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Business and the environment: current trends and developments in corporate reporting and ranking

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Contents

About this report

This report was requested by the European Parliament in order to help assess the possible role of corporate environmental reporting (CER) in helping to promote public access to information, eco-efficiency and sustainable development. The European Environment Agency (EEA) is interested in these aspects of CER and particularly in the coordination of CER, and associated indicators, with environmental reporting at EU and national levels. To that end, the EEA workshop on 'Making sustainability accountable' (EEA, 1999) was organised in partnership with national and corporate reporting organisations, including the World Business Council on Sustainable Development (WBCSD), in order to get some congruence between both levels of reporting. The workshop proposed 9 to 10 'environmental headline indicators' which have since been adopted and are being developed by the EU. A first report on these headline indicators will be published in 2000 by the European Commission.

Meanwhile, there are similar developments in CER, with WBCSD focusing on a handful of key corporate eco-efficiency indicators that are similar to the European headline indicators.

This report provides an overview of these and other developments in corporate environmental reporting (CER), in corporate environmental performance indicators (EPIs), and in corporate environmental performance ranking tools (EPRTs), including the emergence of standards such as the global reporting initiative. It also summarises some recent developments in social reporting.

The report is aimed at the business and financial sectors, which are beginning to develop strategies on integrating the environment into their activities, following the current legal and political moves to promote the 'integration' of environmental issues into economic activities. Progress with such integration will be reviewed at the Gothenburg Summit in June 2001 (EEA) ([1]).

The report is also intended for policy-makers and those parliamentarians interested in stimulating improvements to the integration of environmental issues into the business and financial sectors.

The report is based on an earlier draft written by Ulrika Wennberg and Åsa Skillius of the International Institute for Industrial Environmental Economics (IIIEE), Lund University, Sweden and edited by Gemma Taylor-Gee of IIIEE. Additional contributions and editing was provided by Project Manager David Gee, assisted by Paolo Meozzi and Ane Nymark Jensen, at the EEA.

([1]) EEA (1999), *Monitoring progress towards the integration of environment into economic sectors*, European Environment Agency, Copenhagen (draft executive summary).

Foreword

We are used to a fast pace of change in the business world. However, the pace at which sustainable development has entered the boardrooms of multinational companies in the last 10 years has been staggering. A decade ago, environmental concern was merely a matter of legal compliance for most companies. But after the UN Earth Summit in Rio in 1992, sustainable development appeared on the agenda of many multinationals. It first appeared in the guise of 'eco-efficiency' — which represented a link between environmental improvement and financial savings. Later, in the 1990s, it became apparent to business that sustainable development had a social dimension as well.

Today, a number of companies are working on integrating environmental, ethical and social responsibility into their corporate governance structures. It is becoming more and more common to deal with a broader business agenda that focuses not solely on shareholders, but also on stakeholders. In fact, there is every reason to believe that this way of viewing business in a more holistic, qualitative framework is more than a trend, but is here to stay. Progressive companies, politicians and NGOs have embraced the concept of sustainable development. The financial community is also beginning to take notice. Financial investors like Salomon Smith Barney and Innovest have broadened their evaluation criteria to embrace environmental and social parameters along with financial performance. The Dow Jones sustainability group index, a benchmark of over 2 000 companies based on sustainability criteria, is another example of this new perspective from investors.

The pursuit of sustainable development is a learning process. For business, this process includes among other things the involvement of employees at all levels, learning and reflection, stakeholder dialogue and partnerships, and public reporting. The actual published report is just the tip of the iceberg. Below the surface, there are lots of internal activities such as defining focus areas, setting targets and gathering data. The reporting process is a key driver as companies strive to learn more about sustainable development. Therefore this document will make welcome reading for both reporters and report users.

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Executive summary

Integrating the environment into the business and financial sectors

The integration of the environment into the activities of economic sectors is a key step on the road towards sustainable development. Many sectors are beginning to address this, encouraged by the EU Amsterdam Treaty, which requires such integration into Community policies. Corporate environmental performance reporting and ranking is at the interface between the business and financial sectors, and is therefore critical to the successful integration of the environment into these two sectors. This report aims to encourage such integration by:

- looking at the financial sector's need for environmental information;
- summarising current developments in the provision of company environmental information, including the use of environmental performance indicators, and environmental performance ranking systems;
- summarising the emerging field of corporate social, ethical and sustainability reporting.

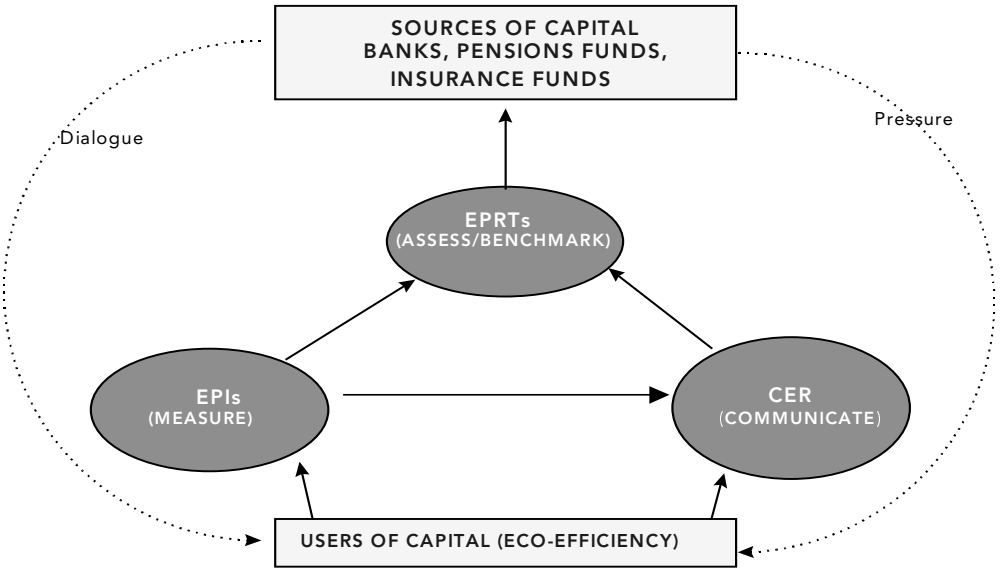
Financial institutions such as banks, insurance companies and pension funds provide much of the financial capital for companies. If they are to play any role in helping companies to minimise their environmental impacts they need comparable, credible and reliable information on the size and nature of these impacts, how companies are dealing with them, and how they affect their financial performance and shareholder value.

