingly important factor in the decision-making of lenders and institutions providing export credits and investment guarantees for projects.

An EIA aims to identify the adverse environmental and social consequences of a proposed project, so that relevant authorities are fully informed of its potential impact when deciding whether to approve or modify its design, or to incorporate mitigating measures (OECD, 2001).

According to WBCSD, the essential steps of an EIA are (WBCSD, 1997):

- Goal definition and scoping.
- Data collection (identifying a baseline).
- Impact assessment (quantifying effects against a baseline).
- Control of effects (mitigation measures).
- Communication (to stakeholders).

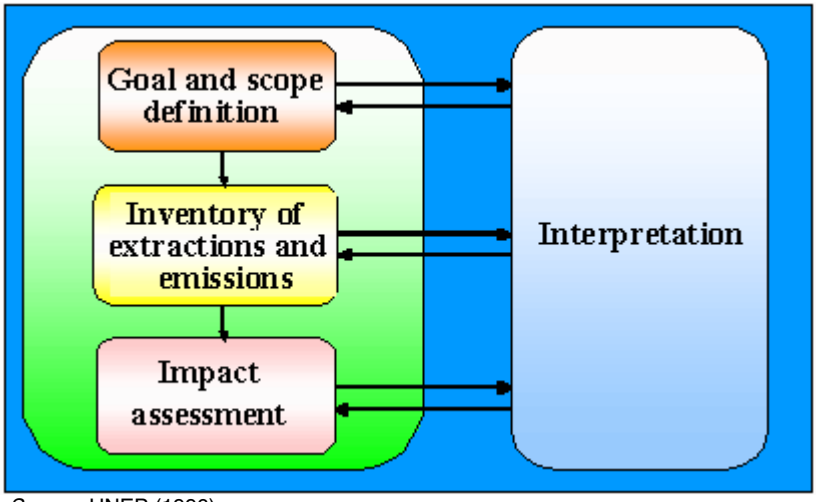
ISO 14040

ISO has developed an international standard for LCA as part of its 14000 Environmental Management series. ISO 14040 outlines and provides guidance for a four-step LCA process (Figure 4).

- *Goal and scope definition:* The product or service to be assessed is defined, a functional basis for comparison is chosen and the required level of detail is defined.
- *Inventory of extractions and emissions:* The energy sources and raw materials used, the emissions to atmosphere, water and soil, and different types of land use are quantified for each process, then combined in the process flow chart and related to the functional basis.
- *Impact assessment:* The effects of the resource use and emissions generated are grouped and quantified into a limited number of impact categories that may then be weighted for importance.

- *Interpretation:* The results are reported in the most informative way possible and the need and opportunities to reduce the impact of the product or service on the environment are systematically evaluated.

Figure 4. Phases of LCA According to ISO 14040



Source: UNEP (1996).

Life-Cycle Initiative

A standardised approach to global "best practice" for LCA is a crucial step towards more widespread implementation. UNEP and the Society for Environmental Toxicology and Chemistry (SETAC) are collaborating in the Life-Cycle Initiative (LCI) (UNEP, 2003).

LCI aims to build on the ISO 14040 standards to establish best practice approaches. The objective is to develop and disseminate practical tools for evaluating the opportunities, risks, and trade-offs associated with products and services over their entire life cycle to achieve sustainable development. This includes the dissemination of the knowledge of existing bodies on life-cycle approaches and the stimulation of multidisciplinary scientific work.

LCI's general aim is to enhance LCA applications and life-cycle thinking in management practice. According to UNEP, "Life-cycle thinking is a mostly qualitative discussion to identify stages of the life cycle and/or the potential environmental impacts of greatest significance, e.g. for use in a design brief or in an introductory discussion of policy measures."

Specific aims of LCI include the exchange of information on the conditions for successful application of LCA and life-cycle thinking, as well as about the interface

between LCA and other tools. Most importantly, in light of the obstacles identified above, the LCI aims to provide guidance on the use of LCA data and methods.

In February 2003, UNEP published its final draft report of the "Life Cycle Impact Assessment Definition Study" (UNEP, 2003). Based on workshops that brought together government and business participants from Europe, North America, Asia, Latin America and Africa, the report identified ten "required" impact categories as the parameters for an LCA: climate change; ozone depletion; habitat loss as result of deliberate actions; human toxicity; eco-toxicity; acidification and eutrophication; photo-oxidants; extraction of minerals; energy from fossil fuels; nuclear radiation.

Design for Environment

Design for Environment (DfE) is the systematic integration of environmental considerations into product and process design. DfE is an umbrella term for a variety of engineering and other techniques. DfE utilises a LCA as the information base from which to develop cost-effective design innovations that reduce resource use, pollution, and/or waste. DfE's overarching objective is to design products and services that minimise environmental impact throughout the product life cycle (IISD, 1992). In the DfE process, designers may look at the source, composition, and toxicity of raw materials; the energy and resources required to manufacture the product; and how the product can be recycled or reused at the end of its life. Balanced with other product considerations — such as quality, price, produceability, and functionality — eco-designed (or DfE) products are then sold as environmentally and economically viable alternatives to traditional products. ISO 14062 describes concepts and current practices relating to the integration of environmental aspects into product design and development.

Many enterprises have integrated DfE tools into their product design strategies. The case study below provides an example of how DfE has been successfully used in the photo-copier industry. DfE tools often rely on LCA studies to determine the foci of the redesign effort. The Electronic Division of Lear Corporation, for example, integrates environmental considerations into product design and development based on its prior LCA case studies of particular Lear products (Alonso *et al*., 2003).

The US Environmental Protection Agency considers DfE to be "one of EPA's premier industry partnership programs". EPA's Green Chemistry Program is the application of DfE to the chemical industry. It promotes the research, development and implementation of innovative chemical technologies that prevent pollution in both a scientifically sound and cost-effective manner (US EPA, 2001).

Drivers for the implementation of DfE come both from within and outside the company and are similar to those outlined earlier. However, a specific internal driver for DfE is the need to stimulate innovation. The emphasis on innovation might stem from a need to differentiate products from those of competitors, as well as to improve product quality. Empirical studies show that consumers are more likely to buy

environmentally-friendly products that do not sacrifice quality or performance. For this reason, a key consideration when companies apply DfE is to avoid such "greenness v. performance trade-off "that often backfires once the product is in the marketplace (see case study below) (SustainAbility and UNEP, 2001). External drivers include government policy, such as eco-labelling and take-back legislation, and environmental award programmes.

Case study: Escaping the "greening vs. quality" trade-off

When designing greener products, companies often face a trade-off between enhancing the product's environmental attributes and maintaining its quality or performance. In the past, green products often sacrificed performance; for example, environmentally-friendly household cleaning products often did not clean as well as their toxic counterparts. However, this trade-off can be overcome.

Fuji-Xerox Australia has applied DfE tools to enhance copiers and paper. Under the vision toward "waste-free products within waste-free factories", the company has designed a series of copiers that have 45% of recyclable parts and 95% reusable parts (in terms of total weight) in all models. Additionally, the design is energy-efficient.

Since one of the greatest environmental impacts of copying and printing equipment is paper consumption, Fuji-Xerox Australia also designed new paper — called "Green Wrap" — a 100% recycled office paper (50% pre and post consumer waste, 15% waste from cotton seed oil industry, and 35% pulp fibre from sustainably managed plantation forests). The Green Wrap cartons (for distribution) are made from 100% recycled corrugating medium and linerboard.

The application of DfE concepts in the manufacturing of these "green" copiers and paper did not come at the expense of quality. Quite the opposite; the copier series has one of the fastest monochrome printing speeds in the industry within the product's category. It can be used like any other paper in laser printers, copiers and typewriters. One of the benefits for Fuji-Xerox Australia from applying DfE was the recognition of its product as the paper of choice during the 2000 Olympics Games in Sydney — leading to the purchase of 86 million sheets.

Source: SustainAbility and UNEP (2001).

Like other environmental management tools, DfE offers both large and small enterprises opportunities to gain business value and enhance environmental performance. Besides enabling a company to think more strategically about its future operations and products, Canada's National Research Council lists the following benefits: increasing innovation; greater ability to compete; adding value; attracting customers; cutting costs; reducing environmental impacts and liability; and gaining systems perspective (SustainAbility and UNEP, 2001).

References

Alonso, J.C., J. Rodrigo and F. Castells (2003), "Design for Environment of Electrical and Electronic Components Based on Life Cycle Assessment", in *"Gate to EHS, Life Cycle Management – Design for Environment"*.

EEA (European Environment Agency) (1999), "*Life Cycle Assessment, A Guide to Approaches, Experiences, and Information Sources",* www.eea.eu.int.

IISD (International Institute for Sustainable Development) (1992), "*Business Partnerships for Sustainable Development"*, www.bsdglobal.com/tools/bt_dfe.asp.

OECD (Organisation for Economic Co-operation and Development) (2001) "*Sustainable Development. Critical Issues",* www.oecd.org.

OECD (2002). "*Roundtable on Corporate Responsibility: Supply Chains and the OECD Guidelines for Multinational Enterprises. Summary of the Roundtable Discussion"*.

SustainAbility and UNEP (2001), "*Buried Treasure: Uncovering the Business Case for Corporate Sustainability"*. www.uneptie.org/outreach/reporting/sustainability-reports.

UNDSD (United Nations Division for Sustainable Development) (2001), "*Environmental Management Accounting Procedures and Principles"*. www.un.org/esa/sustdev.

UNEP (United Nations Environment Programme) (1996) "*Life Cycle Assessment: What it is and how to do it",* www.uneptie.org/pc/pc/tools/lca.

UNEP (2003), "*Life Cycle Initiative",* www.uneptie.org/pc/sustain/lcinitiative.

US EPA (Environmental Protection Agency) (2001), "*Partnerships for a Cleaner Future"* www.epa.gov/dfe.

4. EXERCISING PRECAUTION

Chapter V, Point 4

[Enterprises should]:

Consistent with the scientific and technical understanding of the risks, where there are threats of serious damage to the environment, taking also into account human health and safety, not use the lack of full scientific certainty as a reason for postponing cost-effective measures to prevent or minimise such damage.

Several cases of serious environmental degradation have changed the perception of environmental protection, not only within governments, but also in society at large. The depletion of the ozone layer and other natural resources; the extinction of species of fauna and flora; pollution of even the most remote eco-systems; as well as increasing health problems related to environmental pollution, are examples of damage that was not prevented in time.[17]

Governments and enterprises have begun to change the way in which they look at environmental risk. It is increasingly perceived that it is not enough to repair environmental damage, but that environmental damage, especially when it is irreversible, should be prevented. That certain actions in the past showed their disastrous effects only after many years, often due to an accumulation of relatively minor impacts, has further raised awareness of the desirability of anticipatory action. Technological progress and the increasing dissemination of new and innovative industrial products and processes have also been seen as necessitating increased caution, at least as long as the potential damaging effects of such processes and products on human health and the environment are insufficiently known (OECD, 2002a).

[17] The European Environmental Agency has analysed a number of cases of environmental and public health disasters (including fisheries depletion, radiation, benzene, asbestos, PCBs, halocarbons, DES, antimicrobials, sulphur dioxine, MTBE, chemical contamination of the Great Lakes, tributyltin antifoulants, growth hormones, and BSE), and draws lessons, among others, from government and industry actions and inactions (EEA, 2000).

Several instruments already adopted by countries adhering to the Guidelines, including Principle 15 of the Rio Declaration on Environment and Development, enunciate a "precautionary approach". None of these instruments is explicitly addressed to enterprises, although enterprise contributions are implicit in all of them.

The basic premise of the Guidelines is that enterprises should act as soon as possible, and in a proactive way, to avoid, for instance, serious or irreversible environmental damage resulting from their activities. However, because the Guidelines are addressed to enterprises, no existing instrument is completely adequate for expressing this recommendation. The Guidelines therefore draw upon, but do not completely mirror, any existing instrument.

The Guidelines are not intended to reinterpret any existing instruments or to create new commitments or precedents on the part of governments; they are intended only to recommend how the precautionary approach should be implemented at the enterprise level. Given the early stage of this process, it is recognised that some flexibility is needed in its application, based on the specific context in which it is carried out. It is also recognised that governments determine the basic framework in this field, and have the responsibility periodically to consult with stakeholders on the most appropriate ways forward" (OECD, 2001).

Challenges and opportunities

For enterprises, precaution is in part a function of their everyday operations, and in part how they implement national regulatory requirements. The minimisation of risk of damaging human health or the environment is mandatory in most legal and regulatory systems. At a very minimum, a precautionary behaviour would comply with the relevant national regulations. The problems arise when regulation is insufficient or unclear.

Enterprises need to exercise precaution in situations when a *risk* exists (*i.e.,* where potentially hazardous effects deriving from an action, product or process have been identified) and there is *lack of scientific certainty* about the effects of such action, product or process on human health and the environment, or on the extent of the potential damage (OECD, 2002a).

It is impossible to describe in detail how different enterprises deal with scientific uncertainty. Management approaches vary according to the sector and the national regulatory schemes on public health, safety and environmental considerations under which companies operate. However, the following issues may be of relevance for enterprises facing scientific uncertainty about the potential environmental damage related to their activities.

Precaution and liability. Managing potential liability is one of the main challenges for enterprises, especially given an effective legal framework. Enterprises are concerned about financial liability — where failure can mean accruing financial liability beyond

the company's ability to pay. Secondly, there may be liability issues attached to the enterprise's products and processes. Third, enterprises are increasingly aware of liability accruing from their actions in a broad social and environment context. This can involve a broad range of issues, from clean-up costs associated with environmental damage to the risk of degrading a favourable brand name recognition. It can also include social liability, for example, where harm is done to workers' health or to the environment of indigenous people.

Risk perception. Risk (in particular risk to health and the environment) is a complex social issue and stakeholders can have differing — though equally legitimate — standpoints. Just as perceptions of the degree of acceptable risk vary from country to country, so do perceptions of who should bear responsibility for assessing and managing risk. In some countries, risk analysis is primarily a government function. In general, the role of the private sector in risk analysis is reflected in legislation and regulation, but it can vary with the sector and the perception of the degree of risk associated with it. For instance, there will be less concern about the risks from recognised activities in sectors in which the risks are relatively well known than there will be about those from new kinds of activity in a familiar sector, or in new types of technologies. For instance, manufacturing a new variety of equipment for logging activity will probably not inspire the same level of governmental concern or involvement as would developing through biotechnology a new variety of tree.

Limiting the risks and the costs. Weighing the costs and benefits of a new process, product or technology has a role in both the risk assessments and the risk management options considered by enterprises. For example, companies may consider that a product, however beneficial, would be too costly to produce (e.g., research and production of pharmaceuticals for comparatively rare diseases). The role of cost-benefit analysis in environmental decision-making is not straightforward, since it involves weighing intangibles and predicting results in areas of considerable scientific uncertainty, and that necessarily implies a large element of judgement. Moreover, the calculations involved, such as assigning a monetary value to human lives or health attributes, can also unsettle the public.

Balancing precaution and innovation. Most developed countries place the responsibility on companies engaged in product development or new technologies, especially those in which high risks are perceived, to meet regulatory thresholds requiring a certain level of safety and environmental acceptability. Much of this kind of national legislation incorporates precautionary approaches. For instance, new technologies such as biotechnology and novel foods and feeds must meet extensive requirements for product development and testing before they even get close to commercial marketing. This effectively requires companies engaged in these technologies to perform extensive risk analysis as part of their business operation. The business community ahs expressed concerns, that "overuse" of precaution could stifle innovation, lead to unexpected consequences for business interests, unnecessarily restrict trade in specific goods, provide inappropriate competitive advantages to a domestic producer, and ultimately lower the quality of life" (Business Roundtable, 2003). Other concerns include the possibility that too much precaution may distract

consumers and policymakers from known (and in some cases far more dangerous) risks to human health and the environment (Goklany, 2001).

The business sector has been actively involved in the debate about precaution and the application of the precautionary approach by decision-makers. For example, the Canadian Chemicals Producers Association issued a position paper on precaution (CCPA, 2000). In its statement *Precaution, science, risk and trade* the ICC discusses how decision-makers should apply precaution. It states that "precaution is integral to responsible business practices, a foundation of most contemporary environmental and health regulation, and a long-standing concept in many areas of international policy. In particular, where science cannot yet provide a full or appropriate evaluation in response to concerns about the consequences of a certain activity, technology or product, precautionary action is often taken. (…) Business fully supports the balanced, non-discriminatory and least trade-restrictive use of precaution, and implements it in many ways in its day-to-day operations. The private sector has to evaluate and manage economic activities, goods and services, and should take measures that will properly protect human health and the environment. All parties should recognise this and work together so that risks may be managed effectively and cooperatively…" (ICC, 2002).

Tools and approaches

Risk analysis plays an important role in the decision making process, particularly in situations of scientific uncertainty, and is an integral part of many companies' business. Environmental, food safety, health-related, occupational and financial concerns all generate a procedure known as risk analysis. Risk analysis for each of these purposes shares some of the same characteristics, but has been procedurally and conceptually refined to deal with the special nuances and problems encountered in each area.

There is as yet no single internationally agreed operational standard for *environmental* risk analysis, although many international agreements and processes are based on it. In contrast to environmental risk analysis, risk analysis relating to food safety and consumer protection has been operationally defined in international standards by the Codex Alimentarius Commission, an international standard-setting body operated under the auspices of the UN Food and Agriculture Organization and the World Health Organization (see box below). This definition can also be seen to be relevant for environmental risk analysis.[18]

18 Sometimes these processes are grouped under the general heading of risk assessment, rather than broken out into separate categories of risk assessment, risk management, and risk communication.

Box 4. Codex Alimentarius and risk analysis

Codex Alimentarius defines risk analysis as consisting of three components:

Risk assessment: A scientifically based process consisting of: hazard identification; hazard characterization; exposure assessment; and risk characterisation. The definition includes quantitative risk assessment, which emphasises reliance on numerical expressions of risk, and also qualitative expressions of risk, as well as an indication of the attendant uncertainties.

Risk management: The process, distinct from risk assessment, of weighing policy alternatives, in consultation with all interested parties, considering risk assessment and other factors relevant for the health protection of consumers and for the promotion of fair trade practices, and, if needed, selecting appropriate prevention and control options.

Risk communication: The interactive exchange of information and opinions throughout the risk analysis process concerning hazards and risks, risk-related factors and risk perceptions, among risk assessors, risk managers, consumers, industry, the academic community and other interested parties, including the explanation of risk assessment findings and the basis of risk management decisions.