Many leading companies are now beginning to take responsibility for their environmental impact and are trying to improve and communicate their environmental performance via an environmental report and environmental performance indicators. Whilst this is real progress compared to 10 years ago when corporate environmental impacts were not so transparent, much of this reporting is poor. The information provided in environmental reports is unevenly reported across companies and sectors and its relationship to the financial fortunes of a company is unclear. The reporting of financially relevant environmental risks is limited, which jeopardises sound investment. The reporting of environmental external costs, which represent a large but hidden subsidy from society to company shareholders, is virtually non-existent. The value of reported information is therefore limited, and key stakeholders, such as the financial sector, can make little use of it.

The financial community therefore, which could play a powerful role in encouraging companies to improve their environmental performance, is generally not doing so, despite some 'green' investments.

The purpose of this report is to help improve the 'eco-efficient' use of capital by corporations. This could be achieved through pressure from and dialogue with the financial sector, which provides much of their capital, based on improved information flows between them.

The role of corporate environmental reporting, performance indicators and ranking tools in encouraging eco-efficient use of capital



EPIs = environmental performance indicators
CER = corporate environmental reporting
EPRTs = environmental performance ranking tools

Source: EEA.

The report provides an insight into:

- who in the financial community is, or could be, interested in environmental information;
- what kind of information they need;
- what information gaps there are;
- how the quality and disclosure of environmental information could be improved;
- how this information can be used to rank corporate environmental performance.

The financial community itself is currently uncertain about the kind of environmental information that would be of use and interest to them. Yet parts of the financial sector are now showing increasing interest in the environment, encouraged by UNEP's financial services initiative. The growth of environmental funds, environmental accounting, environmental performance rating/ranking schemes, and various recommendations from the financial sector about environmental information are helping to steer capital towards environmentally sound enterprises. There is also mounting evidence that there is a link between environmental and financial performance, and several key financial players, such as investment analysts and banks, are beginning to develop ways in which this can be maximised. As awareness spreads through the financial community, more pressure and influence can be exerted on companies to improve their environmental performance.

Challenges for CER: continuity, comparability and credibility

The major challenges of corporate environmental reporting can be summarised as:

- **continuity:** in that the same methods and metrics are used year after year;
- **comparability:** to allow for benchmarking and assessing progress;
- **credibility:** to ensure that the information provides a 'true and fair' picture of the company's environmental performance.

Continuity can be ensured by publishing environmental reports at regular intervals, by setting targets and reporting back on progress, and by using the same performance indicators over time.

Comparability is best achieved by using standardised and normalised environmental performance indicators, based on harmonised accounting systems. A variety of environmental performance indicators are in use and there is a range of guidelines under development. To ensure comparability and credibility, a consensus needs to be reached by the business sector on a portfolio of core environmental indicators, both overall and on sector-specific levels. These environmental indicators need to be qualitative, quantitative and monetary. They need to concern both environmental performance and environmental impact. They need to cover the process, the products and the management system. Environmental indicators need to be constructed so that they can capture whether or not the aims of environmental management are being achieved, i.e. improving environmental performance and moving towards a more sustainable society. The draft standard on environmental performance evaluation, ISO 14031, the WBCSD eco-efficiency metrics, and the global reporting initiative (GRI) are first steps towards such a consensus. This is an area in which the business community, NGOs, governmental authorities and the EEA can work together during the next couple of years, especially in developing indicators that can be used by the smaller companies.

Credibility requires transparency, an inclusive approach to stakeholders, and verification of the environmental reports by independent and authoritative auditors.

The business sector imposes large environmental costs on society which are not reflected in the market prices of their products and services, nor in their financial accounts (BSCD, 1994; CSERGE, 1999). These 'externalised' costs represent a significant subsidy from those who bear the costs (tax-payers, future generations, etc.) to the companies' shareholders. In other economic sectors, particularly transport and energy, attempts are now being made to 'internalise' these environmental costs via taxes, regulations and tradable permits, so that market prices become more 'fair and efficient' (CEC, 1995). Such policy instruments have been used in the business sector to help reduce environmental impacts to today's levels, but further action is needed if impacts are to be sustainable. A first step is to estimate the economic costs of such impacts and to adjust company income statements accordingly. This process has only just begun, based on methodologies developed for the 'greening' of national income accounts (CSERGE, 1997; Ekins, 1998).

The challenge facing the business sector is to use environmental reporting both as an environmental management tool and as a means of providing stakeholders with credible information about environmental performance. Dialogue with the stakeholders is the main way to ensure that the strategic environmental management initiatives of a company have the right content and direction to fully exploit the new

business opportunities and minimise risks. Such dialogue can help companies to identify and meet the needs of the financial sector, such as providing information on the comparative rating and ranking of environmental performance. This could help the sector to steer its investments towards those companies who can make the most 'eco-efficient' use of capital. The EEA will be exploring the possibility of developing an award scheme for environmental performance ranking tools with relevant partners.

Environmental rating and ranking has been widely perceived as a useful way of engaging the financial community's interest in environmental matters. But the financial institutions are sceptical: the new environmental rating/ranking services appear to have been developed in the belief that traditional players in the market **should** be looking at environmental performance. Meanwhile, 'this is definitely a case of product push, rather than market pull' (Schmidheiny and Zorraquín, 1996).

There is therefore a need to encourage a market 'pull', via leaders from the financial sector. The development of the Dow Jones sustainability index in 1999, the pilot environmental sustainability index, (World Economic Forum, Davos, 2000), and the growing acceptance by some in the financial community that improved environmental performance can increase long-term shareholder value, are all indications that market 'pull' is growing. There is also increasing evidence of a positive link between environmental and financial performance.

With improved quality of environmental information, and more accurate and transparent rating and ranking systems, the interest of the financial sector in environmental performance should increase. This in turn will further encourage companies to improve their environmental performance.

Sustainability reporting

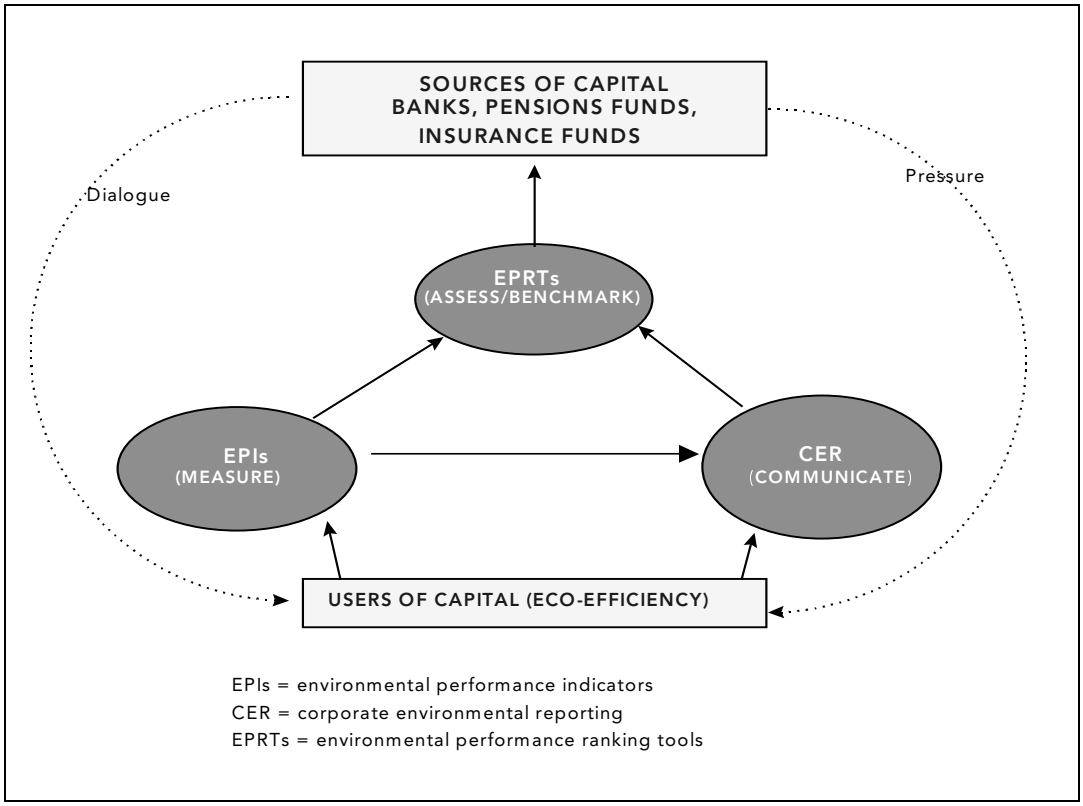
Reporting on the wider social and ethical dimensions of sustainability is a more recent and additional challenge for both the business and the financial sectors. Leading companies are beginning to address not only environmental factors but also social and ethical issues and their interlinkages, often driven by consumer and investor pressure. Reporting guidelines such as the global reporting initiative, SA800 and Accountability 1000 facilitate reporting on the three key aspects of business activity: economic, environmental and social. Sustainability reporting on the 'triple bottom line' of economic, environmental and social performance is becoming an essential condition for success in an increasingly global and transparent marketplace.

1. Introduction

'The concept of corporate sustainability has long been very attractive to investors because it aims to increase long-term shareholder value. Sustainability-driven companies achieve their business goals by integrating economic, environmental and social growth opportunities into their business strategies. These sustainability companies pursue these opportunities in a proactive, cost-effective and responsible manner today, so that they will outpace their competitors and be tomorrow's winners.' (Dow Jones sustainability group index, September 1999)

The purpose of this report is to help improve the 'eco-efficient' use of capital by corporations through the pressure and dialogue that could come from the financial sector, which provides much of their capital, based on adequate information flows between them. (Figure 1. 1.)

Figure 1.1. The role of corporate environmental reporting, performance indicators and ranking tools in encouraging eco-efficient use of capital



Source: EEA.

The report is aimed at those companies, their financial stakeholders (creditors, investors, insurers and asset managers), and policy-makers who want to see improved information on corporate environmental performance. Environmental information should have:

- continuity: in that the same methods and metrics are used year after year;
- comparability: to allow for benchmarking and assessing progress;

- credibility: to ensure that the information provides a 'true and fair' picture of that company's environmental performance.

These 'three Cs' are essential if information about corporate environmental performance is to be used by financial institutions. However, they are not easy to achieve being derived from three often separate activities. **Environmental reporting** involves companies in monitoring and measuring their environmental impacts and communicating them. But to do this well requires an **auditing and accounting system** that fully accounts for all environmental inputs and impacts and which can generate data and indicators that can be communicated easily. And to organise both these activities, and the reduction of environmental impacts, requires an **environmental management system**. Unfortunately, many companies have started these activities in an ad hoc fashion, without fully appreciating the links, synergies or conflicts between them. As a result, the credibility and comparability of company environmental reports and ranking systems, is often questioned, which limits their use by the financial sector. Only when there is sufficient standardisation and transparency to allow for 'continuity, credibility and comparability' can we expect the financial communities to make use of environmental information in encouraging the more eco-efficient use of capital.

The report is in five parts. Section 1 looks at the environmental information needs of the financial sector and at its small but emerging role in encouraging sustainability. Section 2 covers environmental performance indicators and the moves towards their standardisation. Section 3 looks at the current issues and challenges in corporate environmental reporting, including issues such as verification. Current developments in environmental performance rating or ranking are described in Section 4. Section 5 draws some conclusions and summarises some future developments in sustainability reporting.

2. Environmental information and the financial sector

2.1. Who in the financial sector is interested in environmental information?

Until recently, most people in the financial sector considered environmental issues as environmental risks, involving land pollution and remediation or claims for damages. Other kinds of environmental issues, such as eco-efficiency and minimal use of energy, consumer reactions and climate change impacts have largely been ignored by the financial sector, as they have no perceived relationship to the financial bottom line. However, some in the financial sector do not agree that they lack interest in environmental issues, but maintain that the link between improved environmental performance and improved financial performance needs to be drawn more clearly (Schmidheiny and Zorraquín, 1996; Delphi, 1997; Ganzi, 1998). There are several reasons why the financial sector is indifferent to environmental issues (Lascelles, 1993 and 1997). One is that the financial sector does not see environmental issues as a separate moral issue, but just another pressure, perhaps temporary, occurring in the business world. Another is that the prices of natural resources do not reflect possible future shortages, nor their unsustainable use. A third cause is a general confusion about the importance of environmental issues, together with uncertainty about how their effects should be measured. The result is that environmentally based arguments are often perceived by the financial sector as tiresome, yet costly, forcing companies to make non-productive investments in order to comply with regulations. But these attitudes are changing (Fayers et al., 2000).