Source: Codex Alimentarius Commission (2001).

Stakeholder involvement minimises the possibility that the results of a risk analysis be rejected. The level and kinds of stakeholder involvement depend on the tool used to identify, evaluate and select management options. Ideally, all stakeholders affected by a risk management process should be involved — consumers, manufacturers, competitors, producers in other relevant sectors, governments, researchers and academicians. However, in practice this may prove difficult. For instance, competition law and the business environment prevent companies from interacting with their competitors in most risk management contexts. Many multinationals are headquartered far from the ultimate distribution points of their products, making stakeholder involvement costly and difficult.

Risk Assessment

Environmental risk assessment consists in identifying and evaluating each step of a trajectory – from the origins of a hazard to its final consequences for a given system. It is an essential element for deciding whether and how risk needs to be avoided, reduced or accepted (OECD, 2003b). Before a risk can be assessed it must be characterised. Risk characterisation consists of the qualitative (and, wherever possible, quantitative) determination, including attendant uncertainties, of the probability of occurrence of known and potential adverse effects of an agent, product, process or situation under defined exposure conditions (OECD, 2003a).

Case study: Stakeholder involvement in risk assessment

A dispute between the oil industry and residents of Valdez Alaska over the capabilities of tug vessels used to escort oil tankers in Prince William Sound exemplifies the importance of stakeholder involvement in all phases of risk analysis. The dispute revolved around differences between how the industry and how the community characterised the risk to the Sound of managing oil tankers. In this case, the citizens' group involvement in a risk assessment process was largely responsible for the credibility of the results.

A citizens group proposed that the oil industry deploy highly manoeuvrable tractor tug vessels in one region of the Sound, and an ocean rescue tug vessel with an enhanced propulsion system in another region, on the basis that this would reduce the risk of oil spills. The oil industry initially opposed the proposal as an unnecessary expense, given that existing studies did not demonstrate that those tug vessels would improve safety. It then proposed to resolve the dispute by performing a comprehensive risk assessment of oil trade in the Sound. The risk assessment was to be jointly funded and managed through a steering committee comprising citizens' group members, oil industry managers and representatives of the two government regulatory agencies with the appropriate jurisdictions. To avoid the "duelling scientist" syndrome the steering committee combined the industry's scientific experts to form a single research team. Later interviews found all parties agreeing that if the oil industry had conducted the risk assessment on its own, no one else would have believed the results. Having the participants in the dispute structure perform the risk assessment jointly through collaborative analysis helped resolve potentially adversarial technical disagreements.

Source: Charnley (2000).

Environmental risk assessment essentially involves assessing the probability of causes and effects and the extent to which these are unknown, taking a broad range of variables into account. The risks linked to the different options can vary radically depending on the priorities attached to hidden variables during the process of appraisal. This is evident in recent hotly debated cases such as stratospheric ozone depletion, endocrine-disrupting and toxic chemicals, and genetically modified organisms.

Risk assessment has gradually mobilised a large amount of scientific knowledge sourced in a variety of disciplines, and developed sometimes sophisticated and increasingly reliable methodologies and tools. However, a number of limitations may lead to difficulties. For example, existing assessments are based on models that are sometimes far from reproducing real-world conditions accurately. Also, long-term consequences and impacts outside the system studied are often neglected (OECD, 2003b).

Most risk assessment needs to be performed early in the process of determining whether products or processes are worth developing, and to meet regulatory requirements. Many manufacturing processes integrate such risk assessment directly into their product design and engineering phase. More generally, companies involved in risk assessment have many tools from which to choose. A thriving industry has grown up around the techniques and tools surrounding risk assessment, offering everything

from software products to specialised expertise and quality assurance processes for specific kinds of risks.

Box 5. Some concepts related to risk assessment

- *Hazard* denotes a property (of substances, micro-organisms, etc) or a situation that in particular circumstances could lead to harm. If these circumstances occur, they result in adverse consequences. Hazard refers to sources of potential harm, whereas risk considers frequency and severity of damage from hazards. A risk assessment involves evaluating actual and perceived risks as the basis for decision-making.
- *Hazard identification* is the identification of the type and nature of adverse effects that an agent has an inherent capacity to cause in an organism, system or (sub) population.
- *Hazard characterisation* is the qualitative (and wherever possible quantitative) description of the inherent properties of an agent or situation having the potential to cause adverse effects.
- *Hazard assessment* is the identification of hazards, their potential receptors (people, natural resources, plants or animals), and the determination of the consequences.
- *Risk* is a function of the probability (or frequency) of a hazard occurring and the magnitude of its consequences; risk therefore represents the likelihood of a potential hazard being realised.
- *Risk estimation* involves identifying the probability of harm occurring from an intended action or accidental event.
- *Risk evaluation* determines the significance of estimated risks, including risk perception.

Source: Based on World Bank (1997) and OECD (2003a).

The following tools are of relevance for environmental risk assessment:

- *Environmental impact assessment*. By assessing potential environmental damage before an activity is undertaken, and taking adequate measures to prevent or mitigate such damage, environmental risks may be reduced.

- *Life-cycle assessment (LCA).* By exploring opportunities for more environmentally benign inputs and outputs in product and process development, life-cycle analysis or assessment contributes to limiting risks to the environment. (Environmental impact assessment and LCA are discussed in more detail in Chapter 3 of this report).

- *Research and peer review*. Scientific research is integral to risk assessment, and therefore companies will want to maintain contacts with the best research facilities and scientists their field has to offer. Research undertaken by companies in the course of, or used for, a risk assessment can be peer-reviewed by the relevant scientific community to ensure that it is credible and the best available. Similarly, the results of the risk assessment can be peer-reviewed before it is submitted for product approval in situations where such approval is required. However, companies will in practice seek to protect their intellectual property in this process, and peer review opportunities can be limited in some circumstances.

In addition, national governments, private and publicly funded scientific institutions and international institutions have developed guidance for risk assessment in specific sectors. For example, the OECD Chemicals Programme has produced an array of tools for the management of chemicals. These include test guidelines, good laboratory practices, hazard classification and labelling of chemicals, etc. More specifically, the Risk Assessment Programme carries out a variety of activities to improve the way chemicals are assessed, including the evaluation of chemical exposure and the assessment of chemical hazards. [19]

Risk Management

Risk management is a process that organises options to deal with a risk. Experts see the risk management process primarily as an effort to provide an integrated approach to solving health and environmental problems; to ensure that the risk management and economic decisions rely on the best scientific evidence and are made in the context of management alternatives; to focus on collaboration, communication and negotiation among relevant stakeholders; to produce decisions more likely to be successful than those made without early stakeholder involvement; and to accommodate critical information that may emerge at any time (Stirling and Mayer, 2000).

A variety of tools exist for risk management. They include *Environmental Management Systems* and *Environmental Audits,* already discussed in Chapter 1. Investing in production methods that are not sustainable (i.e. that deplete resources and degrade the environment) has a lower long-term return than investing in sustainable operations. In turn, improving environmental performance means less financial risk, an important consideration for insurers.[20] Improving environmental performance is also one of the objectives of environmental management systems. Closely related, environmental audits assess the ability of a company to comply with the risk

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19 The Chemicals and Risk Assessment Programmes are part of the OECD Health and Safety Programme (www.oecd.org/ehs).

20 See also the explanatory text on principle 7 of the UN Compact (www.uncompact.org).

management options it has defined or that have been defined for it in government regulation.

Environmental standards. These may be mandatory (in which case they are known as "technical regulations") or voluntary. Where there is scientific uncertainty relating to the introduction of a new product or process, there may be no technical regulations, or diverging ones. In these situations, risk management options are available through adopting voluntary standards. Such voluntary standards may include codes of conduct to which enterprises adhere, or general standards of conduct in the sector. Standardising bodies for environmental risk management exist at both national and international levels, and some also give guidance on risk assessment. These tend to be very sector-specific, although work is progressing on international agreement on environmental risk management standards in a number of broad environmental areas, including chemicals, hazardous waste, air pollution, ozone depletion, global warming, biodiversity, biotechnology and plant pests.

The work of ISO is particularly relevant in this context. ISO has generated a number of standards for environmental management systems and other standards relevant to environmental risk analysis. New standardising organisations are also emerging in specific sectors, such as sustainable forest management. Enterprises in sectors relating to life sciences, food and agriculture can find guidance in work of the Codex Alimentarius, the International Plant Protection Convention and the International Organization for Epizootics, standardising bodies recognised by the WTO Agreement on Sanitary and Phytosanitary Measures.

Governments often step in to determine how risk management is to be conducted. For instance Canada, under its toxics regulation, has developed a Risk Management Strategy document that outlines the proposed approach for managing the risks to the environment and human health for a particular toxic substance. Environment Canada also provides for focused, time-bound consultation on Risk Management Strategy documents through direct contact with industry and non-governmental organisations and, more broadly, through postings on the National Office of Pollution Prevention web-site. [21]

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[21] Environment Canada, "*Identifying Risk Management Tools for Toxic Substances Under CEPA 1999*" (www.ec.gc.ca/envhome.html). This site points out what other tools are available for managing toxics options. These include voluntary approaches (such as environmental performance agreements and memoranda of understanding), economic instruments (such as financial incentives and subsidies), environmental charges and taxes, and joint Federal/provincial territorial initiatives such as Canada-wide standards, guidelines and codes of practice, provincial/territorial acts, regulations, permits or other processes.

Case study: Precaution as part of risk management

Proctor and Gamble incorporates precaution into corporate decision-making using a hierarchical environmental management framework aimed at fulfilling four management needs: human and environmental safety; regulatory compliance; efficient resource use and waste management; and social considerations.

Products go through ten phases in the process of assessing their human health and environmental safety. The process is designed to be flexible, and to be used as a guide rather than to control or limit the flow of information because "every technology presents potentially unique scientific issues."

In the first phase a product's physical and chemical properties are evaluated on the basis of literature and laboratory work, and an analytical methodology is developed, if needed.

The second phase incorporates usage patterns — how the material will be used and in what quantities. This also takes into consideration manufacturing, shipping and disposal patterns to assess the degrees and kinds of human and environmental exposure.

The third stage estimates environmental concentrations from the usage patterns. Very conservative models are used in this stage (exposure is overestimated) and refined later in the process based on more realistic environmental models after the "environmental fate assessment" is completed in the fourth stage. This consists of evaluating and testing what happens to the material after disposal.

Analysis at the fifth stage estimates human exposure in diverse situations and by diverse routes. This includes intentional and accidental exposure of factory workers, consumers and the environment, by oral, respiratory, dermal and ocular routes. This information is critical to developing health effects "endpoints," against which testing will be done.

A sixth stage is a health effects assessment following review of all available data. This is an extensive process, including (as appropriate) acute, sub-chronic and chronic toxicity testing, mutagenesis testing, developmental and reproductive function evaluations, metabolism and toxicokinetics studies.

This is followed by an environmental effects assessment. This can include acute and chronic laboratory single species studies, microcosm tests, and full-scale experimental stream studies at the individual, population, community and ecosystem level of biological complexity.

Finally, decision-making bundles all this information together for an answer to the question of whether the product is "safe for humans and the environment under conditions of intended use and reasonably foreseeable misuse". Market surveillance follows a decision to market a product. This may include field marketing and surveillance of employee health and will include responses to consumer comments.

As the final process, precautionary actions are taken with respect to any risks associated with using the product that are judged unacceptable. This could consist of intervening in any part of the product life cycle and would also involve revisiting the decision making process as new information becomes available to ensure safe use of the product.

Source: Bishop, Pittinger and Kohrman (2000).

Governments also co-operate at the international level to contribute to better risk management. The OECD Chemicals Programme includes a Risk Management Programme to assist in deciding how to manage the use of chemical products so that society can take advantage of their benefits while minimising risks. While mainly addressed to governments, this Programme also includes guidance to industry (*e.g.,* on how to reduce chemical exposures based on an understanding of a chemical's life-cycle).

Industry trade associations also provide *guidance and training* on risk management alternatives. For instance, Croplife International, a global network of companies representing the plant science industry, supports extensive programmes to train more than two and a half million farmers and communities in safe and effective use of pesticides (www.gcpf.org).

Risk communication

One important concern for companies undertaking risk analysis is how that process will be publicly perceived. Most, especially in the food and consumer goods areas, need to avoid being seen as uncommunicative or non-transparent. On the other hand, communicating a risk analysis, including costs and benefits, can also trigger alarm, if the public perceives the issues differently. Practice shows that inadequate risk communication can have severe impacts on the sales of a product and even cause its retrieval from the market.[22]

Scientific uncertainty is not new to scientists, who deal with it on an everyday basis. But the public is not accustomed to regulatory action not based on "facts" about

[22] One example reported in the press was that of a fat replacer, marketed in snack foods in the US. It was developed at the same time as a comparable product, a margarine to which a plant sterol was added. In each case, the products were developed and refined for a specific public health target—fat reduction in the first case, and reduction of heart disease risk through cholesterol reduction in the other. In both cases the ingredients that were associated with the health benefit had been shown to be safe and effective (i.e., they were safe foods and they were lower in fat, and helped reduce serum cholesterol, respectively). In both cases the benefit to the consumer was added to the label- X% reduction in total fat and Ymg plant sterol for reduced cholesterol. Considerable advertising and promotion accompanied each and both were marketed within the entire US. The principal difference between the two was the caveat placed on one of the products, a "cautionary note" to consumers about a potential concern that some believed should be communicated on the label. After a number of years, three factors were clear: first, the warning-containing product was not shown to have more adverse health effects or consequences than other snack-type products according to the required post-market monitoring effort; secondly, the label warning was removed after a number of years; and lastly, the product did not survive the market reaction. The failure was interpreted as the rejection of the "caution" about consumption of the product, irrespective of the fact that the product and its ingredients were safe. In other words, the risk was communicated in such a way that the product may have been doomed to failure.

what is safe or unsafe, environmentally benign or harmful, but on probabilities or tolerance or exposure levels. Risk communication tries to give the public the best information possible without raising its level of anxiety.

It is important for enterprises to be aware of the level of risk aversion of the market for which they intend to produce and to take on the responsibility for risk communication as it relates to their products. Consumers also need to be educated, so that they better understand the risks associated with the many components of their lives and their environment.

Risk communication tools range from hands-on work in relevant communities to corporate sustainability reporting. At a basic level, these communication tools are the same as those used by enterprises to communicate about their activities in general, including through their websites and their *annual reports*. Much has been written about *labelling* as a risk management tool, in the sense that it passes to the consumer the decision on the risk connected with the attributes described on the label. However, labelling is as much about risk communication as it is about management. As it usually indicates conformity with a voluntarily undertaken, process-based standard, labelling can be an effective way to communicate the risk assessment results and management decisions.

New international institutional responses to the need for better risk communication are emerging. The OECD has developed numerous guidance documents on all aspects of risk analysis in the field of chemicals and biotechnology; Codex Alimentarius and the European Food Safety Authority focus on food safety issues. The OECD Guidance Document on Risk Communication for Chemical Risk Management offers a range of tools from which enterprises may choose, depending on the situation and the audience (OECD, 2002b). For example, it provides guidance for communications with individuals, the media and institutional stakeholders on how to differentiate between various audiences, and how to address different sub-cultures in society. Although it focuses on the chemical industry, the suggestions are relevant to risk communication strategies in other sectors. The document also suggests some principles of good risk communications practice:

- Start with a critical review of your own performance.

- Design an integrative risk management and communications programme that ensures a continual effort to communicate with the most important stakeholders (including consumers) during the management process.

- Tailor communication to the needs of a targeted audience and not to the needs of the information source.

- Adjust and modify the communication programme in an organised effort to collect feedback and to sense changes in values and preferences.

Box 6. Designing an effective risk communication message

The following suggestions can assist risk communicators in achieving the maximum impact for their messages:

- Be clear about your intentions and make them the central message of your communication effort.
- Simplify your message as much as you can without being inaccurate.
- Place your simple messages (general information) at the beginning of a text and gradually add the complex issues (specifics).
- Never assume technical knowledge about the issue unless the audience is clearly a technical community.
- Anticipate the interests of your target audiences and design your communication programme to match their needs.

Source: OECD (2002b).

Recently, an International Risk Governance Council has been established under the auspices of the WBCSD as an independent body, involving a public-private partnership to help close the gap between science, technological development and the public. The Council will support governments, business and other organisations in both developing and developed countries to offer a platform for global debate, and a source of compiled (and if possible unified) scientific knowledge. It will also elaborate generic recommendations and guidelines. Its mission is to foster public confidence in risk governance and in related decision-making, by reflecting different views and practices and providing independent, authoritative information, improving the understanding and assessment of important risk issues (www.irgc.org).

References

Business Roundtable (2003), *"A Business Roundtable WTO Policy paper: A Balanced Approach to Precaution and Risk"* www.businessroundtable.org.

CCPA (Canadian Chemicals Producers Association) (2000), "*Discussion Paper on the Precautionary Principle as it applies to Public Policy Decisions",* www.ccpa.ca.

Codex Alimentarius Commission, Food and Health Organization of the United Nations/ World Health Organization (2001), "*Procedural Manual*", www. codexalimentarius.net.

European Commission (2000), "*Communication from the Commission on the Precautionary Principle",* www.europa.eu.int.

EEA (European Environmental Agency) (2000), "*Late lessons from early warnings: the precautionary principle 1896-2000",* www.eea.org.

Goklany, Indur M (2001), "The Precautionary Principle: A Critical Appraisal of Environmental Risk Assessment". In Gough, Janet D., "*Environmental Decision Making and Risk Management for Groundwater Systems"*, www.fplc.edu.

ICC (International Chamber of Commerce) (2002), "*Precaution, science, risk and trade*", www.iccwbo.org.

MacKenzie R. (n.d.), "*Environmental Risk Analysis*", www.isb.vt.edu.

OECD (Organisation for Economic Co-operation and Development) (1997), "*The economic appraisal of environmental projects and policies: a practical guide*", www.oecd.org.

OECD (1998), "*Guidelines for Testing of Chemicals*" (originally published in 1981; new edition in 1993, last update in 1998).

OECD (2001), "*OECD Guidelines for Multinational Enterprises: text, commentary and clarifications"*.

OECD (2002a), *"Uncertainty and Precaution: Implications for Trade and Environment"*.

OECD (2002b), "*OECD Guidance Document on Risk Communication for Chemical Risk Management"*.

OECD (2003a), "*Description of Selected Key Generic Terms Used in Chemical Hazard/Risk Assessment"*.

OECD (2003b), *"Emerging Risks in the 21st Century"*.