The management of environmental issues is increasingly seen as a means of:

- avoiding the financial and reputational **risks** of environmental impacts;
- capturing **opportunities** in the development of new financial products and services that arise from environmental concerns;
- maintaining **competitiveness** as other financial service organisations set high environmental standards and set up environmental funds;
- improving internal operational **efficiency** and reducing operating costs (Hägerström, 1999).

Views about these risks and opportunities vary because the so-called 'financial sector' is not a homogenous group. It has various players with differing interests. For example, polluting emissions from a site can have varying financial repercussions for different financial players:

- for the **bank**, the emissions could impact on the sales and profits of the borrowing company, reduce the value of its assets, lead to failure of the company and its ability to repay a loan;
- to the **insurer**, it could require paying legal and clean-up costs;
- for the **investor**, the incident could lead to a loss of returns on the investment;
- for the **investment analyst**, the poor performance of the company could jeopardise its forecasts and reputation.

In addition, minimising these financial repercussions on the different players in the sector requires different environmental information for each of them. Similarly, the opportunities for making money out of environmental issues vary with the different roles of groups within the financial sector.

Four main groups of financial players potentially have interest in environmental information:

- creditors;
- insurers;
- investors and fund managers;
- financial analysts.

These groups, and the information they are interested in, are described below. There is some overlap, since financial players increasingly offer more than one main financial service, e.g. banks offer insurance services and insurance companies offer investment funds.

2.1.1. Creditors

There are three ways in which a company's environmentally related risks and opportunities can be transferred from a company to a financial creditor (European Bank for Reconstruction and Development (EBRD), 1995).

1. Financial credit risk due to:
- punitive fines for environmental violations, or remedial works;
- delays and increased costs because of public opposition;
- loss of business because of an inability to comply with environmental standards.

2. Security of assets risk due to:
- contamination of land;
- inventory or equipment rendered obsolete by the introduction of new environmental laws and standards, reducing or eliminating the value of the security.

3. Direct liability risk, where legislation or common law makes financial institutions directly liable for environmental damages associated with the customers. This is mainly relevant to the United States.

A 1995 study of international banks by the United Nations Environment Programme (UNEP) stated that bankers believe a need exists for more meaningful analytical data and risk-quantification tools (UNEP, 1995). The study revealed that over 80 % perform some degree of environmental risk assessment before giving credit to a client. Environmental risk management is part of the basic credit process in virtually all industrial countries and most transitional economies, and extensive checklists and questionnaires have been developed. It has also been reported that bankers are beginning to look beyond legal and regulatory issues and beyond the physical issues, directing greater attention towards management quality and environmental management systems.

In 1992, 55 banks signed the UNEP document 'Statement by banks on the environment and sustainable development' as part of UNEP's financial services initiative (UNEP, 1999a and b). The signatories thereby committed themselves to,

among other things, 'support and develop suitable banking products and services designed to promote environmental protection'. Since the launch of this partnership, 171 financial institutions have endorsed the underlying principles of the 1992 initiative.

2.1.2. Insurers

In 1995, as a parallel to the banks' initiative three years earlier, a number of insurance companies in collaboration with UNEP signed a 'Statement of environmental commitment by the insurance industry'. The commitment includes an undertaking to 'reinforce the attention given to environmental risks in our core activities'. These activities include risk management, loss prevention, product design, claims handling and asset management. By September 1998, 88 insurance companies had signed this initiative.

Insurers, at least in the United States, have had some difficult environmental experiences. The American Insurance Association estimates that insurers spend USD 450 million a year on transaction and legal costs arising from the US Superfund. 'American insurers are facing what has been described as the insurance industry's black hole: USD 2 trillion in pollution, asbestos, clean-up liabilities and related claims' (The Economist, 1995). Lloyd's insurers of London came to near collapse because of such environmental liabilities.

'So far, environmental catastrophes over the world resulted in the insurance industry having to pay GBP 34 billion in claims and we have noticed that these costs continue to grow.'
(Knut Francke of Norwegian insurance company UNI Storebrand, 1995).

The industrial insurers' interest in environmental information is very much influenced by the high costs of clean-up from waste dumping and polluted industrial sites related to the US Superfund project. The experience has taught insurers to avoid writing insurance policies without a time limit ('long-tails'). Nowadays, insurers often exclude gradual pollution (as separate from sudden and accidental pollution) from insurance coverage. In the United States, certain industrial sectors can also be refused insurance.

Industrial insurers, and especially re-insurers, may also have an interest in knowing (or avoiding) industries contributing to climate change, as this will have a negative financial effect on the insurance industry (UNEP, 1999c).

Box 2.1. Climate change and the insurance industry

In 1998 alone, environmental catastrophes created 25 million refugees, more than the number affected by war; 300 million people were affected by storm surges, torrential rain, landslips, mudslides and tidal waves; and 45 countries were stricken with drought.

Julian Salt, of the Loss Prevention Council, which advises the UK insurance industry: 'If the world does not wake up to climate change and deal with its causes, then disasters will reach a point in the middle of the century when they are unmanageable. Prevention is cheaper than the cost of natural disasters'. Munich Reinsurance, one of the world's largest insurance companies, said that the cost of climate-related disasters doubled every decade from USD 50 billion in the 1960s, when there were 16 disasters, to nearly USD 400 billion in the past 10 years, when there were 70.

Source: The Guardian, 2000.

Since 1990, some insurance and re-insurance companies such as Munich Re and Swiss Re (Swiss Re 1994) have played a significant role in raising concerns about climate change and have helped organise regular side meetings on the financial implications of climate change at the Conferences of the Parties to the Convention on Climate Change, e.g. at COP5, Bonn, 1999. Insurers also have a role as investors, through the investment of premiums, although the legislation surrounding the investment of insurance premiums can sometimes limit the use of environmental criteria. Some insurance companies, e.g. Storebrand, are developing and applying corporate environmental performance ranking tools, see Section 4.

2.1.3. Investors and fund managers

Investors have to choose where to put their capital and some investors wish to channel their capital into companies engaging in certain activities, and/or withhold it from others. This phenomenon of 'screened investment' dates back to the 1920s, when certain religious institutions avoided investments in 'sin' stocks such as firms connected with alcohol or tobacco. The channelling of financial flows using environmental criteria is a more recent practice. Funds using specific environmental criteria first appeared during the late 1970s. The early 1990s saw a boom in the number of environmental funds. By 1995, there were more than 80 separate environmental funds registered in Europe, investing a total value of EUR 1.8 billion (Opticom, 1996). There is no consensus on what constitutes an environmental fund. However, environmental funds can be categorised into the following types of funds.