Raffensperger, C. and Tickner J. (1999), "*Protecting the Public Health and the Environment, Implementing the Precautionary Principle"*.

Schierow, Linda-Jo (2001), "*The Role of Risk Assessment and Risk Management in Environmental Protection"*.

Stirling, A, and Mayer, S. (2000), "*Precautionary Approaches to the Appraisal of Risk: A Case Study of a Genetically Modified Crop*", International Journal of Occupational and Environmental Health.

World Bank (1997), "*Environmental Assessment Sourcebook*", www.worldbank.org.

WBCSD (World Business Council for Sustainable Development) (1997), "*Environmental Assessment – A Business Perspective",* www.wbcsd.org.

5. EMERGENCY PREVENTION, PREPAREDNESS AND RESPONSE

Chapter V, Point 5

[Enterprises should]:

"Maintain contingency plans for preventing, mitigating, and controlling serious environmental and health damage from their operations, including accidents and emergencies; and mechanisms for immediate reporting to the competent authorities".

Preventing, mitigating and controlling environmental and health damage related to a company's operations is at the heart of sound environmental management. The previous chapters have discussed the main tools available to achieve such goals in companies' *day-to-day operations* — including implementation of an environmental management system, adopting a life-cycle approach and carrying out risk analysis. This chapter will therefore focus on the prevention, mitigation and control of environmental health and damage arising from *accidents and emergencies*.

The Guidelines address what are commonly considered to be the three core components of emergency management:

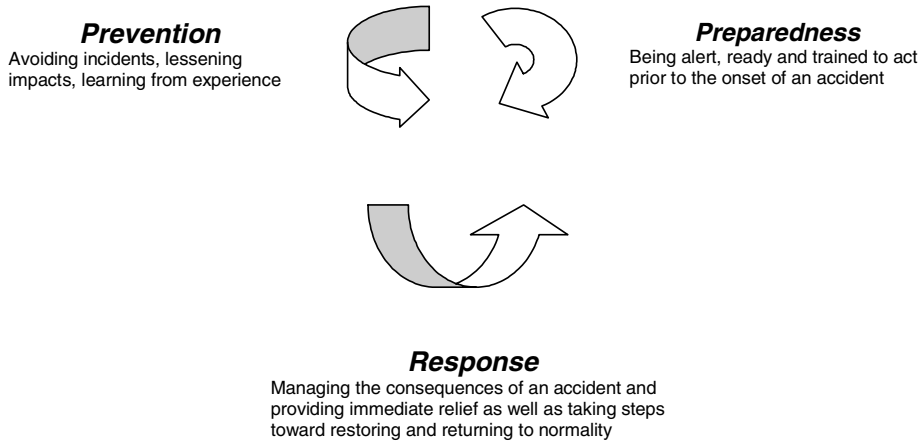
- *Prevention.* The minimisation of the likelihood that an accident will occur.

- *Preparedness and mitigation.* The mitigation of the consequences of accidents through emergency planning, land-use planning, and risk communication.

- *Response.* Limiting adverse consequences to health, environment and property in the event of an accident. The response includes actions needed to learn from the experiences of accidents and other unexpected events (follow-up) in order to reduce future incidents (prevention).

It is difficult to separate these three components completely; rather, they should be seen as part of an emergency management cycle or continuum (See Figure 5).

Figure 5. Emergency Management Cycle



Source: OECD (2003).

During the 1990s, public and private systems for emergency preparedness and response were adopted at a relatively fast pace. These developments were in part the result of events, such as the chemical accident in Bhopal (India) in 1984 and an oil spill in Alaska (US) in 1989, which increased the need for regulatory and voluntary action in preventing, preparing for, and reporting industrial accidents (UNCSD, 1997). On the one hand, new national and international laws were approved. On the other, market-driven international standards such as ISO 14001 and codes of conduct also addressed emergency issues explicitly.

Challenges and opportunities

The main driver for companies to prepare for contingency plans for preventing, mitigating and controlling environmental and health damages is legislation. The relevant areas of legislation are those dealing with accident and emergency prevention, and with occupational health and safety. [23]

Major accidents have prompted the development of *international instruments,* In the 1970s, a major accident led to the adoption of legislation in Europe (the Seveso Directive) aimed at the prevention and control of major accidents involving hazardous substances. [24] The Seveso Directive (and subsequent amendments) required that

[23] The MNE Guidelines deal with occupational health and safety issues in the chapter on "Employment and Industrial Relations". This report discusses occupational health and safety issues only to the extent they relate to the specific components of the "Environment" chapter.

[24] European Commission, "*Chemical Accident Prevention, Preparedness and Response*", http://europa.eu.int.

companies meeting certain criteria establish an accident prevention policy, safety management system and reports, and an emergency plan. Another example is the Helsinki Convention on the Transboundary Effects of Industrial Accidents, which establishes a notification system and a regulatory framework for participating countries.[25]

Other changes were made in *national legislation and regulation*. In the United States, the 1986 Emergency Planning and Community Right-to-Know Act was approved partly in response to public and congressional concerns about the accident in Bhopal and negative incidents in the US (Percival *et al*., 1996). Under this Act, companies are required to undertake chemical emergency planning, reporting, and toxic releases disclosure. If a chemical accident results in the release of certain hazardous substances, citizens have a right to know. Hence, companies *must* notify local authorities immediately of accidental releases of hazardous substances in excess of reportable quantities and submit a follow-up emergency report.[26]

The environmental and safety regulatory regimes that have emerged in various countries and regions differ greatly in the methods of achieving their objectives, from highly regulated prescriptive regimes to more flexible systems that approach environmental issues as well as safety in a very different light (IPIECA, 2002). However, emergency prevention cannot rely exclusively on regulation. Adhering to *voluntary codes of conduct* is often in enterprises' best interests; they can employ such codes as a tool for regulatory compliance as well as a safeguard against "over-regulation" by legislators.

As discussed in Chapter 6 of this report, achieving continuous environmental improvements often requires the involvement of parts of the supply chain that are not owned by the company, such as suppliers and contractors. The case study below offers an example of a company's effort to include contractors in activities dealing with emergency issues. The ultimate goal is to reduce accidents and to protect workers from injuries.

An obstacle to implementation of voluntary standards in this area has been the fact that many companies have limited incentive to communicate about the difficulties in adopting emergency prevention measures. Admitting to the general public that a company faces challenges or problems with implementing environmental safety measures is notoriously difficult, as it can be seen as bad publicity and alerting about potential liability. Moreover, many companies consider the data from internal safety and compliance audits to be confidential. On the other hand, informing the public about the difficulties that companies face in preventing emergencies in the future is seen by stakeholders as a sound practice, not least because, in the event of an emergency, communities may be affected first-hand.

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25 The text of the Convention is available at www.unece.org.

26 For an overview, see US Environmental Protection Agency "*Chemical Emergency Preparedness and Prevention,* www.epa.gov.

Case study: Including contractors in emergency plans

Grupo Terranova is formed of vertically integrated companies, from forestry to distribution of manufactured products, and ranks among the largest companies in the Chilean forest sector. As part of Grupo Terranova's safety policy, the company has prevention programmes and encourages incident reporting. The prevention programmes, both in forest and sawmill operations, include investments in protective equipment, safety experts, health clinics, certification of critical activities, insurance premiums for health and accident insurance, and training. Supervisors frequently visit all field operations and check the status of risk prevention. The procedures and instructions for work-related accidents define the steps to be followed in the event of an accident. The company has an expert in risk prevention who advises all the forestry services companies that work for the company.

But in some instances, services companies conduct many of the operational activities leading to greater frequency of accidents among contractors than among the company's employees. Hence, the company encourages plants to report accidents so that corrective action can be taken into account to avoid recurrences. The accident information is supplied by the forestry services companies and confirmed through monthly reports submitted according to certain guidelines.

One mechanism for involving forest service companies is by organising annual assemblies of workers of the companies that work for Terranova. The objective is to provide workers with an opportunity to meet and exchange experiences that may be useful in improving their work and practices.

Source: Grupo Terranova, www.terranova.com.

Traditionally, most of the responsibility in the area of emergency response fell to experts in government and industry. However, in recent years, the role of communities in the emergency planning and response process has become more prominent (OECD, 2003). As the case for corporate transparency gains ground, corporate environmental, health, and safety reports increasingly include information about community involvement in environmental and emergency management. The involvement of communities and other stakeholders in accident prevention and response is likely to increase in the future.

Tools and approaches

Standardised systems

ISO 14001

The ISO 14001 standard specifies core requirements for establishing an environmental management system geared toward continuous improvement. As described in Chapter 1, under ISO 14001 companies should follow a "plan-do-check-act-improve" sequence. Emergency preparedness and response is addressed in different parts of the system, but it is especially at the stage of implementation and operation of the management systems ("do") that these issues are

addressed. Companies have to establish and maintain procedures to identify potential for and response to accidents and emergency situations, and for preventing and mitigating the environmental impacts that may be associated with them (ISO, 1996a). The standard also requires that companies review (and revise where necessary) their emergency preparedness and response procedures, in particular following accidents or emergency situations, and periodically test such procedures where practicable. ISO 14001 also suggests that companies implement a procedure for receiving, documenting and responding to information and requests from interested parties, including communication with public authorities regarding emergency planning. In the case of non-conformance (*e.g.*, an accidental hazardous release of toxic substances), the company would have to set procedures for investigating what happened and for initiating corrective and preventing action.

According to ISO 14004 — a guidance standard for establishing ISO 14001 compatible environmental management systems — the operating procedures should, where appropriate, consider the following: accidental emissions to the atmosphere; accidental discharges to water and land; and specific environment and ecosystem effects from accidental releases. Such procedures should take into account incidents arising, or likely to arise, as consequences of abnormal operating conditions and accidents and potential emergency situations (ISO, 1996b).

Companies could include the following when defining an emergency plan, as suggested in ISO 14004:

- emergency organisation and responsibilities;
- a list of key personnel;
- details of emergency services (e.g. fire department, spill clean-up services);
- internal and external communication plans;
- actions taken in the event of different types of emergencies;
- information on hazardous materials, including each material's potential impact on the environment, and measures to be taken in the event of accidental release; and
- training plans and testing for effectiveness.

Box 7. Emergency prevention and occupational health and safety (OHS) management

In an emergency or accident, workers are often the first exposed. Therefore one of the objectives of contingency plans is to ensure workers' health and safety in such situations. Environmental management systems such as ISO 14001 provide general guidance on measures to take in cases of emergency or accidents. These can complement measures in OHS management tools, such as ILO-OSH 2001 and OHSAS 18001.

The *ILO Guidelines on occupational safety and health management systems - ILO-OSH 2001* – encourage the implementation and integration of occupational safety and health (OSH) management systems as part of an organisation's overall management.[27] They recommend that emergency prevention, preparedness and response arrangements should be established and maintained. These arrangements should be commensurate with the size and nature of the organisation's activity, and be established in co-operation with external emergency services and other relevant bodies. They should:

- ensure the necessary information, internal communication and coordination to protect all people in the event of an emergency at the worksite;
- provide information to and communicate with the relevant competent authorities;
- address first-aid and medical assistance, fire-fighting and evacuation of all people at the worksite;
- provide relevant information and training to all members of the organisation including regular exercises in emergency prevention, preparedness and response procedures.

OHSAS 18001 provides specifications for an OSH management system, to enable companies to control their OSH risks and improve their performance.

The OHSAS 18001 standard is compatible with ISO 14001, which can help facilitate the integration of quality, environmental and occupational health, and safety management systems by enterprises that wish to do so. ISO 14001 and OHSAS 18001 offer complementary models to formal regulation in the area of emergency management. A company may choose to apply ISO 14001, OHSAS 18001, or both. As with ISO 14001, OHSAS 18001 establishes five requirements with a focus on emergency preparedness and response. The company must *identify* potential incidents and emergency situations; it has to *prevent and mitigate* likely illnesses and injuries; it must *respond* to incidents and emergency situations when they occur; it must *review and revise* emergency preparedness and response procedures after the occurrence of an actual incident; and it must periodically *test* emergency response procedures.

In the event of an accident, OHSAS 18001 states that the company will have to establish and maintain procedures for defining responsibility and authority for the handling and investigation of the accident; taking action to mitigate any consequences arising from the accident; the initiation and completion of corrective and preventive actions; and confirmation of the effectiveness of corrective and preventive actions taken.

Source: ILO, www.ilo org and BSI (2002).

27 The ILO-OSH 2001 Guidelines were developed by the International Labour Organization (ILO) according to internationally agreed principles defined by the ILO's tripartite constituents. The purpose of the guidelines is to contribute to the protection of workers from hazards and the elimination of work-related injuries, ill health, diseases, incidents and deaths. The guidelines address both *national frameworks* for OSH systems, and the OSH management system *within the organisation*.

Case study: Drawing Lessons from Incidents

When companies operate in different sectors and in many countries, it is nearly impossible to have one single approach to emergency prevention, and preparedness. This case focuses on a commodity enterprise, BHP Billiton, which works with aluminium, energy coal, and metallurgical coal, copper, ferro-alloys, iron ore and titanium minerals, and has substantial interests in oil, gas, liquefied natural gas, nickel, diamonds and silver.

Emergency management is addressed in the "Health, Safety, Environment, and Community Management Standards" that apply to BHP Billiton's operations. These standards are consistent with company-wide risk management policies, and with ISO 14001. They are reviewed at least every three years and, if required, revised and re-issued in accordance with internal control requirements.

In the event of an incident, BHP Billiton has a specific standard under which the incidents have to be reported, investigated and analysed. Corrective and preventive actions are taken and lessons shared. The investigation includes the identification and documentation of all the factors and underlying causes that contributed to the incident, the controls that were intended to prevent it, and analysis of any failures in the controls. Incident investigators identify and prioritise corrective and preventive actions.

Information gathered from incident investigations is analysed to identify lessons and monitor trends, and reported to management to improve standards, systems and practices. Lessons learned are shared across the organisation and with other stakeholders as appropriate. In the event of a significant incident, systems are in place to ensure that associated work does not resume until action has been taken to reduce the risk of recurrence and authorisation is given at the appropriate level.

Source: BHP Billiton, www.bhpbilliton.com.

ISO 14001 requires employee training as part of the implementation of the management systems. Under its requirement of "training, awareness, and competence", ISO 14001 requires companies to establish and maintain procedures to make employees aware of their roles and responsibilities in achieving conformance with the requirements of the environmental management system, including emergency preparedness and response requirements. More detail on environmental training is provided in Chapter 7.

Voluntary codes of conduct and other guidelines

Emergency management as a general business principle

The International Chamber of Commerce has included emergency preparedness and response among the 16 core principles of its Business Charter on Sustainable Development (www.iccwbo.org.) The CERES (Coalition for Environmentally Responsible Economies) Principles require signatories of the Charter to conduct systematic self-evaluation of their environmental progress and complete a publicly available annual report. Companies adhering to the CERES principles commit to strive to minimise the risks to employees and communities in which they operate "through

safe technologies, facilities, and operating procedures, and by being prepared for emergencies". Additionally, under the principle of informing the public, they "will inform in a timely manner anyone who may be affected by the conditions caused by [our] company that might endanger health, safety, or the environment" and commit to not taking "any action against employees for reporting dangerous incidents or conditions to management or to appropriate authorities".

Box 8. Examples of issues addressed in CERES reports: emergency preparedness

- Does your company have trained personnel and equipment capable of handling chemical emergencies that your plants might experience, including those that might involve radioactive materials?
- Does your company conduct training exercises with fire-fighters and rescue teams in all communities where research and development and production facilities are located?
- Does your company keep local emergency responders informed of risks created by, or chemicals used by, your operations?
- Does your company proactively seek the advice and counsel of independent community groups (e.g., through newsletters, regular meetings, open forums, or community oversight committees) regarding possible risks posed by your operations?

Source: CERES, www.ceres.org.

Sector-specific codes and guidelines

Companies producing or handling chemicals and hazardous substances can use the *OECD Guiding Principles for Chemical Accident, Prevention, Preparedness, and Response*. This detailed document offers guidance to industry as well as governments and communities. Since it is recognised that the primary responsibility for the safety of hazardous installations rests with the owners and operators of such installations, a large part of the Guiding Principles is devoted to identifying industry's roles and responsibilities (OECD, 2003).

Responsible Care, discussed in detail in Chapter 1, is a voluntary approach for the chemical industry to handle products more safely, from inception in the research laboratory, through manufacture and distribution to disposal. Responsible Care offers several codes; two of them are clearly linked to emergency management. The "Community Awareness and Response Code" focuses on emergency preparedness and community right-to-know tools (that is, laws that grant citizen access to information). The "Process Safety Code" seeks to prevent fires, explosions, and accidental chemical

releases (www.americanchemistry.com). Other voluntary initiatives from the chemical industry focus on safe transportation practices.[28]

The *Transportation Community Awareness Emergency Response* is a voluntary effort in North America that involves chemical manufacturing, transportation, distributor, and emergency response industries, as well as the government (www.transcaer.org).[29] The goal of this effort is to assist communities that are near major transportation routes by planning, preparing, assessing, and revising a community's hazardous materials emergency response plan. The managing group develops manuals and other tools to help the regional and state implementation and, as an incentive, this programme recognises the companies and personnel who support the programme through awards.

The *Safety and Quality Assessment System* is a programme of the European Chemical Industry Council that offers a Europe-wide system to help companies select logistics partners that meet its high safety requirements (www.sqas.org). To be considered as a good transporter, a carrier must meet a number of conditions relating to factors such as equipment, management, training of staff, and response times in the event of an emergency.

The *Transport Accident Information and Emergency Response System (TUIS)* (www.fcio.at*)* was established by Austrian and German chemical companies in the 1980s and formed the model for the Europe-wide International Chemical Environmental Programme.[30]

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28 Inter-government action and cooperation in the area of hazardous waste is guided by the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal. The countries ratifying the Basel Convention are required to undertake appropriate legislative and regulatory action, including seeking the prior informed consent of waste importing countries, www.basel.int.

29 The National Transcaer Task Group that manages this initiative is made up of the American Chemistry Council, Association of American Railroads, American Waterways Association, Chemical Educational Foundation, National Tank Truck Carriers, Inc., and The Chlorine Institute.

30 TUIS stands for "Transport - Unfall - Informations- und Hilfeleistungssystem", www.fcio.at.

Case study: Creating a Crisis Management System

The BASF Group is a chemicals company with production in 38 countries and 93 000 employees worldwide. BASF has developed a comprehensive crisis management system that stretches from individual production facilities, the fire department, on-site medical services, environmental monitoring and analysis of plant and work safety all the way to corporate communications. The system sets out in detail who informs whom in the case of an emergency, both inside and outside the company, as well as measures to be taken to remedy the situation on site and to assess and minimise all potential risks and damage to the neighbourhood.

This strategy involves a crisis management team in corporate communications whose task it is to inform the public and the workforce about emergencies through news releases, flyers, the Internet and a telephone hotline - around the clock, 365 days a year.

Additionally, BASF has established "Site Incident Management Teams" at all major national and international production sites. The activation of each management level depends on the size of the incident. Those responsible at higher levels provide support to the local team. If required, teams of experts may be formed at the higher levels and dispatched to provide local support. At the highest level, a global "Crisis Management Support" unit is available at headquarters, in Germany.

The safety procedures, which are part of BASF's "Global Guidelines for Emergency Response" are activated in the event of a crisis. The procedures deal with safe product handling in emergency situations (fires or spills); fire prevention and fire-fighting; transport accident; and emergency and incident response.

The emergency response experts are also available around the clock through a global network of emergency contact numbers. BASF has also established "Emergency Control Centers" to provide direct support services in several key countries.

Source: BASF, www.basf.com

Co-ordinating emergency prevention plans

In addition to emergency prevention and preparedness plans developed by industry, communities generally also develop plans to act in emergency situations. UNEP has developed a methodology, in conjunction with governments and industry with the purpose of minimising the occurrence and harmful effects of technological accidents and environmental emergencies. The programme, *Awareness and Preparedness for Emergency at Local Level (APELL*), aims at identifying and creating awareness of risks in an industrialised community, to initiate measures for risk reduction and mitigation, and to develop co-ordinated preparedness between the industry, the local authorities and the local population (www.uneptie.org/pc/apell).

The APELL process is designed to build on existing emergency plans to create a single co-ordinated local plan. APELL can apply to any risk situation, whether industrial or natural. It can be initiated by any party, although companies can be expected to take the lead; and it can be facilitated by governments or by industry associations.

APELL was originally developed to cover risks arising from fixed installations, but it has also been adapted for specific applications: APELL for Port Areas was released in 1996; TransAPELL, Guidance for Dangerous Goods Transport: Emergency Planning in a Local Community was published in 2000; and APELL for Mining released in 2001. The APELL Handbook sets out a 10-step process for the development of an integrated and functional emergency response plan involving local communities, governments, emergency responders and others. This process creates awareness of hazards in communities close to industrial facilities, encourages risk reduction and mitigation, and develops preparedness for emergency response.

References

BSI (British Standards Institution) (2002), "*OHSAS 18001: 1999 Occupational Health and Safety Management Systems- Specification*".

ILO (International Labour Organization) (2001), "*Guidelines on Occupational Safety and Health Systems",* www.ilo.org.

IPIECA (International Petroleum Industry Environmental Conservation Association) (2000), "*A Guide to Contingency Planning for Oil Spills in Water"*, www.ipieca.org.

IPIECA (2002), "*Oil Responder Safety Guide"*.

ISO (International Organization for Standardization) (1996a), "*International Standard ISO 14001. Environmental Management Systems. Specification with Guidance for Use*". www.iso.org.

ISO (1996b), "*International Standard ISO 14004. Environmental Management Systems. General Guidelines on Principles, Systems and Supporting Techniques"*.

OECD (Organisation for Economic Co-operation and Development) (2003), "*Guiding Principles for Chemical Accident, Prevention, Preparedness, and Response",* www.oecd.org.

Percival, Robert V. *et al*. (1996), "*Environmental Regulation: Law, Science, and Policy"*.

UNCSD (United Nations Commission on Sustainable Development) (1997), "*Environmentally Sound Management of Toxic Chemicals, Including Prevention of Illegal International Traffic in Toxic and Dangerous Products"*.

6. CONTINUOUS IMPROVEMENTS IN ENVIRONMENTAL PERFORMANCE

Chapter V, Point 6

[Enterprises should]

Continually seek to improve corporate environmental performance, by encouraging, where appropriate, such activities as:

1. *adoption of technologies and operating procedures in all parts of the enterprise that reflect standards concerning environmental performance in the best performing part of the enterprise;*
2. *development and provision of products or services that have no undue environmental impacts; are safe in their intended use; are efficient in their consumption of energy and natural resources; can be reused, recycled, or disposed of safely;*
3. *promoting higher levels of awareness among customers of the environmental implications of using the products and services of the enterprise; and*
4. *research on ways of improving the environmental performance of the enterprise over the longer term.*

Multinational enterprises are engaged in a permanent and continuous process of adapting to a changing socio-economic environment. This applies to all aspects of corporate activities, including enterprises' environmental management tools. For example, in a departure from previous "end-of-pipe" approaches to limiting pollution, companies have been implementing more efficient, preventive environmental techniques affecting the different stages of their value chains.

Policy makers and members of the public expect companies to continue their efforts at developing more environmentally friendly procedures and products, and calls for continual improvement in corporate environmental performance are unlikely to fade. Hence, a fundamental question for companies is what improvements they should focus on and how to develop and implement new environmental practices in a way that adds value to the company and reduces corporate risks.

Challenges and opportunities

The public expectation of an enhanced environmental performance has been impressed upon enterprises in the form of tighter environmental legislation and regulation, and by means of civil society activism. Many companies now take a more proactive approach, by including objectives for continual improvements of their environmental performance into their sustainable development statements. For example, 58% of the companies listed in the FTSE All-World Developed Index have an environmental policy statement and about 65% of these include commitments either to exceed regulatory requirements or to achieve best practice objectives. A range of business considerations motivates this behaviour.

One such consideration is *value creation* (Reinhardt, 2000; Welford, 1998). Thus, some goods' superior environmental performance — so-called "green products" — may increase sales because some consumers are willing to pay more for them. These products also help develop and strengthen consumers' brand loyalty. The possibility of identifying cost-saving opportunities is another powerful incentive for establishing programmes to improve environmental performance. The empirical record supports the idea that enhanced environmental performance reduces costs over time. There is also evidence that enterprises that "design for the environment" achieve moderately reduced costs through reducing materials costs and managing waste.[31]

Another benefit from better environmental performance is improved brand and corporate reputation. According to a study from the consulting group SustainAbility and the United Nations Environment Program, brand value and reputation are the measures of business success that are most positively linked to better corporate performance on sustainable development issues (SustainAbility and UNEP, 2001).

Risk reduction is also a major incentive for improved environmental performance**.** For example, companies have an interest in reducing the likelihood of becoming the target of criticism that could damage their corporate image. They also need to guard themselves from risks related to the health impacts of their products and production processes. Risk reduction is closely related to value creation in the sense that a business that manages risk better than its competitors tend to be more competitive in the long run. Companies invest in environmental quality as a way of reducing the probability and cost of uncertain, adverse outcomes (Reinhardt, 2000).

Another driver is *improved access to finance*. Certain banks and other lenders use environmental screens to determine the directions of their lending. Collective investment schemes increasingly incorporate objectives such as sustainable development targets into their prospectuses. Moreover, stock markets tend to rate poor environmental performers as being riskier and trade their equity at a discount. Recent studies suggest that the rise of "socially responsible" investing could continue. For

31 One of the best-known examples is 3M's -- an American company that declares having accumulated savings of USD 825 million since 1975 through its pollution prevention program, www.3m.com.

example, in Europe 52% of fund managers/analysts and 47% of investment relations officers believe that environmental considerations will become a significant aspect of mainstream investment decisions in the next two years (CSR Europe and Euronext, 2003). A number of screening services have emerged to inform investors thus ranking companies according to their environmental practices, performance, and reporting.

While incentives abound, a number of disincentives may also affect corporate environmental improvements. Challenges vary according to company and industry characteristics, market forces, and formal and informal factors. As mentioned in earlier chapters, costs are of general concern to enterprises. In addition, some of the most common disincentives or obstacles to environmental improvements are:

- *Confusion* about tools. The number of tools for improving environmental performance has mushroomed in the last decade and company managers may find it hard to choose the appropriate ones. The biggest research gap in the analysis of the business case for sustainability is the lack of generally accepted measures of corporate sustainability performance.
- *Compartmentalisation* of environmental issues within environmental, health and safety departments. This isolation diminishes the chances of creating new and company-wide environmental performance goals.
- Uncertainty about the *boundaries* of responsibility over environmental practices of suppliers.
- *Fears* about trying new ideas and technologies.
- *Uncertainty* and *scepticism* about consumers' actual willingness to pay a premium for green products and services.
- *Unlikely quantification* of certain benefits: The value that an enterprise may create through environmental investments is difficult to measure. For example, it is difficult to quantify the goodwill in a community that good corporate environmental performance might create.

Tools and approaches

The Guidelines address four categories of environmental improvements: process-related improvements; product-related improvements; consumer awareness; and research and development. A summary of available tools is presented below, most of which figure in different contexts in other parts of this report:

1. Tools for process-related improvements
    - Environmental management systems
    - Environmental metrics
        - Eco-efficiency metrics

- Benchmarking
- Environmental management accounting

2. Tools for product-and service-related improvements
   - Products:
     - Life-cycle assessment
     - Design for the environment (or Eco-Design)
     - Product stewardship
       - Company-focused "take-back" scheme
       - Industry-led "take-back" scheme
   - Services:
     - ISO 14001
     - Industry partnerships
3. Consumer awareness tools
   - Product-information tools: Eco-labels
   - Company-information tools: Environmental reporting and public databases
4. Research and development
   - Greening facilities and processes
   - Development of new environmental management tools

Achieving process-related improvements

Environmental management systems are possibly the main way to achieve process-related improvements. The commitment to continuous improvement of environmental performance is the main *raison d'être* of any mainstream EMS.

Environmental metrics is another important approach that is increasingly used by companies. Recently, this idea has been applied in the environmental domain: companies are unlikely to achieve environmental improvements if they lack the data about their performance in the first place. Companies also face the expectation from financial and non-financial stakeholders that they quantify their environmental performance — and place the relevant information in the public domain (Young, 1998; GRI, 2002). Useful tools for measuring environmental performance are indicators, benchmarking, and environmental management accounting (EMA). These tools are described in more detail in Chapter 1.

Product- and service-focused improvements

Environmental improvements directly related to the quality, usage and disposal of an enterprise's products and services can be accomplished by tools such as life-cycle assessment, design for the environment, and product stewardship initiatives such as take-back schemes, or greener services schemes. The first two of these were discussed in Chapter 3.

Product stewardship calls on those in the product life cycle – manufacturers, retailers, users, and disposers – to share responsibility for reducing products' environmental impacts (US EPA, 2003). Product stewardship usually requires manufacturer-centred action covered under "Extended *Producer* Responsibility" laws gaining prominence in several European countries, Canada, and Asia. In the US, "*Extended Product Responsibility*" is the concept that is taking hold. While it recognises that manufacturers have considerable ability to reduce the life-cycle impacts of their products, it also highlights the responsibilities of other players in the supply-chain, such as consumers (US EPA, 1998).

Take-back schemes are a concrete example of product stewardship. Companies can take products back for recycling or remanufacturing or establish themselves as a market for secondary materials collected by others. Through take-back schemes companies assume responsibility for their products by implementing developing re-collection, recycling, reusing, and remanufacturing programmes. In other cases, companies may be in charge of safe disposal. Take-back schemes can bring economic benefits, since companies can save money through increases in efficiency and recovery of previously wasted materials.

Depending on the product, take-back schemes may be more effective if implemented as part of industry-wide effort. In December 2002, UNEP, industry and NGOs launched a partnership for dealing with the "end-of-life" of mobile phones. The main responsibility of the manufacturers supporting this initiative — LG, Matsushita (Panasonic), Mitsubishi, Motorola, NEC, Nokia, Philips, Samsung, Siemens, and Sony-Ericsson — is to facilitate disposal of mobile phone devices.

Greening services. As with products, when companies apply *green design principles* to services, they usually avoid pushing for the environmental efficiency at the expense of the service; maintaining the quality of the services is vital.

Another way of improving the environmental performance of services is through *collaborative partnerships* (*i.e.,* partnerships with organisations such as environmental groups, the government and other companies). For example, the United Parcel Service of America (UPS) developed a partnership with the Alliance for Environmental Innovation in the US that resulted in the creation of next-day-air-reusable envelopes (Sosnowchik, 2003). As the world's largest package deliverer operating in more than 200 countries, UPS has a substantive environmental footprint. Its service — door-to-door package and document pick-up and delivery — takes place 7.9 million

times a day, on average. By using recycled and recyclable paper, the company estimates that it has saved over 12 000 trees a year.

Case study: A take-back scheme in the shoe industry

Under the "Reuse-a-Shoe" Program, Nike collects used and defective athletic shoes, grinds them up, and uses the resulting material to make synthetic athletic surfaces. Nike has established shoe collection programmes across the US through cooperative agreements with retailers and organisations such as the Institutional Recycling Network. To keep consumers informed, the Nike website offers information for dates and drop-off sites in different States.

The programme, which accepts athletic shoes of any brand, has helped the company recycle more than 15 million pairs of shoes in the last 10 years. The goal is to recycle two million pairs of post-consumer and defective shoes each year.

The company produces three different types of material from the ground-up shoes. Rubber from the outsole is used in making synthetic soccer, football, and baseball fields. Foam from the mid-sole is used for synthetic basketball courts, tennis courts, and playground surfacing tiles. Fabric from the shoes' upper becomes padding used under hardwood basketball floors.

Source: Nike, www.nike.com.

Consumer awareness

To complement their efforts on green products and services, companies need to communicate environmental information proactively to consumers and shareholders. The OECD Guidelines explicitly encourage companies to promote higher levels of awareness among customers of the environmental implications of using the enterprise's products and services. Companies are also encouraged to report on their environmental performance. This is discussed in more detail in Chapter 2 of this report.

One common barrier to successfully implementing product- and service-focused tools is directly linked to consumer reaction — or lack thereof. Unless consumers are willing to buy "green" products or services, companies' efforts to implement tools such as LCA or Design for Environment (DfE) may be unfeasible in the long-term. Two common barriers that companies encounter when selling green products and services are:

- *Consumer resistance to change*. Consumers may resist a change in a product design or a service, having to work with new materials, doing things a new way, or seeing the products they buy look different.

- *Consumer indifference.* If the product is an unknown brand, or significantly more expensive than a non-green product, consumers are often unwilling to buy (SustainAbility and UNEP, 2001).

One tool used by companies to raise consumer awareness are *eco-label*s (see Chapter 2 for a more detailed description). There is evidence that if companies inform consumers about environmental performance, the latter may take this information into account. Otherwise, only a minority will seek this information. To increase the information available to consumers, companies have informed potential buyers about their product's environmental attributes through eco-labels. For example, the Green Seal in the US or the European Union's Eco-label scheme can be used to inform consumers about the environmental advantages of using certain products (Salzmann, 1997; SustainAbility and UNEP, 2001; Reinhardt, 2000).

One "cutting-edge" tool for increasing awareness among potential consumers is to provide easy-to access and comparable information about the company's environmental conduct, e.g., through *public databases.* For example, Deloitte & Touche-Denmark, together with the Danish Consumer Information Center (DCI – an organisation that informs consumers about issues relating to products and services), as well as various partner enterprises, have developed an ethical database that provides consumers with electronic information not only about a company's products and services but also about their actions on corporate responsibility – including environmental behaviour (www.csr-scorecard.org.)

The idea of creating a public database with corporate environmental information is innovative and promising since it facilitates consumer awareness not only about the environmental attributes of products and services but of companies as well. However, a key challenge for participating companies is to get consumers to search for information in the database at a time of so-called "information overload." Another challenge for the developers of this type of database is to guarantee credibility. For this reason, random, third-party audits are a good practice that future databases will need to apply as well.

Research towards long-term improvement

The Guidelines suggest that companies conduct research on ways of improving the enterprise's environmental performance over the longer term. One kind of improvement is that in *facilities and production processes.* The case study below provides an example of research towards such improvements.

Another research activity for improving future environmental performance deals with *innovation in environmental management*. It addresses issues such as the tools a company will need to have in place in the near future to continually improve its environmental performance, and helps identify missing elements from the present toolkit. The process of continuous environmental improvements requires a commitment to long-term research and development. Environmental managers need to be both patient and persistent in order to fine-tune their environmental management. To find new opportunities for environmental improvements, environmental management needs to be constantly upgraded and reinvented so as to overcome new and unexpected challenges that emerge during the implementation.

Case study: Research towards improvements in facilities and processes

As part of its long-term plans, Seiko Epson Corporation (hereinafter Epson), a privately owned Japanese company, expects to fully develop *compact manufacturing* — that is, allowing the company to increase output without the need to build new buildings or existing ones, thus saving space, energy, and money.

By avoiding construction of new manufacturing facilities, often at distant locations because land may be unavailable, companies avoid competing with other uses such as housing, recreation, and transportation.

Epson's miniature and desktop manufacturing facilities are being integrated into its assembly lines. Additionally, the company's compact manufacturing process places new, reliable, and moveable equipment closer together. As a result of these changes, production capacity has doubled on existing floor space. Energy use for materials handling is also reduced. So far, developing space-saving production lines has halved both space and energy.

By 2010, Epson expects to have developed new processes in manufacturing. So far, the company's two divisions that account for 65% of energy consumption and emissions have complemented compact manufacturing with reductions in the number of production stages. One of them -- the Semiconductor Operations Division -- is searching for ways to complement the company's energy-efficient target with a reduction of perfluorocarbon emissions from its semiconductor production process. This long-term effort is necessary because while such emissions are essential for the manufacture of semiconductor and liquid crystal display devices, they are potent and persistent greenhouse gases. Moreover, Epson is looking for ways to achieve the reduction mentioned above by 2010 while its sales growth continue to increase.

Research in this area is important for the company because, without a long-term reduction effort, the environmental benefits that it has already achieved from saving energy could be offset.

Source: Andersen and Zaelke (2003); Epson, www.epson.com.

References

Andersen, Stephen O., and Durwood Zaelke (2003), "*Industry Genius. Inventions and People Protecting the Climate and Fragile Ozone Layer*".

CSR Europe, and Deloitte Euronext (2003), "*Investing in Responsible Business: The 2003 Survey of European Fund Managers and Financial Analysts and Investment Relations Officers*".

GRI (Global Reporting Initiative) (2002), "*Sustainability Reporting Guidelines*", www.globalreporting.org.

Reinhardt, Forest L. (2000). "*Down to Earth: Applying Business Principles to Environmental Management*".