Some funds are mixtures of the types mentioned in the above table, for example, the Swiss UBS Eco-Performance Investment Fund (Categories 1 and 2); Swedish Talenten (2 and 3) Varldsnaturfondens allemansfond (3 and 4), and German OkoVision.

Rather than supporting sustainability from ethical/environmental concerns, the purpose of environmental investment can be strictly profit driven — i.e. benefiting from the competitive advantages of environmental activity. Research has tried to establish a positive relationship between corporate environmental and financial performance. This will be discussed in Section 2.2.1. Meanwhile, many 'green' investment funds seem to have outperformed the market.

Table 2.1. Categorisation, description and examples of funds. (Opticom, 1996 and Delphi, 1997)

Fund type	Description	Examples
Environmental industry funds	A 'classic' type of green fund, investing in environmental technologies such as waste management, recycling, emission control filters, and scrubbers. Here the environment is not merely a concern, but in some sense a core part of their business. The companies can be divided into the traditional environmental sector (waste disposal, water) whose job it is to handle industry's impact on the environment, and the 'green' pioneers developing new, environmentally sound approaches to business. These companies form a relatively small part of the market.	German Focus Umwelt-Technologie Fonds Euroinvest. Hypo Eco Tech and KD Fonds Öko-Invest. Swedish SE Banken's two funds. Wasa Miljöfond; American New Alternatives Fund.
Eco-efficiency funds	Funds investing in companies with a clear environmental awareness and which actively work to reduce impact of their activities. Instead of applying absolute standards to companies, some investors are seeking to distinguish between the good and the bad companies within a sector, by comparing aspects such as resource efficiency and pollution levels. Many investors who are making environmental investments out of principle may still be reluctant to invest in the most polluting sectors (chemicals, conventional energy producers) even if they are the least bad in that sector. Analysing companies in this manner requires high quality information on the performance of companies, information which must also be comparable.	Many recently started funds are of this type. Norwegian Storebrand Scudder Environmental Value Fund. Swedish Svensk Miljöfond. Förenings-Sparbankens Miljöfond. Swiss Oeko Sar Fund. Credit Suisse Equity Fund.
Funds using negative/positive criteria	Examples of negative criteria (i.e. investment is avoided in companies involved in the specified activities) are nuclear energy production and/or distribution; emission of ozone depleting substances, car manufacturing. Examples of positive criteria could include the implementation of an environmental management system, regular environmental audits, etc. Sometimes ethical criteria are included, such as human rights.	American Parnassus Fund. Dreyfus Third Century Fund.
Environmental support funds	Funds donating money as financial support to companies, organisations, individuals, or projects. The size of this donation is usually very marginal, 1 or 2 % of the yield. This type of fund should not be mixed up with subsidy funds, established primarily to support and not to create a financial yield.	Swedish Banco Ideella Miljöfond. WASA Miljöfond.
Sustainable growth funds	Some environmental investors are looking at those businesses which have a long term role in the transition towards sustainable development. Such companies are often not thought of having much involvement with the environmental sector per se, for example telecommunications and information technology. There may be sound environmental and financial reasons behind such investments, but strictly speaking this type of fund differs little from any conventional portfolio with the ambition to pick sectors with acknowledged potentials.	British NPI Global Care Funds. Jupiter Income Trust Fund

Source: EEA.

2.1.4. Financial analysts

'Relative to the objective of improving the environmental and social performance of industry, we can see that the investment and finance sectors are potentially powerful analysts for change or, alternatively a brake on progress' (Fayers et al., 2000).

Financial analysts gather and analyse information that can have an impact on the financial performance of a company. Financial analysts can potentially have great interest in environmentally related information for the purpose of assessing financial stability and rating/ranking. Some of the questions financial analysts raise with companies are: does the company have a global environmental policy, what environmental certifications systems are in place, are environmental criteria part of a company's approach to product stewardship, and what is the level of environmental awareness amongst employees (Blumberg, J. et al., 1997). This kind of information can help financial analysts understand and analyse the financial stability of a company, and what opportunities and risks affect the company.

Financial raters, Standard Poor & Moodys, claim that their rating systems **do** consider environmental factors that have a potential impact on a company's financial stability and credit worthiness (House, 1995; SOU 1997:4). The Dow Jones global sustainability index (DJGSI) represents the first example of a major financial analyst entering the sustainability benchmarking business (see Section 4 for more details on the DJGSI). Rating/ranking varies according to the industry and its exposure to environmental risks. In the paper industry, for example, important variables are the age of the machinery, and its associated emissions, the location of the company, and the nature of the products. Similar environmental regulations can have very different impacts on the financial value of a company. For companies in the power-generating sector, information on the variation in energy sources is of major importance, while in another sector the management of chemicals may be crucial. Financial analysts themselves have different interests depending on their varying roles as general or sector-specific specialists and the communication between them and the companies is crucial (Hagerstrom, 1999).

Box 2.2. Environmental considerations in the decisions of Australian investment professionals

In a recent study conducted among Australian investment professionals, Fayers et al. conclude that investment professionals place less emphasis on environmental performance than other users of corporate reports.
When considering environmental issues, they mainly focus upon liabilities and compliance issues and risk assessment. Even though Fayers et al. detect a modest trend towards greater inclusion of environmental aspects into investment decisions, major barriers to this inclusion therefore exist. As investment analysts are instrumental in investment decision-making and therefore potentially hold a key to change, removing the obstacles preventing them from considering environmental performance would present progress towards more sustainable development.
Fayers et al. suggest that this can be achieved by the expansion of corporate environmental reporting and by developing a framework for linking environmental performance to financial performance.

Source: Fayers et al. (2000), 'Environmental considerations in the decision of Australian investment professionals', Journal of Environmental Assessment Policy and Management.

2.1.5. Accountants and auditors

'Open and free access to many environmental resources means that producers and users lack the incentives to take full costs of environmental degradation and natural resources depletion into account.