Reinhardt, Forest L. (2002) "Bridging the Gap: How Improved Information Can Help Companies Integrate Shareholder Value and Environmental Quality" in "*Environmental Performance Measurement: The Global Report 2001-2002"*.

Sosnowchik, Katie (2003). "*Viewing the World through Brown's Eyes*."

SustainAbility, and UNEP (2001), "*Buried Treasure. Uncovering the Business Case for Corporate Sustainability",* www.sustainability,com.

US EPA (US Environmental Protection Agency) (1998), "*Extended Product Responsibility. A Strategic Framework for Sustainable Products",* www.epa.gov.

US EPA (2003), "*What is Product Stewardship?*"

Welford, Richard (1998), "*Life Cycle Assessment*."

WBCSD (World Business Council for Sustainable Development) (2000a). "*Eco-Efficiency. Creating More Value with Less Impact",* www.wbcsd.org.

WBCSD (2000b), "*Measuring Eco-Efficiency. A Guide to Reporting Corporate Performance"*.

Young, William (1998), "*Measuring Environmental Performance*."

7. ENVIRONMENTAL EDUCATION AND TRAINING

Chapter V, Point 7:

[Enterprises should]

Provide adequate education and training to employees in environmental health and safety matters, including the handling of hazardous materials and the prevention of environmental accidents, as well as more general environmental management areas, such as environmental impact assessment procedures, public relations and environmental technologies.

The expectation that enterprises will provide environmentally related training relates to two general objectives, namely "environmental health and safety" and "environmental management systems". These themes are in practice closely related, but enterprises may choose to approach them in different ways. First, in most OECD countries training employees to prevent and handle emergencies is mandatory. Under environmental and occupational health and safety (OHS) regulations in most countries, employers must train their staff with the purpose of protecting their health and safety, and that of the local community. Training activities that relate to "more general environmental management areas" are mostly voluntary and focus on achieving both internal environmental goals and compliance with environmental legislation.

Challenges and opportunities

A number of potential benefits motivate companies to implement environmental training. By training employees, managers can promote not only better and safer environmental practices for the workforce itself, but also have a positive effect on business partners and local communities. By enhancing employees' awareness of environmental matters, companies can also improve their motivation. Training encourages employees to care about their company's environmental record. Employees who are aware of their company's environmental programmes and technologies are more likely to develop a sense of pride about working in that particular company. Training activities can help improve an organisation's culture by removing uncertainties about environmental issues.

Another motivating factor is the growing complexity and sophistication of environmental management practices, creating pressures to equip staff and managers with new skills and knowledge about environmental topics (Welford, 1998). The use of standardised management systems for environment and OHS issues, which usually require employee training and awareness, is a related driving force.

Education and training may also help to reduce organisational barriers and to speed up organisational change so as to implement more quickly new routines related to the functioning of environmental management systems (EMS) (Nash and Ehrenfeld, 2001).

There is little objection in principle in enterprises to training of staff to deal with environmental issues. However, costs are an issue. The high degree of isolation in which environmental, health and safety units operate could be a further impediment, since a consequence of this is that these units usually have little leverage with their management. This can in some cases lead to reduced access to resources, and insufficient authority to convince management about training needs.

Moreover, management literature suggests some lessons can be derived from "frequently made mistakes" that tend to reduce the effectiveness of environmental training. One of these apparent mistakes is the delivery of unfocused activities that lack a clear link to the trainees' tasks. For this reason, assessment of training needs at the beginning of the process must be undertaken carefully (Hopkinson and Dixon, 1998; Welford, 1998 and GEMI, 1995).

Another common mistake is to deliver training without keeping any formal records of the activities, results, and (particularly) participants' feedback that would allow the company to improve future training activities (Hopkinson and Dixon, 1998). In some countries, regulations already require specific records be kept for proof of completion of required training. Additionally, ISO 14001 and ISO 14004 encourage organisations to keep their records to demonstrate their environmental training efforts. Record-keeping may also help organisations control potential liability issues (Kane, 2001).

Tools and approaches

Training on environmental health and safety matters

Training workers to prevent and handle emergencies is usually mandatory. For example, EU directives require employers to provide safety training. In the area of chemical substances, employers must ensure that workers and/or their representatives are provided not only full information on the hazardous chemical agents present at the

workplace; but also with "training and information on the appropriate precautions and on the personal and collective protection measures that are to be taken".[32]

Mandatory regulation in some cases specifies the *technical requirements* (e.g., safety issues) to be addressed in a training course but do not specify how to design or develop, let alone deliver or evaluate training (Hopkinson and Dixon, 1998). Some companies which develop training activities have the option to seek accreditation through national or international bodies that certify health and safety training. One example is the Emergency Management Accreditation and Certification System (EMACS).

There are also cases where companies decide to provide environmental education and training on a voluntary basis. This is particularly relevant in the context of MNE operations in developing countries, where mandatory requirements may be less stringent. An example of such an initiative is Faber-Castell of Germany, a manufacturer of writing and painting products, which negotiated an agreement with a trade union to implement the recommendations of the International Labour Organisation (ILO) labour standards in all its operations.

To comply with regulation or their voluntary commitments, companies can implement OHS management systems that are either tailor-made or follow off-the-shelf standards. The standardisation of the OHS practices is more recent than in the case of environmental management systems. Several standards specify the requirements for an occupational health and safety management system. Two approaches that are commonly used are ILO-OSH 2001 and OHSAS 18001 (see Chapter 5 of this report).

ILO-OSH 2001 and training

According to ILO-OSH 2001, a company must meet the following requirements. First, the company has to define the necessary OSH competence requirements, as well as establish and maintain arrangements to ensure that all persons are competent to carry out the safety and health aspects of their duties and responsibilities.

Second, the company should make sure that it has, or has access to, sufficient OSH competence to identify and eliminate or control work-related hazards and risks, and to implement the OSH management system.

Third, under the arrangements referred to above, training programmes should:

- Cover all members of the organisation, as appropriate.
- Be conducted by competent persons.

32 See Council Directive 80/1107/EEC on the protection of workers from the risks related to exposure to chemical, physical and biological agents at work, www.europe.osha.eu.int.

- Provide effective and timely initial and refresher training at appropriate intervals.
- Include participants' evaluation of their comprehension and retention of the training.
- Be reviewed periodically. The review should include the safety and health committee, where it exists, and training programmes, modified as necessary to ensure their relevance and effectiveness.
- Be documented as appropriate and according to the size and nature of activity of the organisation.

Fourth, training should be provided to all participants at no cost and should take place during working hours, if possible (ILO, 2001).

Case study: Training for safer operational practices

OHS training at Rio Tinto's mining operations in Canada seeks to "improve efficiency in the operations, prevent accidents, promote safe work practices, and to encourage environmental awareness". It forms part of a strategy to achieve the company's long-term goal of zero accidents. By 2001 the established training programmes have offered over 75 000 hours of employee training.

In setting up the training programme, the company established an internal team of trainers and complemented it with external experts. The training activities focus on improving skills in safety and the environment, management, and industrial processes. Learning is facilitated by the use of instructional tools such as a rotary kiln (an industrial oven) simulator. In addition, employees who wish to upgrade their academic training in their field of activity can take advantage of the financial aid programme for ongoing development. The training themes fall into three categories: technical (production and maintenance); general (industrial health, safety, personal health and environment); and safety management:

- *Technical training.* Technological innovation, changes to equipment, knowledge of procedures, and improvements to work methods and processes form the essence of technical training, which involves theory, practice and coaching, and represented 73% of the hours of training in 2001.
- *Safety, industrial hygiene, and environmental training.* This programme reinforces the other programmes on workers' health and safety as well as Rio Tinto's environmental goals. Some programmes also increase awareness of ISO 14001 standards and the activities of an emergency response brigade.
- *Management training.* The objective of training was to enable managers to take more effective action with staff, to improve and reinforce safe behaviours. This training complements other accident prevention efforts.

The company reports that, partly thanks to the training, it has reduced the number of lost-time accidents by 56%. Accidents numbered 20 in 2001, against 46 in 2000.

Source: Rio Tinto, www.riotinto.com.

Training in the context of an existing environmental management system

Training plays an essential role in the implementation of an environmental management system, by raising staff awareness about the importance of conformity with EMS requirements, the environmental impacts of their activities, and their roles and responsibilities in the successful functioning of the EMS (Netherwood, 1998). The commitment to environmental training often begins at the outset of the process with an environmental policy statement that highlights a responsibility to train employees and raise awareness about the companies' environmental policies and about environmental issues more generally. Moreover, EMS that build on the international standard ISO 14001 must accompany their environmental policy with a "plan-do-check-act-improve" dynamic (described in Chapter 1). The structure is basically that used in the OHSAS standard described above.

Box 9. Success factors for effective environmental training

The Global Environmental Management Initiative (GEMI) proposes three success factors for effective environmental training:

1. Training must be designed for a *specific audience*. In general, the audience should be as homogenous as possible; hence, identifying each group's needs is a central issue. The training should be tailored to match the audience's skills and background (i.e., education, job assignments, position levels, experience). An exception to this rule arises when all employees require a general session on environmental, health, and safety issues.

2. Trainers must establish *clear objectives* prior to the start of the training in order to allow them to have measurable results. A common mistake is to direct objectives at what the instructor will do — not what the participants should learn. A second — and arguably most common — mistake is to set vague objectives. Training objectives usually need to be stated in terms of how the trainee's behaviour will be affected, such as "*what should the participants be able to accomplish at the end of the training?*"

3. Training should be tailored to the *corporate culture* (which can vary within the same company). Multinational enterprises need to identify key cultural aspects of the country where the training is conducted. Using the same training material in different countries may not be effective.

GEMI further suggests that employee training should be part of a systematic management process. The goal for companies is to create a process that delivers the right environmental training to the right people at the right time.

Source : GEMI (1995), www.gemi.org.

During the "planning" stage, companies identify environmental training needs. During the implementation and operation (the "do") stage, specific programmes and/or

projects are developed to achieve the environmental goals, objectives, and targets. Once companies define the structure of the EMS and responsibilities, they then develop activities related to environmental training, awareness and competence. Under both the ISO 14001 and OHSAS 18001 standards, a company has to identify training needs and require that all staff whose work may create significant environmental impacts receive the appropriate training. Also, as with OHSAS 18001, ISO 14001 requires that personnel performing tasks that can cause significant environmental impacts must be deemed competent to do so. Competence is assessed on the basis of the appropriate education, training and/or experience.

Training programmes depend on the characteristics and goals of the EMS of which they may be part. They typically have the following elements (ISO, 1996b):

- identification of employee training needs;
- development of a training plan to address defined needs;
- verification of conformity of training programmes with regulatory/organisational requirements;
- training of target employee groups;
- documentation of training received; and
- evaluation of training received.

Training to implement a management system

Another international standard, ISO 14004, offers guidance for companies that want to establish an EMS that conforms with ISO 14001.[33] Hence, ISO 14004 also emphasises training as a key element in implementing or enhancing an environmental management system (ISO, 1996b). ISO 14004 suggests areas of training that the company might provide, such as raising awareness of the strategic importance of environmental management and of environmental issues more generally, as well as skills enhancement and training to achieve compliance with environmental regulation (Hopkinson and Dixon, 1998).

According to ISO 14004, such activities normally fall into four categories depending on whether they seek to: raise awareness of the importance of the company's environmental management; raise environmental awareness; enhance skills; and, ensure compliance (ISO, 1996b). The following table suggests types of potential training, audiences and purposes.

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33 ISO 14001 is a specification standard. If companies meet all the requirements they can receive certification. ISO 14004 is a guidance-standard. It cannot be used for certification purposes; it contains guidance but not requirements against which conformity can be assessed.

Table 2. Examples of training when implementing an EMS

Type of Training	Audience	Purpose
Raising awareness of the strategic importance of environmental management	Senior management	To gain commitment to and alignment with the organisation's environmental policy
Raising general environmental awareness	All employees	To gain commitment to the organisation's environmental policy, objectives and, and instil a sense of individual responsibility
Skills enhancement	Employees with environmental responsibilities	To improve performance in specific areas of the organisation e.g., operations, research and development, and engineering
Compliance	Employees whose actions can affect compliance	To ensure regulatory and internal requirements for training are met

Source: based on ISO (1996b).

Steps in establishing an environmental training programme

Several issues need to be considered before setting up the environmental training programmes geared towards OHS systems and/or EMSs. The first step is usually an assessment of the training needs, and one of the suggestions from ISO 14001 is to establish and maintain "procedures" for identifying those training needs (ISO, 1996a). The following are the core categories of potential trainees within the company (Hopkinson and Dixon, 1998).

1. *Environmental managers and specialists.* Employees that have a direct responsibility for on-site environmental management such as recycling, waste management, pollution prevention, compliance with environmental regulation, and EMS more generally.

2. *Directors and senior managers.* This group includes managing directors, financial officers, and marketing managers. While they do not play a direct role in implementing the EMS, some of them find that environmental issues impacts play a role in corporate strategy (*e.g.,* harming or enhancing reputation) and liability.

3. *General staff.* This group includes employees that are not in the categories above. They may or may not be aware of the company's environmental goals and programmes.

Case study: Extending training to suppliers

Today, more than 30 components made of renewable raw materials are used in the production of certain Mercedes-Benz automobiles and buses. According to DaimlerChrysler (the producer of Mercedes-Benz) the use of these materials reduces cost and weight by 5%. These natural fibres include flax, hemp and sisal; when embedded in plastic, they achieve strength similar to that of fibreglass-reinforced plastics.

The company decided to train suppliers in developing countries that source natural fibres. Thanks to its training of suppliers, DaimlerChrysler-Mercedes can now use natural fibres with an entire process chain that includes fibre selection, specification, preparation and processing, component structure, material and component approval, and recycling.

DaimlerChrysler undertook a project to transfer technology for the manufacture of vehicle components from natural fibres from Germany to South Africa. The project's objectives were to set up an entire process chain based on the use of sisal fibres (a strong and stiff material). This project included the farming of sisal, processing of the fibres, manufacture of the components, and the release to the company's plant in South Africa. The technology came from a German company that was already experienced in natural fibre component production. The technology recipients were two South African enterprises.

DaimlerChrysler has worked with the Council for Scientific and Industrial Research to improve the entire process supply chain, including natural fibre production at sisal farms. The two South African enterprises now process the fibres and produce the components to the required standards for Mercedes vehicles.

As a result of this project, the two South African companies enjoy new business opportunities. Additional uses for the natural fibre have been identified, thus presenting opportunities for these companies to expand their production. Further, a number of other automobile manufacturing enterprises have begun using natural fibre components; hence, the customer base for the two South African businesses is growing.

Source: DaimlerChrysler, www.daimlerchrysler.com.

Training activities can also be offered to business partners such as suppliers, sub-contractors and contractors[34]. Training can facilitate environmental improvement throughout the supply chain by helping suppliers gain knowledge and skills in environmental management. Where it is not feasible for a company to conduct the training *per se*, an alternative strategy is to follow ISO 14001's recommendation that companies "require that contractors working on its behalf are able to demonstrate that their employees have the requisite training" (ISO, 1996a).

[34] The General Policies chapter of the Guidelines suggests that companies should "encourage, where practicable, business partners, including suppliers and sub-contractors, to apply principles of corporate conduct compatible with the Guidelines".

Standardised practices on environmental training

A recent development is the proposal of a US national standard, "Criteria for Accepted Practices in Safety, Health and Environmental Training" (ASSE, 2001). This initiative is the result of a multi-stakeholder effort involving business, professional societies, trade associations, training providers and small- and medium-sized enterprises, and aims to improve training in environmental, health and safety issues, and the creation of a training standard. In response to the lack of commonly accepted practices, this standard offers guidelines for each relevant facet of training:

- *Scope, purpose, and application.* Establishes voluntary criteria for the training programmes, accepted practices and recommends voluntary applications by training providers.

- *Definitions.* Offers definitions of environmental, health and safety training, drawing from existing materials or arrived at via consensus of the committee.

- *Training programme, administration, and management.* Focuses on the idea that training programmes are most effective and efficient when managed under a well-defined and organised administrative system. This also ensures that training is an integrated programme rather than a series of unrelated training events.

- *Training development.* Guides programmes in the different aspects of training, in particular on needs assessment, learning objectives and prerequisites, course design, evaluation strategy, and commitment to continuous improvement.

- *Training delivery*. Establishes the requirements for material delivery, trainer criteria and training delivery more generally, and feedback and communication.

- *Training evaluation*. Offers a menu of tools for evaluating training and for measuring trainee, trainer, and training event performance. It includes evaluation approaches and discusses the commitment to continuous improvements.

- *Documentation and record keeping.* Offers guidance on maintaining needed information under a record-keeping system. It also seeks to avoid documentation effort becoming a burdensome process.

References

ASSE (American Society of Safety Engineers) (2001), "*American National Standard Criteria for Accepted Practices in Safety, Health, and Environmental Training*", www.asse.org.

GEMI (Global Environment Management Initiative) (1995), "*Environmental, Health & Safety Training",* www.gemi.org.

GEMI (2001), "*New Paths to Business Value. Strategic Sourcing- Environment, Heath and Safety"*.

Hopkinson, Peter, and Faith Dixon (1998). "*Environmental Training for Business"*.

ISO (International Organization for Standardization) (1996a), "*International Standard ISO 14001. Environmental Management Systems. Specification with Guidance for Use"*, www.iso.org.

ISO (1996b), "*International Standard ISO 14004. Environmental Management Systems. General Guidelines on Principles, Systems and Supporting Techniques"*.

Kane, Steven (2001), "*Criteria for Accepted Practices in Safety, Health, and Environmental Training (Z490-2001)*", Presentation at the ASSE Professional Development Conference.

Nash J. and J. Ehrenfeld (2001), "Factors that shape EMS outcomes in Firms*",* in Coglianese, Cary and Jennifer Nash, eds.: "*Regulating from the Inside: Can Environmental Management Systems Achieve Policy Goals?"*

Netherwood, Alan (1998), "*Environmental Management Systems*".

8. CONTRIBUTING TO THE DEVELOPMENT OF ENVIRONMENTAL POLICY

Chapter V, Point 8

[Enterprises should]

Contribute to the development of environmentally meaningful and economically efficient public policy, for example, by means of partnerships or initiatives that will enhance environmental awareness and protection.

Partnerships between different stakeholders have become an integral part of the policy-making process and contribute to developing sound public policy from both economic and environmental standpoints. The involvement of all stakeholders in policy discussions reduces the risk that some problems go unanticipated by regulators. By involving the business sector, policymakers and regulators are better able to design policies to reflect business realities. This may result in better compliance. Conversely, policy changes without consultation with enterprises may lead to unsatisfactory results, insofar as companies may have little scope and incentive to go beyond minimum requirements (IIED, 2002). Finally, involving enterprises in policymaking also allows policymakers to apprise themselves of new technologies, and of the feasibility of the changes that may be needed to achieve compliance.

Governments are turning to policy measures other than regulation to protect the environment. Command-and-control regulation, viewed by some as putting innovators and compliant companies at a disadvantage, is being supplemented by voluntary approaches and market-based instruments such as pollution charges, emissions trading and taxes. In the development of these mechanisms, it is essential that business and industry participate in their design to ensure that the instruments are workable. In addition to models for self-regulation, corporations may also want to introduce innovative environmental management practices and technology.

Considering the wide ambit of environmental regulations and policies, business contribution in the latter is likely to impact on many other aspects of sound environmental management addressed by the Guidelines. For example, when

corporations engage in policy development, there is a large amount of information circulation and exchange. In presenting business experience with existing policies and regulations, a company's environmental performance may become public record. Transparency of business operations follows, offering the public greater insight into the environmental consequences of an enterprise's activity. It also facilitates enterprises' engagement in public consultation with those likely to be affected by the enterprise's activities.

Until a few decades ago, policy makers in many countries showed little interest in gauging industry positions. Laws and policies were traditionally developed within the confines of a bureaucratic and political process. Until the beginning of the 1990s, informing public policy making at both the national and international level in these countries largely consisted of, in the words of one observer: 'commissioned academic studies; public opinion polling; formal eminent person commissions or inquiries; or one-time consultation meetings with interested parties' (Stratos, 2002). This amounted to an ad hoc approach that involved only piecemeal engagement with societal groups in setting policy. Lacking any systematic government commitment to stakeholder involvement, enterprises did not see a formal role for themselves in contributing to policy development.

Newer trends have opened up this process and have moved governments to consider how best to integrate business and other stakeholders into the policy-making process. Most OECD governments are parties to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the Aarhus Convention), which provides for the establishment of public participation mechanisms in the preparation of plans and programmes relating to the environment. The 2002 World Summit on Sustainable Development identified a number of multi-actor, voluntary agreements that would contribute towards achieving sustainable development. For these so-called "Type II Partnership Initiatives", like-minded governments, stakeholders, and inter-governmental organisations have agreed to tackle specific issues together.

Challenges and opportunities

By engaging in stakeholder initiatives and other kinds of partnership, enterprises can support efforts to integrate sustainable development concerns into their corporate decisions. Moreover, consultative processes make companies better aware of policy developments and regulatory change. Governments can help make the process of engagement more attractive to enterprises. For example, transparent policymaking may persuade enterprises of the merits of participating in policy development exercises. Investors generally have more confidence in jurisdictions where policymakers act in a transparent manner and are willing to engage enterprises in policy formulation.

Meaningful stakeholder involvement requires planning, time, transparency, and a legitimate interest to incorporate stakeholders' views into the policy-making process. It may also open the door to criticism if the consultation process is deficient. Due process

concerns may arise with less than full transparency of government documents; lack of availability of documents in advance of the consultations; general procedural unfairness; and political factors. There may be no follow-up mechanisms except for a report on the consultation simply identifying the positions of the stakeholders. Moreover, the lag in policy development may put it far behind industry innovation and technological development. Governments may not be providing a constructive forum for partnerships in the policy-making process. The question to be addressed is whether the forums available to harness enterprise engagement are meaningful for proper partnerships or are simply token gestures (Hooke, 2003).

On the other hand, it is also left to stakeholders to determine the scope of their interaction with governments. One criticism by other stakeholders of enterprises' foray into policymaking is that they see business interests as already well represented in government. There may also be scrutiny of the objectivity of business efforts since such initiatives may lead to what is commonly referred to as "regulatory capture" (Stratos, 2002).

Tools and approaches

There are virtually no off-the-shelf "tools" — whether in the form of management systems, industry standards or voluntary codes of conduct — available to enterprises that seek to engage the process of influencing public policy. However, on the basis of experience so far of enterprises and enterprise associations, a number of options for facilitating dialogue between policy makers and enterprises can be identified. These include pure communication strategies, government-initiated consultations and cooperative approaches within the enterprise sector itself.

References to partnerships in business codes of conduct

Enterprise codes of conduct may call for a partnership role with governments, as well as other stakeholders in civil society. There are an increasing number of enterprises that have listed this activity in their corporate environmental policy. For example, Bristol-Myers Squibb has called for all of its business facilities and functions to contribute to public policy (www.bms.com). This reflects an appreciation for the need to interact with government so that business sustainability concerns can be infused into the policy-making process. It is deemed to be a proactive way to ensure that environmental protection laws and regulations are "equitable, cost-effective and realistic" (www.inco.com). Unilever has proclaimed that it will co-operate with governments and other organisations in the development of proposed legislation and other regulations potentially affecting their legitimate business interests (www.unilever.com). Kodak pledges to work with governments to create "responsible laws, regulation and standards to safeguard the community, workplace and environment" (www.kodak.com).

Maintaining communication through the exchange of information is one way to fortify a constructive relationship with government. For instance, BHP Billiton calls for

an open and constructive relationship with governments, regularly sharing information and opinions on issues affecting the company. It argues that communication is essential for informed decision-making by both government officials and the company (www.bhpbilliton.com). The sharing of internal research data can also provide helpful inputs into the government policy process. Shell has completed a three-year internal CO_2 trading trial, sharing with governments the knowledge and experience gained, to assist in further developing EU proposals for a mandatory emissions trading scheme (www.shell.com).

Case study: Government-industry dialogue in the chemicals sector

The Henkel Group, based in Germany, is a producer of adhesives, cosmetics and surface technology products. Some of the adhesives contained toluene, an organic solvent that was highly attractive for inhalant addicts, and this presented a significant health concern. In light of Henkel's policy to replace solvent-based products by solvent-free products wherever possible, the company changed its formulations and created a toluene-free solvent. Where a replacement is unavailable, the policy is to use solvents and solvent blends with the lowest possible attractiveness for sniffing and the maximum occupational health and safety properties for the user. Henkel cooperated with the Universidad de Chile as well as with the Centro de Información Toxicológica y de Medicamentos (CITUS) to enhance research on the improved health aspects of toluene-free adhesives.

In addition, the company underwent a wider effort to promote the production and use of toluene-free adhesives. A special Committee within the Chemical Industry Association investigated whether overall use of toluene for contact cements should be banned. Henkel Chile was invited to present its findings at the Chilean Ministry of Health. The ministry was convinced by the toxicological and safety advantages of the new formulation and joined the Chemical Industries initiative. Based on the scientific studies and the investigations within the Chemical Industry Association, the Health Minister prepared a law to prohibit the production and marketing of adhesives containing toluene. The law came into force in 1999.

Source: WBCSD, www.wbcsd.org.

Participation in government consultation processes

Formal government-public consultations. Formal consultations are essentially at the behest of governments to gather information concerning policy or regulatory initiatives. In most OECD countries, governments have opened lines of communication with other stakeholders by providing an opportunity to review and comment on government initiatives. In the UK, for example, the government has unveiled a public strategy that includes more inclusive, integrated policy making (www.cabinetoffice.gov.uk). There is no prescribed form for such consultations; they can range from formal submissions in the context of legislation or regulatory processes, to participation in ongoing discussions, to simply sending correspondence to

policy-makers expressing the business perspective. To facilitate regular government-business dialogue, many companies place offices in the policy decision-making centres, including in foreign capitals. Some companies have embedded formal government relations offices within their headquarter functions. For instance, Lafarge has an active government affairs programme, addressing legislative and regulatory matters at all levels of government (www.lafarge.com).

Public notice and comment exercises. Many governments offer an opportunity for the private sector to comment on legislative and regulatory proposals. Seizing on this, enterprises can provide constructive criticism so that new policy or legal measures will be practicable and cognisant of business realities. Norsk Hydro actively participates in discussions on chemicals policy in Norway with the Norwegian Pollution Control Authority, along with the Federation of Norwegian Process Industry. The legal framework is important for the company, as it uses a number of chemicals in its handling, both producing and buying. The Norwegian government appears interested in Norsk Hydro's views considering its practical experience in handling these substances.[35]

Governments have also designed public comment and political dialogue mechanisms to solicit feedback on comprehensive proposals. Recently, the EU has opened up debate on a new directive regulating the chemicals sector, so as to check the viability of its new approach (www.euractiv.com). Since the 2001 White Paper on Chemicals, the internal preparation of this new legislation has been subject to strong lobbying from industry and members of civil society.

Under the Environmental Bill of Rights in Ontario, Canada, the public (including businesses and industry) has a right to comment on environmentally significant proposals and request the Ministry of the Environment to review a law. Information is available on a publicly accessible Environmental Registry (www.eco.on.ca). The US Environmental Protection Agency (US EPA) has also created a register to provide comments on proposed activities while allowing for representation on the Compliance Assistance Advisory Committee or the National Advisory Council for Environmental Policy and Technology. The latter provides independent advice to the Environmental Protection Agency administrator on environmental policy, technology and management issues. Members of the Council include leaders and experts from a number of stakeholders, including business and industry (www.epa.gov.)

Government committees and stakeholder groups. Some committees are specifically designed by governments to foster better policy in particular sectors where environmental concerns are significant. In South Africa, there is a Standing Committee on Environmental Management for the Mining Industry. It is chaired by the Department of Minerals and Energy and includes representatives from the mining industry, other government departments and agriculture and labour groups. It acts as a forum for

35 Based on communications with Stengrim Bosheim of the Corporate Research Centre at Norsk Hydro.

stakeholders in mining and aims to include communications, debate issues, and make recommendations to change policy through negotiations.

The US EPA has set up the Pesticide Program Dialogue Committee. This Committee provides a forum for a diverse group of stakeholders to provide feedback on various pesticide regulatory, policy and programme implementation issues. Membership of the Committee includes environmental and public interest groups, pesticide manufacturers and trade associations, user and commodity groups, public health and academic institutions, Federal and State agencies, and the general public. The Committee meets two to three times a year and all meetings are open to the public.

Case study: Dialogue between business and other civil society groups

The New Directions Group (NDG), based in Alberta, Canada, has been working since 1990 developing NGO-business relations. The Group was initiated by three key Canadian figures from the corporate, NGO and academic communities. [36] It provides a vehicle for debate, sharing of information and the search for common ground on environmental policy issues. Although the Group features established policies and procedures to guide discussions and activities, it essentially operates on an *ad hoc* basis. Members work towards a goal of consensus in discussions and decisions taken, but recognise that not all recommendations will be unanimously approved.

The NDG has reached consensus on two key issues that have led to policy statements concerning the management of toxic chemicals and the application and design of voluntary initiatives. The NDG prepared a report *Criteria and Principles for the Use of Voluntary or Non-regulatory Initiatives to Achieve Environmental Policy Objectives.* The document emerged as a key input into many domestic policy processes, including the National Climate Change Process; development of the Environmental Commitment and Responsibility Programme of the Canadian Toxic (ARET) programme; and the development of a policy framework for the environmental performance agreements by Environment Canada. The principles and criteria developed eventually led to the Environmental Voluntary Agreements Policy Framework adopted by the Canadian Government and industry.

The NDG business-NGO model has been adopted by others to address several sector-specific environment-development issues in Canada, such as the British Columbia understanding on protected areas and forest management, and the coalition of NGOs and industry associations to support endangered species legislation in Canada.

Source: NDG (2002).

National committees on sustainable development. These bodies are created or sanctioned by national governments, generally drawing together members of government, business and civil society to define sustainable development within a

[36] Business members of the group include Alcan, Noranda, Sunco, Inco, Shell, TransAlta; NGO members are the Pembina Institute, Pollution Probe, CIELAP, Canadian Nature Federations, Environmental Defence, Friends of the Earth, IISD and VCR Inc.

particular national context. Many of these committees are also responsible for implementing national commitments made at the 1992 Earth Summit in Rio de Janeiro, and at the 2002 WSSD in Johannesburg. In some countries, they have been a valuable tool in obtaining greater private sector involvement (Dulumadary, 1998). The committees offer an arena for enterprises to work with governments to improve environmental policy, and as a breeding ground for future government initiatives. In 1994, the Philippine Committee on Sustainable Development started consultations to push for the phase-out of leaded gasoline. Consultations took place with the oil industry and the car manufacturing association, aiming for the phase-out of leaded gasoline. Years later, the government issued an Executive Order phasing out leaded gasoline in Manila by 2000, and in the rest of the country by 2001.

National councils or committees can be active in the government policy-making process. In the UK, the Roundtable on Sustainable Development prepared comprehensive and numerous reports on transport-related issues to assist government internal thinking and legislative reviews produced by the House of Commons (Maurer, 1999).

Self-regulation and market-based instruments

In addition to legislation and government regulation, governments have been using other instruments to improve enterprises' environmental performance. Business and industry leaders have been actively engaged in changing the "rules of the game" for policy based on alternatives to command-and-control regulation (www.csrcampaign.org). Since these instruments rely on the good will and cooperation of business and industry, it is advantageous for enterprises to get involved in their development. Governments can benefit from learning from the business sectors about the effectiveness of economic instruments and market mechanisms.[37] Improved environmental performance can lead to widespread use of alternative measures to command and control instruments, and this has a positive impact on subsequent environmental policies. However, because of asymmetries of information between the government and the industry, targets under these agreements are often close to what might have been achieved in any case. Voluntary agreements should therefore be seen as complementary to other instruments in the policy mix.

Covenants. Under these mechanisms, agreed to by governments and businesses, the latter are given an opportunity to meet general government environmental objectives through a scheme devised by business. Such agreements although not directly contributing to policy change, can offer additional benefits that can enhance environmental policy.[38]

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37 See Article 8.33 of Agenda 21.

38 OECD (2003) offers in-depth analysis of such instruments.

The Canadian Chemical Producers Association regularly has dialogues with government on environmental issues such as the use of precaution and climate change (www.ccpa.ca). It has recently entered into various Memoranda of Understanding (MOUs) with the federal and several provincial governments to reduce the release of chemical substances under its Responsible Care system; this allowed chemical manufacturer members to reduce emissions generally and address specific issues regarding benzene and VOC reductions. The MOUs include a role for public interest and environment group representatives in its implementation.

Unilever Australasia has entered into commitments under the National Packaging Covenant in Australia concerning the management of packaging waste. This covenant was developed in response to increasing concerns about the environmental impacts of packaging and diminishing landfill capacity. The aim is to reduce packaging waste and to encourage an economically viable and sustainable recycling collection system. Signatories to the covenant are required to develop and submit an Action Plan, of five years in duration, detailing how they propose to implement their own commitments. They must also contribute to the Transitional Funding Arrangements Programme, providing funding for studies and other measures aimed at improving the cost-effectiveness of kerbside collection programmes, and at strengthening and expanding markets for collected materials. A National Environmental Protection Measure on Used Packaging Materials was approved, protecting covenant signatories who are at a disadvantage in the marketplace by entering into such a covenant. For Unilever, participation in the covenant has generated its own environmental awareness in the selection, production and recovery of packaging materials (www.unilever.com).

Certification schemes. The development of various voluntary certification schemes promoted by the private sector or the certification initiatives for international mining has pushed the codification of such mechanisms onto the international policy agenda. Certification of management and labelling of products can improve accountability and form a multi-stakeholder contribution to policy and governance change. For example, the Forest Stewardship Council initiative has led to the adoption of pro-certification purchasing policies by governments in the UK, Denmark and France (www.fsc.org).

Partnerships with government and local authorities

The Plan of Implementation adopted at the WSSD in Johannesburg recommends to "enhance partnerships between governmental and non-governmental actors, … for the achievement of sustainable development at all levels" Some enterprises have taken the initiative to enter into partnerships with local authorities in the policy-making sphere. Such activity is considered to be an essential part of ensuring sustainable development. Agenda 21 notes that partnerships between local authorities and the private sector can lead to changes towards sustainable development.[39]

[39] See paragraph. 8.2 of Agenda 21

Case study: Public-private partnerships to improve water quality

A small group of Samsung Electronics employees used to gather together on weekends to pick up garbage by the bank of the Woncheon Stream in Suwon. This developed into a company-wide community-greening campaign. Eventually, more than 100 employees of Samsung Electronics and other affiliates in the same complex (i.e. Samsung Electro-Mechanics, Samsung SDI and Samsung Corning) formed a volunteer service corps to improve stream water quality. Following the employees' voluntary participation, the company's management decided to launch a research project for the rehabilitation of the stream's ecological system, to improve water quality. In September 1995, Samsung Electronics, in partnership with the Environmental Research Institute of Ajou University and the Institute for Green Environment of the Suwon Center for Environmental Movement, conducted a survey of the natural surroundings near the stream for the first round of the research, and checked the level of contamination according to regions. In the second round of the research, carried out in December 1996, the parties checked the ecological system surrounding the stream, made suggestions on how to cope with the contaminated water quality of the Sindae and Woncheon reservoirs located upstream, and began research on the impact of the contaminants from the reservoirs of the Woncheon Stream.

In November 2001, a network to "Save the Woncheon Stream" was established; this comprised local residents, members of the Suwon Center for Environmental Movement, public officials of Suwon City and four Samsung affiliates. The research project was carried out in three stages until 2003. In joint efforts to improve the stream water quality, Suwon City began overhauling relevant intercepting sewers, while local residents formed the citizens' council to keep a close watch on the stream, taking various steps for water purification. Samsung Electronics contributed through various activities, including purification of an area near the complex (within a 1km radius), as well as providing a round-the-clock watch on the status of water quality via CCTVs, checking the intercepting sewer into which household sewage flows, and planting 2,500 reeds.

Source : Samsung, www.samsung.com.

An example of such a partnership is *EMBARQ* — otherwise known as the WRI (World Resources Institute) Center for Transport and the Environment — established by the WRI and the Shell Foundation (www.embarq.wri.org). *EMBARQ* acts as a catalyst for socially, financially and environmentally sound solutions to the problems of urban transport. *EMBARQ* 's strategy is to foster viable government-business-civil society partnerships whose members are committed to finding solutions to the transportation-related problems facing the cities in which they operate. *EMBARQ* currently operates in Mexico and Shanghai. The strategy involves governments, the private sector and other stakeholders.