Managing these resources so as to support sustainable development requires internalising negative production and consumption externalities, e.g. through reforms of subsidies that are harmful to the environment, the use of economic instruments such as taxes and charges, the creation of markets, and better appraisal of external effects.' (Donald J. Johnston, Secretary-General, OECD 2000)

Since the early 1990s, accountants and auditors have increasingly shown interest in company environmental information and the link with business value and the financial bottom line. The 'Big Five' accountancy and management firms have developed departments, strategies and processes for addressing environmental/sustainability issues. In addition, the growing need for verified information has led many audit firms to embrace environmental and sustainability auditing techniques in order to stay competitive and expand their consultancy services. For example KPMG now provides a sustainability advisory service (SAS) to address environmental, social and economic concerns in companies.

The size of society's subsidy to the corporate sectors, via the 'externalities' of environmental costs not paid for by companies is large but unquantified. As PricewaterhouseCoopers observed in 1992, 'a massive amount of acknowledged environmental cost has yet to pass through the financial statements of corporate America'. However, the evaluation and incorporation of environmental costs into financial accounts is not easy and several approaches are possible: three approaches are outlined in Box 2.3.

Box 2.3. Accounting for environmental impacts

- **Full cost accounting (FCA)** is a tool to identify, quantify, and allocate the direct and indirect environmental costs of **ongoing company operations**. FCA helps identify and quantify the following types of costs for a product, process or project:
  - — direct costs: e.g. capital, raw materials;
  - — hidden costs: e.g. monitoring, compliance reporting;
  - — contingent liability costs: e.g. public relations, good will.
- **Total cost assessment (TCA)** is used to assess **pollution prevention projects** using environmental cost data, appropriate time horizons and standard financial indicators. TCA utilises FCA techniques to properly assign environmental costs and savings to all competing projects, products or processes as part of capital budgeting. Under TCA, decision-makers use traditional financial measures in determining the feasibility of an investment project, such as:
  - — net present value;
  - — internal rate of return;
  - — profitability index;
  - — payback period.
- **Life cycle costing (LCC)** developed from life cycle analysis (LCA). It is a system-oriented approach to estimating **environmental inventories** (i.e., waste generation, emissions and discharges) and energy and resource usage associated with a product, process or operation throughout all stages of the life cycle. Through LCC, managers assign a cost to each impact quantified in the LCA and sum these costs to estimate the net environmental cost from a product, process or project. It includes 'environmental externalities' not paid for by the company.

The Business Council for Sustainable Development (the forerunner of WBCSD) recommended the 'internalisation of externalities' in 1994 (BCSD, 1994).
A study by Gray and Bebbington (Owen et al., 1996) showed that full cost accounting (EPA/Tellus Institute) methodologies were being used by only 11 % of the responding UK companies, which included some of the world's leading companies. Despite these initiatives in environmental accounting, the business world seems to

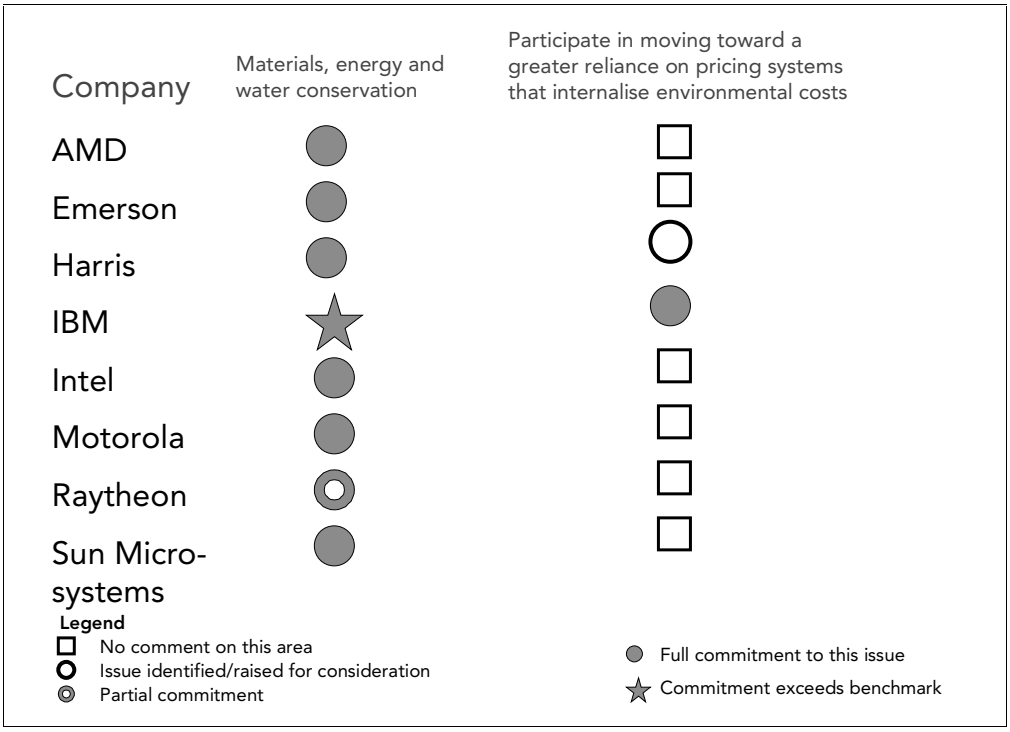
have made little progress with the commitments made on the 'internalisation' of external environmental costs in the Rio agreements of 1992 (Table 2.2).

Table 2.2. Recommendations for transnational corporations from the Rio Summit

Rio recommendations in the area of full cost accounting:
27. be invited to participate at the international level in assessing the practical implementation of moving toward greater reliance on pricing systems that internalise environmental costs;
28. cooperate in developing methodologies for the valuation of non-marketed natural resources and the standardisation of data collection;
29. work towards the development and implementation of concepts and methodologies for the internalisation of environmental costs into accounting and pricing mechanisms;
30. work with governments to identify and implement an appropriate mix of economic instruments and normative measures such as laws, legislation, and standards.

A review of progress on these Rio commitments is needed. An unpublished report to the WWF in 1995 found that there had been little progress with these commitments in the five multinational companies studied. A more recent analysis of published CERs from the electronics sector showed little interest in the internalisation of external costs (see Table 2.3.).

Table 2.3. CERs from the electronics sector



Source: Bennet M. and James, P. (1999), Sustainable measures: evaluating and reporting environmental and social performance p. 432.