Cooperative approaches among enterprises

Policy advocacy. A well-established method of establishing dialogue with governments is through policy advocacy. When enterprises join other members of civil society, governments may be more receptive to hearing their concerns, since their positions reflect a consensus that presumably reconciles differing positions. In Canada,

the CARE Coalition is an initiative jointly spearheaded by Suncor Energy and the Pembina Institute of Appropriate Development, with the support of nearly 20 companies and NGOs including Shell Canada, TranAlta and the International Institute of Sustainable Development (IISD) (www.bsdglobal.com). One objective of the group is to advocate for short-term tax reforms that bridge the gap until Canada introduces a domestic greenhouse gas emissions-trading programme. It has additionally lobbied the federal government to adopt two tax measures that would promote the development of renewable energy technology including wind, solar and geothermal.

Dialogue through industry associations. Industry or trade associations allow enterprises to speak with a stronger voice and represent a consensus of economic actors in policy dialogue with governments. They provide an effective vehicle to channel consolidated industry concerns to the regulators. Dialogue with industry associations sharing a common viewpoint can be more efficient for governments who may lack the resources to liaise with individual enterprises. Moreover, it lends more legitimacy to their concerns in the policy-making process. As an ongoing entity, industry associations can undertake research and often the continual monitoring of legislative and regulatory initiatives proposed by governments.

The Confederation of European Paper Industries (CEPI) comprises some 900 pulp, paper and board-producing companies from 19 member countries (www.cepi.org). It monitors and analyses EU legislation and EU-level initiatives in several fields, including industrial, environmental, energy, forestry, recycling and fiscal policies. CEPI assists in the exchange of information and acts on emerging issues, defines positions and constructively contributes to the industry consultation process required by the European Treaties. CEPI also provides technical assistance to legislators and can help identify independent experts to answer specific questions. One initiative is the development of a Comparative Matrix of Forest Certification Schemes, contributing to the ongoing discussions on mutual recognition of forest certification schemes with the World Business Council for Sustainable Development and the International Forest Industries Roundtable (www.partnershipscentral.org).

International processes

Enterprise involvement in the policy-making process is not restricted to national, local or regional activity. Enterprises that have operations in multiple jurisdictions perceive the importance of attending international meetings, since the results can impact regulatory systems in these jurisdictions. A number of international environmental treaty and policy development processes allow for participation of civil society representatives. To present a communal voice for industry, the World Business Council for Sustainable Development (WBCSD) represents the archetype enterprise group in international environmental policy-making. The WBCSD operates under a mandate to participate in policy development in order to create a framework that allows business to contribute effectively to sustainable development (www.wbcsd.org).

There are other independent organisations that facilitate government-business dialogue at the international level. The Business and Industry Advisory Council to the OECD (BIAC) was specifically set up to engage in dialogue with OECD governments, and actively participates in stakeholder consultations organised by the various Committees, including the Environment Policy Committee. Its role is "to provide the OECD and its Member Governments with constructive comments based on the practical experience of the business community" (www.biac.org.)

The World Environment Centre brings policymakers such as government ministers and the diplomatic corps together with senior multinational corporate representatives for private dialogue on sustainable development, corporate social responsibility and related issues (www.wec.org). In doing so, it provides a conduit for the exchange of information and expertise among industry, government and non-governmental organisations. CERES (Coalition of Environmentally Responsible Economies) is another such organisation, comprised of environmental, investor and advocacy groups working together for a sustainable future (www.ceres.org). Its Sustainable Government Project calls on enterprises to adopt strong climate change policies in support of policy solutions to advancing a low carbon economy.

The International Chamber of Commerce (ICC) has developed a Business Action for Sustainable Development. Its Business Charter for Sustainable Development includes a call for contributing to the development of public policy and to business, governmental and intergovernmental programmes and educational initiatives that will enhance environmental awareness and protection (www.iccwbo.org). The ICC speaks on behalf of enterprises from all sectors in every part of the world. There are thousands of member companies in over 140 countries. The ICC's role is "to ensure that the views of business and industry are heard by government negotiators and all other stakeholders."

Enterprises may also join industry associations to make an impact in the development of environmental policy at the international level. The International Council on Mining and Minerals (ICMM) has three priorities, including contributing to international policy. This involves advancing scientific understanding, compiling data and developing an industry position and global advocacy strategy (www.icmm.com). A Task Force on Interaction with Key International Fora aims to formulate such positions and strategies to inform international policy discussions. These include contributions to the World Bank Extractive Industries Review, the Global Dialogue of Governments on Mining/Metals and Sustainable Development (www.globaldialogue.info), and the UK-led Extractive Industries Transparency Initiative (www.dfid.gov.uk).

One way for enterprises to obtain access to international policy making is by being members of national delegations to international policy-making forums, such as the Conferences of the Parties to the various Multilateral Environmental Agreements. One example is the Global Code of Ethics for Tourism approved by the World Tourism Organisation, which is itself an intergovernmental body with business affiliate members (www.world-tourism.org). The 2002 WSSD also saw many corporate representatives being included on national delegations. It has now become common practice for

business and industry representatives to form part of a country's official delegation. This allows a responsive avenue to express business concerns to particular draft treaties and policies.

References

Bass, S. (2001), "*Change toward Sustainability in Resource Use, Lessons from the Forestry Sector*".

Dulumadary, E. (1998), "*Mongolia's Journey Towards Sustainability",* WRI, www.wri.org.

Dunphe, B. (1999), "*Voluntary Agreements as Policy Tools*".

Fox, T., H. Ward and B. Howard (2002), "*Public Sector Roles in Strengthening Corporate Social Responsibility: A Baseline Study*".

Hooke, M.H. (2003), "*Australian Minerals Industry: Operational Code for Sustainable Development*", Address to the NSW Mining Industry Occupational Health and Safety Conference.

IIED (International Institute for Environment and Development) (2002), "*Breaking New Ground, Mining, Minerals and Sustainable Development*", www.iied.org.

Maurer, C. (1999), "*The U.K. Roundtable on Sustainable Development: A Case Study*".

NDG (New Directions Group) (2002), "*Criteria and Principles for the Use of Voluntary or Non-regulatory Initiatives to Achieve Environmental Policy Objectives",* www.newdirectionsgroup.org.

OECD (Organisation for Economic Co-operation and Development) (2001), "*Corporate Responsibility: Results of a Fact-Finding Mission on Private Initiatives*", www.oecd.org.

OECD (2003), "*Voluntary Approaches for Environmental Policy. Effectiveness, Efficiency and Usage in Policy Mixes*".

Segerson, K. and Miceli, T. (1998), "*Voluntary Environmental Agreements: Good or Bad News for Environmental Protection?"* Journal of Environmental Economics and Management.

Stratos (2002), "*Multi-Stakeholder Policy Processes: Lessons for Genetic Resources Policy Development*". Paper prepared for the International Development Research Centre.

ANNEX I: THE OECD GUIDELINES FOR MULTINATIONAL ENTERPRISES

Preface

1. The *OECD Guidelines for Multinational Enterprises* (the *Guidelines*) are recommendations addressed by governments to multinational enterprises. They provide voluntary principles and standards for responsible business conduct consistent with applicable laws. The *Guidelines* aim to ensure that the operations of these enterprises are in harmony with government policies, to strengthen the basis of mutual confidence between enterprises and the societies in which they operate, to help improve the foreign investment climate and to enhance the contribution to sustainable development made by multinational enterprises. The *Guidelines* are part of the *OECD Declaration on International Investment and Multinational Enterprises* the other elements of which relate to national treatment, conflicting requirements on enterprises, and international investment incentives and disincentives.

2. International business has experienced far-reaching structural change and the *Guidelines* themselves have evolved to reflect these changes. With the rise of service and knowledge-intensive industries, service and technology enterprises have entered the international marketplace. Large enterprises still account for a major share of international investment, and there is a trend toward large-scale international mergers. At the same time, foreign investment by small- and medium-sized enterprises has also increased and these enterprises now play a significant role on the international scene. Multinational enterprises, like their domestic counterparts, have evolved to encompass a broader range of business arrangements and organisational forms. Strategic alliances and closer relations with suppliers and contractors tend to blur the boundaries of the enterprise.

3. The rapid evolution in the structure of multinational enterprises is also reflected in their operations in the developing world, where foreign direct investment has grown rapidly. In developing countries, multinational enterprises have diversified beyond primary production and extractive industries into manufacturing, assembly, domestic market development and services.

4. The activities of multinational enterprises, through international trade and investment, have strengthened and deepened the ties that join OECD economies to each other and to the rest of the world. These activities bring substantial benefits to home and host countries. These benefits accrue when multinational enterprises supply the products and services that consumers want to buy at competitive prices and when they provide fair returns to suppliers of capital. Their trade and investment activities contribute to the efficient use of capital, technology and human and natural resources. They facilitate the transfer of technology among the regions of the world and the

development of technologies that reflect local conditions. Through both formal training and on-the-job learning enterprises also promote the development of human capital in host countries.

5. The nature, scope and speed of economic changes have presented new strategic challenges for enterprises and their stakeholders. Multinational enterprises have the opportunity to implement best practice policies for sustainable development that seek to ensure coherence between social, economic and environmental objectives. The ability of multinational enterprises to promote sustainable development is greatly enhanced when trade and investment are conducted in a context of open, competitive and appropriately regulated markets.

6. Many multinational enterprises have demonstrated that respect for high standards of business conduct can enhance growth. Today's competitive forces are intense and multinational enterprises face a variety of legal, social and regulatory settings. In this context, some enterprises may be tempted to neglect appropriate standards and principles of conduct in an attempt to gain undue competitive advantage. Such practices by the few may call into question the reputation of the many and may give rise to public concerns.

7. Many enterprises have responded to these public concerns by developing internal programmes, guidance and management systems that underpin their commitment to good corporate citizenship, good practices and good business and employee conduct. Some of them have called upon consulting, auditing and certification services, contributing to the accumulation of expertise in these areas. These efforts have also promoted social dialogue on what constitutes good business conduct. The *Guidelines* clarify the shared expectations for business conduct of the governments adhering to them and provide a point of reference for enterprises. Thus, the *Guidelines* both complement and reinforce private efforts to define and implement responsible business conduct.

8. Governments are co-operating with each other and with other actors to strengthen the international legal and policy framework in which business is conducted. The post-war period has seen the development of this framework, starting with the adoption in 1948 of the Universal Declaration of Human Rights. Recent instruments include the ILO Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development and Agenda 21 and the Copenhagen Declaration for Social Development.

9. The OECD has also been contributing to the international policy framework. Recent developments include the adoption of the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions and of the OECD Principles of Corporate Governance, the OECD Guidelines for Consumer Protection in the Context of Electronic Commerce, and ongoing work on the OECD Guidelines on Transfer Pricing for Multinational Enterprises and Tax Administrations.

10. The common aim of the governments adhering to the *Guidelines* is to encourage the positive contributions that multinational enterprises can make to economic, environmental and social progress and to minimise the difficulties to which their various operations may give rise. In working towards this goal, governments find themselves in partnership with the many businesses, trade unions and other non-governmental organisations that are working in their own ways toward the same end. Governments can help by providing effective domestic policy frameworks that include stable macroeconomic policy, non-discriminatory treatment of firms, appropriate regulation and prudential supervision, an impartial system of courts and law enforcement and efficient and honest public administration. Governments can also help by maintaining and promoting appropriate standards and policies in support of sustainable development and by engaging in ongoing reforms to ensure that public sector activity is efficient and effective. Governments adhering to the *Guidelines* are committed to continual improvement of both domestic and international policies with a view to improving the welfare and living standards of all people.

I. Concepts and Principles

1. The *Guidelines* are recommendations jointly addressed by governments to multinational enterprises. They provide principles and standards of good practice consistent with applicable laws. Observance of the *Guidelines* by enterprises is voluntary and not legally enforceable.

2. Since the operations of multinational enterprises extend throughout the world, international co-operation in this field should extend to all countries. Governments adhering to the *Guidelines* encourage the enterprises operating on their territories to observe the *Guidelines* wherever they operate, while taking into account the particular circumstances of each host country.

3. A precise definition of multinational enterprises is not required for the purposes of the *Guidelines*. These usually comprise companies or other entities established in more than one country and so linked that they may co-ordinate their operations in various ways. While one or more of these entities may be able to exercise a significant influence over the activities of others, their degree of autonomy within the enterprise may vary widely from one multinational enterprise to another. Ownership may be private, state or mixed. The *Guidelines* are addressed to all the entities within the multinational enterprise (parent companies and/or local entities). According to the actual distribution of responsibilities among them, the different entities are expected to co-operate and to assist one another to facilitate observance of the *Guidelines*.

4. The *Guidelines* are not aimed at introducing differences of treatment between multinational and domestic enterprises; they reflect good practice for all. Accordingly, multinational and domestic enterprises are subject to the same expectations in respect of their conduct wherever the *Guidelines* are relevant to both.

5. Governments wish to encourage the widest possible observance of the *Guidelines*. While it is acknowledged that small- and medium-sized enterprises may not have the same capacities as larger enterprises, governments adhering to the *Guidelines* nevertheless encourage them to observe the *Guidelines* recommendations to the fullest extent possible.

6. Governments adhering to the *Guidelines* should not use them for protectionist purposes nor use them in a way that calls into question the comparative advantage of any country where multinational enterprises invest.

7. Governments have the right to prescribe the conditions under which multinational enterprises operate within their jurisdictions, subject to international law. The entities of a multinational enterprise located in various countries are subject to the laws applicable in these countries. When multinational enterprises are subject to conflicting requirements by adhering countries, the governments concerned will co-operate in good faith with a view to resolving problems that may arise.

8. Governments adhering to the *Guidelines* set them forth with the understanding that they will fulfil their responsibilities to treat enterprises equitably and in accordance with international law and with their contractual obligations.

9. The use of appropriate international dispute settlement mechanisms, including arbitration, is encouraged as a means of facilitating the resolution of legal problems arising between enterprises and host country governments.

10. Governments adhering to the *Guidelines* will promote them and encourage their use. They will establish National Contact Points that promote the *Guidelines* and act as a forum for discussion of all matters relating to the *Guidelines*. The adhering Governments will also participate in appropriate review and consultation procedures to address issues concerning interpretation of the *Guidelines* in a changing world.

II. General Policies

Enterprises should take fully into account established policies in the countries in which they operate, and consider the views of other stakeholders. In this regard, enterprises should:

1. Contribute to economic, social and environmental progress with a view to achieving sustainable development.

2. Respect the human rights of those affected by their activities consistent with the host government's international obligations and commitments.

3. Encourage local capacity building through close co-operation with the local community, including business interests, as well as developing the

enterprise's activities in domestic and foreign markets, consistent with the need for sound commercial practice.

4. Encourage human capital formation, in particular by creating employment opportunities and facilitating training opportunities for employees.

5. Refrain from seeking or accepting exemptions not contemplated in the statutory or regulatory framework related to environmental, health, safety, labour, taxation, financial incentives, or other issues.

6. Support and uphold good corporate governance principles and develop and apply good corporate governance practices.

7. Develop and apply effective self-regulatory practices and management systems that foster a relationship of confidence and mutual trust between enterprises and the societies in which they operate.

8. Promote employee awareness of, and compliance with, company policies through appropriate dissemination of these policies, including through training programmes.

9. Refrain from discriminatory or disciplinary action against employees who make *bona fide* reports to management or, as appropriate, to the competent public authorities, on practices that contravene the law, the *Guidelines* or the enterprise's policies.

10. Encourage, where practicable, business partners, including suppliers and sub-contractors, to apply principles of corporate conduct compatible with the *Guidelines*.

11. Abstain from any improper involvement in local political activities.

III. Disclosure

1. Enterprises should ensure that timely, regular, reliable and relevant information is disclosed regarding their activities, structure, financial situation and performance. This information should be disclosed for the enterprise as a whole and, where appropriate, along business lines or geographic areas. Disclosure policies of enterprises should be tailored to the nature, size and location of the enterprise, with due regard taken of costs, business confidentiality and other competitive concerns.

2. Enterprises should apply high quality standards for disclosure, accounting, and audit. Enterprises are also encouraged to apply high quality standards for non-financial information including environmental and social reporting

where they exist. The standards or policies under which both financial and non-financial information are compiled and published should be reported.

3. Enterprises should disclose basic information showing their name, location, and structure, the name, address and telephone number of the parent enterprise and its main affiliates, its percentage ownership, direct and indirect in these affiliates, including shareholdings between them.

4. Enterprises should also disclose material information on:

    1. The financial and operating results of the company;
    2. Company objectives;
    3. Major share ownership and voting rights;
    4. Members of the board and key executives, and their remuneration;
    5. Material foreseeable risk factors;
    6. Material issues regarding employees and other stakeholders;
    7. Governance structures and policies.

5. Enterprises are encouraged to communicate additional information that could include:

    1. Value statements or statements of business conduct intended for public disclosure including information on the social, ethical and environmental policies of the enterprise and other codes of conduct to which the company subscribes. In addition, the date of adoption, the countries and entities to which such statements apply and its performance in relation to these statements may be communicated;
    2. Information on systems for managing risks and complying with laws, and on statements or codes of business conduct;
    3. Information on relationships with employees and other stakeholders.

IV. Employment and Industrial Relations

Enterprises should, within the framework of applicable law, regulations and prevailing labour relations and employment practices:

1. a Respect the right of their employees to be represented by trade unions and other bona fide representatives of employees, and engage in constructive negotiations, either individually or through employers' associations, with such representatives with a view to reaching agreements on employment conditions.

2. Contribute to the effective abolition of child labour.

3. Contribute to the elimination of all forms of forced or compulsory labour.

4. Not discriminate against their employees with respect to employment or occupation on such grounds as race, colour, sex, religion, political opinion, national extraction or social origin, unless selectivity concerning employee characteristics furthers established governmental policies which specifically promote greater equality of employment opportunity or relates to the inherent requirements of a job.

2. a Provide facilities to employee representatives as may be necessary to assist in the development of effective collective agreements.

1. Provide information to employee representatives which is needed for meaningful negotiations on conditions of employment.

2. Promote consultation and co-operation between employers and employees and their representatives on matters of mutual concern.

3. Provide information to employees and their representatives which enables them to obtain a true and fair view of the performance of the entity or, where appropriate, the enterprise as a whole.

4. a. Observe standards of employment and industrial relations not less favourable than those observed by comparable employers in the host country.

1. Take adequate steps to ensure occupational health and safety in their operations.

5. In their operations, to the greatest extent practicable, employ local personnel and provide training with a view to improving skill levels, in co-operation with employee representatives and, where appropriate, relevant governmental authorities.

~~6.~~ In considering changes in their operations which would have major effects upon the livelihood of their employees, in particular in the case of the closure of an entity involving collective lay-offs or dismissals, provide reasonable notice of such changes to representatives of their employees, and, where appropriate, to the relevant governmental authorities, and co-operate with the employee representatives and appropriate governmental authorities so as to mitigate to the maximum extent practicable adverse effects. In light of the specific circumstances of each case, it would be appropriate if management were able to give such notice prior to the final decision being taken. Other means may also be employed to provide meaningful co-operation to mitigate the effects of such decisions.

7. In the context of bona fide negotiations with representatives of employees on conditions of employment, or while employees are exercising a right to organise, not threaten to transfer the whole or part of an operating unit from the country concerned nor transfer employees from the enterprises' component entities in other countries in order to influence unfairly those negotiations or to hinder the exercise of a right to organise.

8. Enable authorised representatives of their employees to negotiate on collective bargaining or labour-management relations issues and allow the parties to consult on matters of mutual concern with representatives of management who are authorised to take decisions on these matters.

V. Environment

Enterprises should, within the framework of laws, regulations and administrative practices in the countries in which they operate, and in consideration of relevant international agreements, principles, objectives, and standards, take due account of the need to protect the environment, public health and safety, and generally to conduct their activities in a manner contributing to the wider goal of sustainable development. In particular, enterprises should:

1. Establish and maintain a system of environmental management appropriate to the enterprise, including:

    1. Collection and evaluation of adequate and timely information regarding the environmental, health, and safety impacts of their activities;

    2. Establishment of measurable objectives and, where appropriate, targets for improved environmental performance, including periodically reviewing the continuing relevance of these objectives; and

    3. Regular monitoring and verification of progress toward environmental, health, and safety objectives or targets.

2. Taking into account concerns about cost, business confidentiality, and the protection of intellectual property rights:

    1. Provide the public and employees with adequate and timely information on the potential environment, health and safety impacts of the activities of the enterprise, which could include reporting on progress in improving environmental performance; and

    2. Engage in adequate and timely communication and consultation with the communities directly affected by the environmental, health and safety policies of the enterprise and by their implementation.

3. Assess, and address in decision-making, the foreseeable environmental, health, and safety-related impacts associated with the processes, goods and

services of the enterprise over their full life cycle. Where these proposed activities may have significant environmental, health, or safety impacts, and where they are subject to a decision of a competent authority, prepare an appropriate environmental impact assessment.

4. Consistent with the scientific and technical understanding of the risks, where there are threats of serious damage to the environment, taking also into account human health and safety, not use the lack of full scientific certainty as a reason for postponing cost-effective measures to prevent or minimise such damage.

5. Maintain contingency plans for preventing, mitigating, and controlling serious environmental and health damage from their operations, including accidents and emergencies; and mechanisms for immediate reporting to the competent authorities.

6. Continually seek to improve corporate environmental performance, by encouraging, where appropriate, such activities as:

    1. Adoption of technologies and operating procedures in all parts of the enterprise that reflect standards concerning environmental performance in the best performing part of the enterprise;

    2. Development and provision of products or services that have no undue environmental impacts; are safe in their intended use; are efficient in their consumption of energy and natural resources; can be reused, recycled, or disposed of safely;

    3. Promoting higher levels of awareness among customers of the environmental implications of using the products and services of the enterprise; and

    4. Research on ways of improving the environmental performance of the enterprise over the longer term.

7. Provide adequate education and training to employees in environmental health and safety matters, including the handling of hazardous materials and the prevention of environmental accidents, as well as more general environmental management areas, such as environmental impact assessment procedures, public relations, and environmental technologies.

8. Contribute to the development of environmentally meaningful and economically efficient public policy, for example, by means of partnerships or initiatives that will enhance environmental awareness and protection.

VI. Combating Bribery

Enterprises should not, directly or indirectly, offer, promise, give, or demand a bribe or other undue advantage to obtain or retain business or other improper advantage. Nor should enterprises be solicited or expected to render a bribe or other undue advantage. In particular, enterprises should:

1. Not offer, nor give in to demands, to pay public officials or the employees of business partners any portion of a contract payment. They should not use subcontracts, purchase orders or consulting agreements as means of channelling payments to public officials, to employees of business partners or to their relatives or business associates.

2. Ensure that remuneration of agents is appropriate and for legitimate services only. Where relevant, a list of agents employed in connection with transactions with public bodies and state-owned enterprises should be kept and made available to competent authorities.

3. Enhance the transparency of their activities in the fight against bribery and extortion. Measures could include making public commitments against bribery and extortion and disclosing the management systems the company has adopted in order to honour these commitments. The enterprise should also foster openness and dialogue with the public so as to promote its awareness of and co-operation with the fight against bribery and extortion.

4. Promote employee awareness of and compliance with company policies against bribery and extortion through appropriate dissemination of these policies and through training programmes and disciplinary procedures.

5. Adopt management control systems that discourage bribery and corrupt practices, and adopt financial and tax accounting and auditing practices that prevent the establishment of "off the books" or secret accounts or the creation of documents which do not properly and fairly record the transactions to which they relate.

6. Not make illegal contributions to candidates for public office or to political parties or to other political organisations. Contributions should fully comply with public disclosure requirements and should be reported to senior management.

VII. Consumer Interests

When dealing with consumers, enterprises should act in accordance with fair business, marketing and advertising practices and should take all reasonable steps to ensure the safety and quality of the goods or services they provide. In particular, they should:

1. Ensure that the goods or services they provide meet all agreed or legally required standards for consumer health and safety, including health warnings and product safety and information labels.

2. As appropriate to the goods or services, provide accurate and clear information regarding their content, safe use, maintenance, storage, and disposal sufficient to enable consumers to make informed decisions.

3. Provide transparent and effective procedures that address consumer complaints and contribute to fair and timely resolution of consumer disputes without undue cost or burden.

4. Not make representations or omissions, nor engage in any other practices, that are deceptive, misleading, fraudulent, or unfair.

5. Respect consumer privacy and provide protection for personal data.

6. Co-operate fully and in a transparent manner with public authorities in the prevention or removal of serious threats to public health and safety deriving from the consumption or use of their products.

VIII. Science and Technology

Enterprises should:

1. Endeavour to ensure that their activities are compatible with the science and technology (S&T) policies and plans of the countries in which they operate and as appropriate contribute to the development of local and national innovative capacity.

2. Adopt, where practicable in the course of their business activities, practices that permit the transfer and rapid diffusion of technologies and know-how, with due regard to the protection of intellectual property rights.

3. When appropriate, perform science and technology development work in host countries to address local market needs, as well as employ host country personnel in an S&T capacity and encourage their training, taking into account commercial needs.

4. When granting licenses for the use of intellectual property rights or when otherwise transferring technology, do so on reasonable terms and conditions and in a manner that contributes to the long term development prospects of the host country.

5. Where relevant to commercial objectives, develop ties with local universities, public research institutions, and participate in co-operative research projects with local industry or industry associations.

IX. Competition

Enterprises should, within the framework of applicable laws and regulations, conduct their activities in a competitive manner. In particular, enterprises should:

1. Refrain from entering into or carrying out anti-competitive agreements among competitors:

    1. To fix prices;
    2. To make rigged bids (collusive tenders);
    3. To establish output restrictions or quotas; or
    4. To share or divide markets by allocating customers, suppliers, territories or lines of commerce.

2. Conduct all of their activities in a manner consistent with all applicable competition laws**,** taking into account the applicability of the competition laws of jurisdictions whose economies would be likely to be harmed by anti-competitive activity on their part.

3. Co-operate with the competition authorities of such jurisdictions by, among other things and subject to applicable law and appropriate safeguards, providing as prompt and complete responses as practicable to requests for information.

4. Promote employee awareness of the importance of compliance with all applicable competition laws and policies.

X. Taxation

It is important that enterprises contribute to the public finances of host countries by making timely payment of their tax liabilities. In particular, enterprises should comply with the tax laws and regulations in all countries in which they operate and should exert every effort to act in accordance with both the letter and spirit of those laws and regulations. This would include such measures as providing to the relevant authorities the information necessary for the correct determination of taxes to be assessed in connection with their operations and conforming transfer pricing practices to the arm's length principle.

ANNEX II: LINKAGES BETWEEN THE ENVIRONMENT CHAPTER AND OTHER PARTS OF THE GUIDELINES

Some aspects of corporate practices and management systems cut across several of the areas covered by the Guidelines, and some parts of the Guidelines that could have important repercussions for companies' environmental behaviour are outside Chapter V. First, some of the more general Chapters of the guidelines (e.g. Chapter II, on General Policies; Chapter III, on Disclosure) contain provisions that are relevant to a range of corporate practices, including environmental management. Second, certain points made in specific Chapters (e.g. Chapter IV, on Employment and Industrial Relations; Chapter VII, on Consumer Interests) cover similar ground as elements of Chapter V.

Points of particular relevance to environmental management

> ***Preface***
>
> *5. …Multinational enterprises have the opportunity to implement best practice policies for sustainable development that seek to ensure coherence between social, economic and environmental objectives…*
>
> *Chapter II: General Policies*
>
> *[Enterprises should]*
>
> *1. Contribute to economic, social and environmental progress with a view to achieving sustainable development.*

These two recommendations are similar to the introductory text of the Environment Chapter, which states that enterprises should "conduct their activities in a manner contributing to the wider goal of sustainable development". The repeated references to enterprises' contribution to overall sustainable development emphasise three main elements of sustainable development — economic growth, social progress, environmental improvements.

Chapter II: General Policies (cont.)

[Enterprises should]

5. *Refrain from seeking or accepting exceptions not contemplated in the statutory or regulatory framework related to environmental, health, safety, labour, taxation, financial incentives, or other issues.*

7. *Develop and apply effective self-regulatory practices and management systems that foster a relationship of confidence and mutual trust between enterprises and the societies in which they operate.*

10. *Encourage, where practicable, business partners, including suppliers and sub-contractors, to apply principles of corporate conduct compatible with the Guidelines.*

11. *Abstain from any improper involvement in local political activities.*

The issue raised by Chapter II, Point 5 about refraining from accepting or seeking improper regulatory exemptions cuts across the entire Environment Chapter insofar as it may in principle involve derogations from requirements that relate to many of the points mentioned there. One example involves the introductory statement in the Environment Chapter, which says that "enterprises should, within the framework of laws, regulations and administrative practices… take due account of the need to protect the environment, public health and safety."

Chapter II, Point 7 supports two separate provisions of the Environment Chapter. First, fostering "a relationship of confidence and mutual trust between enterprises and the societies in which they operate" is supportive of the process of communication and consultation that is recommended in the Environment Chapter. Second, by applying "effective self-regulatory practices and management systems" a company is well placed to establish and maintain a system of environmental management as is also recommended in Chapter V.

Chapter II, Point 10 is a general point with a wide application, and it is mentioned as such in the following sub-section. However, it can also be seen in conjunction with the Environment Chapter's recommendation to "… address in decision-making the foreseeable environmental, health and safety-related impacts associated with the processes, goods and services of the enterprise over their full life cycle". Where the life cycle of a given product involves various business partners the two provisions overlap.

Chapter II, Point 11's provision about abstaining from "improper involvement in local political activities" should be read in conjunction with the Environment Chapter's recommendation that enterprises should "contribute to the development of environmentally meaningful and economically efficient public policy". Both these provisions concern the relations between companies and political decision-makers.

Chapter III: Disclosure

1. *Enterprises should ensure that timely, regular, reliable and relevant information is disclosed regarding their activities, structure financial situation and performance. This information should be disclosed for the enterprise as a whole, and, where appropriate, along business lines or geographic areas. Disclosure policies of enterprises should be tailored to the nature, size and location of the enterprise, with due regard taken to costs, business confidentiality and other competitive concerns.*

2. *Enterprises should apply high quality standards for disclosure, accounting and audit. Enterprises are also encouraged to apply high quality standards for non-financial information including environmental and social reporting where they exist. The standards or policies under which both financial and non-financial information are compiled and published should be reported.*

5. *Enterprises are encouraged to communicate additional information that could include:*

Value statement or statements of business conduct intended for public disclosure including information on the social, ethical and other codes of conduct to which the company subscribes. In addition, the date of adoption, the countries and entities to which such statements apply and its performance in relation to these statements may be communicated.

Information on systems for managing risks and complying with laws, and on statements or codes of business conduct.

Information on relationships with employees and other stakeholders.

The Disclosure Chapter dovetails with the provisions in the Environment Chapter which recommend that enterprises should "provide the public and employees with adequate and timely information on the potential environment, health and safety impacts" of their activities. Taken as a whole, Chapter III provides significantly more detailed information about expectations on enterprises' disclosure practices than does

Chapter V. Moreover, some of the recommendations have a direct environmental application. Enterprises are "encouraged to apply high quality standards for non-financial information including environmental and social reporting". They are also encouraged to communicate information that could include information on the enterprise's environmental policies and codes of conduct, in addition to its social and ethical policies.

Chapter IV: Employment and Industrial Relations

[Enterprises should]

4.b Take adequate steps to ensure occupational health and safety in their operations.

There are several references to health and safety in the Environment Chapter. It recommends that enterprises should "assess and address in decision-making, the foreseeable environmental, health and safety-related impacts associated with the processes, goods and services of the enterprise", and that they should "provide adequate education and training to employees in environmental health and safety matters". The health and safety provision of Chapter IV limits itself to recommending that "adequate" steps be taken, while specifically focusing on occupational health and safety.

Chapter VII: Consumer Interests

[Enterprises should]

2. As appropriate to the goods or services, provide accurate and clear information regarding their content, safe use, maintenance, storage, and disposal, sufficient to enable consumers to make informed decisions.

Chapter VII, Point 2 recommends that enterprises should make accurate and clear information available to consumers regarding a number of aspects of their goods and services, including their content. In an environmental context the specific mention of "disposal" bears underlining. The Environment Chapter makes a related point, namely that enterprises should improve their performance in areas such as "promoting higher levels of awareness among customers of the environmental implication of using the products and services of the enterprise". By informing customers of a given product's content, safe use and disposal, enterprises have already gone a considerable way in observing the related provision of the Environment Chapter.

Chapter VIII: Science and Technology

[Enterprises should]

2. Adopt, where practicable in the course of their business activities, practices that permit the transfer and rapid diffusion of technologies and know-how, with due regard to the protection of intellectual property rights.

The diffusion of new technology, including via the international networks of multinational enterprises, could be an important channel for environmental improvement. The mention of transferring technologies is relevant in the context of a provision in the Environment Chapter, which recommends that enterprises should encourage the "adoption of technologies and operating procedures in all parts of the enterprise that reflect standards concerning environmental performance in the best performing part of the enterprise."

General provisions with relevance for enterprises' environmental performance

In addition to the environment-related provisions highlighted in the previous section, the Guidelines contain general recommendations that, while not aimed at environmental issues *per se*, are nevertheless important to companies intending to improve their environmental performance. Some of the more important examples are listed below. However, the list is far from exhaustive and the reader is referred to the full Guidelines text for further details.

Preface

10. Governments can help by providing effective domestic policy frameworks that include stable macroeconomic policy, non-discriminatory treatment of firms, appropriate regulation and prudential supervision, an impartial system of courts and law enforcement and efficient and honest public administration. Governments can also help by maintaining and promoting appropriate standards and policies in support of sustainable development…

The concept of corporate responsibility in itself indicates a willingness on the part of enterprises to comply with applicable law. Point 10 of the Preface further points to a well-recognised link between corporate and government responsibility; corporate responsibility can make by far its greatest contributions to sustainable development in

environments of healthy public governance. The Guidelines acknowledge the need for public authorities to play an important role.

> ***Chapter I: Concepts and Principles***
>
> *6. Governments adhering to the Guidelines should not use them for protectionist purposes nor use them in a way that calls into question the comparative advantage of any country where multinational enterprises invest.*

Chapter I, Point 6 is aimed at preventing adhering countries from using the Guidelines to discriminate against foreign-owned enterprises, and countries necessarily operating on lower standards. The issue of comparative advantages could, for example, be important where enterprises operate in countries at very divergent levels of economic and social development.

> ***Chapter II: General Policies***
>
> *[Enterprises should]*
>
> *9. Refrain from discriminatory or disciplinary action against employees who make bona fide reports to management or, as appropriate, to the competent public authorities, on practices that contravene the law, the Guidelines or the enterprise's policies.*
>
> *10. Encourage, where practicable, business partners, including suppliers and sub-contractors, to apply principles of corporate conduct compatible with the Guidelines.*

Chapter II, Point 9 amounts to a protection of so-called corporate "whistleblowers". As regards practices that contravene the law, the Guidelines text is consistent with recent legal changes in some Member countries and it is supported by a provision in the revised OECD Principles of Corporate Governance. Whistleblower provisions could be particularly important in the context of a company's environmental performance, because — unlike labour relations and consumer interests, for example — it may be difficult for stakeholders to know about inappropriate actions by the company.

Chapter II, Point 10 recommends that enterprises encourage the application of the Guidelines throughout their supply chain. At the same time, it recognises there are practical limitations to enterprises' ability to influence the conduct of their business partners. The extent of these limitations depends on sectoral, enterprise and product

characteristics. The 2003 *Annual Report on the OECD Guidelines for Multinational Enterprises* highlighted structural factors such as the degree of market power as indicative of companies' ability to influence business partners. It also highlighted other business practices such as certification and product-tracking systems as additional channels of exerting influence.

In cases where direct influence of business partners is impossible, the objective could be met by dissemination of general policy statements of the enterprise or membership in business federations that encourage business partners to apply principles of corporate conduct compatible with the Guidelines. In this context, the MNE could also inform its business partners of the content of the Guidelines.

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Environment and the OECD Guidelines for Multinational Enterprises

CORPORATE TOOLS AND APPROACHES

Sound environmental management is an important contribution to sustainable development, and it is increasingly seen as both a business responsibility and a business opportunity. The *OECD Guidelines for Multinational Enterprises* recommend that managers of enterprises give appropriate attention to environmental issues within their business strategies and day-to-day operations. The Environment Chapter of the *Guidelines* encourages multinational enterprises to raise their environmental performance by improving internal environmental management practices and seeking continuous environmental improvements. These can be achieved through a range of tools and approaches relating to environmental management, such as engaging in public information and stakeholder consultation; assessing environmental impacts through the whole life cycle of processes; acting with precaution; providing for contingency planning; ensuring environmental training and contributing to the development of environmental policy.

This book provides an overview of the main tools and approaches available to enterprises wishing to put the Environment chapter of the *OECD Guidelines* into practice. Its numerous examples of companies' experience with these tools show that sound environmental management is an integral part of sound business.

The full text of this book is available on line via these links:
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