There is no data for the external environmental costs of the EU industrial sector compared to that available for the energy and transport sectors, for which environmental 'externalities' are estimated to be around 1 to 2 % of EU GDP for the EU energy sector (CEC, 1995) and 7 to 8 % of GDP for the EU transport sector (Infras/IWW, 2000). These estimates are based on common methodologies that have been applied to EU Member State data. However, an illustration of the size of

corporate environmental externalities is available from a UK study: their estimate for the power generation companies is reproduced in Table 2.4.

Table 2.4. Accounting for pollution damage: the case of electricity generation 1992–96 (million GBP, current prices)

	1992	1993	1994	1995	1996
1. Turnover	3 097	3 188	2 932	2 885	2 933
2. Profit on ordinary activities	359	425	485	545	687
3. Pollution damage (SO2, NOx, PM10)	1 068	850	793	713	616
As % of profit	328	188	166	134	89
4. Adjusted profit	– 709	– 425	– 308	– 168	71

Source: Summary of Table 3 in Measuring corporate sustainability, CSERGE, 1999.

Real profits after an estimate for pollution damage only became positive in 1996. Very few companies have estimated their environmental externalities. '"Beyond compliance" remains, for most corporations, the road not taken, and external environmental cost accounting is not yet a necessity but today's legal emissions, which generate external environmental costs, may well become transformed through regulation into tomorrow's internal costs' (Bennett and James, 1998).

An exception is Interface Europe, part of Interface Inc., the world's largest manufacturer of carpet tiles and floor coverings for commercial, institutional and residential use. Interface Europe accounts for about 25 % of the company's global turnover of USD 1.2 billion (in 1997) and employs about 1 200 people across Europe. In the year ended 31 December 1997, European production facilities consumed over 6 000 tonnes of nylon, 17 000 tonnes of bitumen, 28 000 tonnes of limestone, 12 000 tonnes of latex and 2 000 tonnes of PVC. Direct energy consumption (gas and electricity) amounted to some 43 million kWh.

Interface is trying to move from 'products to services' by providing floor covering services rather than selling carpets. (Anderson, R., 1999). As part of its objective of becoming more sustainable, it asked Forum For the Future (UK) to estimate its externalities. Although limited to some air emissions from production, the study showed externalities to be 7.5 % of income. (Box 2.4).

Box 2.4. Estimated 'sustainability profit' for interface (Europe) 1997

Methods

- 'Tight' system boundaries, i.e. no 'upstream' energy costs of PVC or nylon inputs;
- no 'downstream' costs of carpet disposals by customers (such tight boundaries avoids future 'double counting' when other firms cost out their externalities);
- air emissions only: CO_2, NO_x, SO_2, VOCs, CO, PM_{10}
- CO_2: electricity consumption renewables premium of 1p/kw over 4p/KWh tariff
- CO_2: transport GBP 5.45 per tonne CO_2 ('climate care' estimate, UK)
- SO_2: natural gas, energy GBP 2 400/tonne
- VOCs, NO_x, SO_2 production: 'end of pipe' costs GBP 350 000
- VOCs, NO_x, PM transport (co. cars): LPG conversion credit
- Transport (distribution): GBP 14 000/tonne NO_x. GBP 7 200/tonne VOCs. GBP 2 800/tonne PM

Results

- 'Costs' of air emissions: GBP 1.25 million (c. 7.5 % of operating income)
- Operating Income: GBP 17 million
- 'Environmentally sustainable profit: GBP 15.75 million

Utility for interface

- An initial step towards 'world's first sustainable company' company (Ray Anderson, CEO)
- Contribution to forward planning/liability estimation
- Contribution to cost reductions
- Directionally 'safe' illustration of the company's 'sustainable profit'

Source: Howes, R. (2000).

A similar attempt to account for at least some external environmental cost has been made by Anglian Water who estimated a 'sustainability cost of operations' of GBP 19.9 million for the year 1998 up to 31 March 1999, which represents 7 % of operating profit.

Environmental taxes are one of the main policy measures used to bring full costs into line with market prices. (EEA 1996 and 2000).

During the past decade the International Auditing Practices Committee (IAPC), the International Federation of Accountants (IFAC), the Fédération des Experts Comptables Européens (FEE) and several national professional associations have actively explored the role of accountants and auditors in relation to environmental issues, as well as procedures and frameworks for environmental reporting and verification/auditing of such disclosures. In January 1999 the environmental task force of the FEE published a 'Discussion paper towards a generally accepted framework for environmental reporting'. The main conclusions of the FEE paper was that although environmental reporting is now established as a mainstream element of corporate reporting, there is 'an urgent need to improve the conceptual underpinning and the quality of external environmental reporting' (FEE, 1999). The FEE paper goes on to highlight a number of assumptions and qualitative characteristics that are recommended as core features for reporting. Meanwhile, new journals, such as *Environmental Finance* and *Sustainable Business Investor* are aiming to supply this developing market with relevant information, as are books such as *Contemporary environmental accounting: issues, concepts and practice* (Shaltegger and Burritt, 2000): but there is a long way to go.

'The financial accounts of a company in their current form miss much of what is important in economic terms ... There are no contemporary examples of companies adopting a systematic approach to accounting for, and reporting, their economic performance, let alone building it explicitly into transparent decision-making

processes and linking it to social and environmental outcomes. (BT 2000 'Adding values, the economics of sustainable business', May 2000, British Telecommunications plc. p. 10)

2.2. What environmental information interests the financial sector?

Perception precedes action according to Aristotle, but the financial sector seems to have a poor understanding of environmental issues. According to the Corporate Environmental Performance 2000 Survey, 3 % of the financial community understood the concept completely, 48 % had 'not very much' understanding and 18 % had no understanding at all. (CEP 2000 Survey). But if many in the financial sector are not yet clear about what environmental information they want, some organisations have described what they need. Besides the IAPC, the United Nations Centre for Transnational Corporations Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting (Unctad ISAR) has produced 'best practice' recommendations on environmental accounting and financial reporting. This recommends focusing on the following:

- environmental issues pertinent to the enterprise and industry;
- environmental policy adopted;
- improvements made since adopting the policy;
- enterprise environmental emissions targets and performance against these;
- response to government legislation;
- environmental legal issues that the enterprise is involved in;
- effect of environmental protection measures on capital investment and earnings;
- material costs charged to current operations;
- material amounts capitalised in the period.

Several associations of banks and financial analysts have also produced their own guidelines on what environmental information should be in the annual report and financial statements. For example, the Swiss Bankers' Association produced a draft consultation paper on what it would like to see as standard environmental disclosures (Swiss Bankers' Association's task force, 1997). Their recommendations, aimed at facilitating the assessment of companies' environmental performance, come under three headings.

1. **Key environmental figures:** e.g. energy use; CO_2 and equivalents; CFC-11 and equivalents; NO_x emissions; SO_2 emissions; VOC emissions; waste, including special waste; additional sector-specific data.

2. **Relevant financial figures:** energy costs; raw material costs; waste disposal; depreciation on environmental investments; depreciation or provisions for environmental liabilities; quality assurance costs; environmental investments; environmentally motivated provisions.

3. **Relevant management information:** strategy (the three most important environmental issues affecting the company's bottom line in the next 5 to 10 years); EMS with special focus on risk management and legal compliance; communication (knowledge of most important stakeholders; type of communication); and description of measures taken to improve eco-efficiency of processes and products.

Although such recommendations can help companies produce better corporate environmental reports, without identifying a clear link between environmental improvement and the financial bottom line, the financial sector itself will remain sceptical and reluctant to encourage companies to improve their environmental performance. Over the last few years this link however, is becoming clearer and is increasingly recognised by key players in the financial sector.

2.2.1. The link between environmental and financial performance: what's the evidence?

> 'The growing body of academic and market-based evidence that superior environmental performance is being translated into superior shareholder value is not to be ignored.'
> The bottom line, Issue No 9, Autumn 1999, UNEP financial services initiative

The CEP 2000 Survey found that 81 % of FTSE 350 companies believed that there was a link between environmental and financial performance. A study by PricewaterhouseCoopers on what performance measures were particularly valuable to investors and analysts, showed that 54 % of **investors** believed environmental performance to be particularly valuable (Robert E and Harold K, 1998). However, the same study found that only 35 % of **investor analysts** felt that environmental performance was important. The financial sector would be more interested in environmental information if this association could be established. There is an indication that this is happening. A growing number of research studies of screened portfolios have shown that their performance does not necessarily result in lower returns. A 1997 study by John B. Guerard (Journal of Investing, Winter 1997, United States) found there to be 'no statistically significant difference between the average returns of a socially screened and an unscreened universe during the 1987–96 period'.

A common method for identifying how environmental improvement can be beneficial to the financial bottom line, is understanding the link in terms of 'added value', via environmental shareholder value (ESV). ESV has been used by the World Business Council for Sustainable Development (WBCSD) since 1997, by Bank Sarasin since 1997 and the World Resource Institute (WRI) since 1998. They consider that corporate environmental protection has a relevant impact on shareholder value, and, whether positive or negative, it must be brought into the company valuation (Stefan, S. and Frank, F., 1997; Blumberg, J. et al., 1997). They illustrate how improved environmental performance can increase shareholder value via value drivers such as strategy and stakeholder satisfaction, which add value through sales growth and cost management. The argument is that a well-managed company incorporates environmental performance into each of the value drivers.

Donald Reed of the WRI has developed a framework to help corporate executives understand and communicate the different environmental strategies and how they relate to financial issues (Reed, D., 1998). The framework involves a four-level model outlined in Table 2.5. below.

Table 2.5. WRI framework for incorporating environmental strategies into financial issues

	Franchise protection	Process change	Product change	New market development
Business value	Right to operate	Cost and liability reduction	Market share and pricing through customer loyalty and reputation	New markets Market redefinition
Focus	Compliance	Efficiency	Innovation value chain	Innovation
Main financial impacts	Reduces earnings Reduces risks Can open new markets	Increases margins Reduces risks Often uses capital and increases return on equity	Increases competitive advantage	Increases revenues Increases competitive advantage Diversification
Barriers to integration	Risk is not an explicit variable in most valuation models	Many diverse sources of small earnings improvements Risk is often not explicit variable	Quantification of competitive advantage difficult	Quantification of competitive advantage difficult

Innovest Strategic Value Advisors, a US investment advisory firm, provides several reasons why environmental performance and eco-efficiency metrics are important to investors. One of the strongest reasons is that the eco-efficiency of a company is a leading indicator for sustainable earnings quality and shareholder value creation. In addition, focusing on eco-efficiency indicates good management, especially the management of risk, which is of particular importance to investors. (Hewson, B., 1999) These risks are summarised in Box 2.5. below.

Box 2.5. Main downside risks to shareholder value

- **Market risk:** corporate reputation and image, reduced customer acceptance, potential loss of social licence to operate.
- **Operating risk:** emission and discharge risk, product liability risk, required process changes.
- **Balance sheet risk:** historic liabilities, impairment of real property values, underwriting losses.
- **Capital cost risk:** pollution control expenditures, product redesign costs.
- **Transaction risk:** potential cost of time, money, and delayed or cancelled acquisitions or divestitures.
- **Business sustainability risk:** potential competitive risk from lack of efficiency/sustainability in energy, materials, and resource use.

Non-financial information is increasingly important for predicting future financial performance and shareholder value. Research by the Cap Gemini Ernst & Young Centre for Business Innovation shows that both sell-side analysts and buy-side investors take non-financial value into account. The research concludes that financial metrics are lagging indicators and that non-financial data both affects and reflects financial value. Although the clear message is that non-financial information can be used as indicators of future financial performance, environmental issues are still regarded as low in importance for analysts and investment decision-makers (Cap Gemini Ernst & Young 1996, 2000).

The likely impact on future profits of environmental impacts and developments in the US paper and pulp industry shows that impacts vary considerably between companies (Repetto and Austin, 2000a), but half the companies faced financial impacts of at least 5 % of total shareholder equity (Box 2.6).

Box 2.6. Estimating the financial effects of companies' environmental performance and exposure: the US paper and pulp industry

This paper presents a new methodology with which to integrate environmental issues into financial risk and value analysis. The approach is demonstrated through an empirical case study of companies in the US pulp and paper industry. The steps in the methodology are: (a) identifying salient future environmental issues; (b) building scenarios around each issue; (c) assigning probabilities to scenarios; (d) assessing company exposures; (e) estimating financial impacts contingent on scenarios; (f) constructing overall measures of expected impact and risk. This forward-looking approach is consistent with methods already used by financial analysts to evaluate conventional business risks.

The case study reveals that companies within the pulp and paper industry face quite different levels of exposure and associated financial risk from environmental issues. For some companies, environmental issues will have little or no impact on financial performance or could be a source of increased value. For other companies, environmental issues may entail costs that exceed 10 % of their current stock market valuations and that materially affect their competitive positions. Even companies that face similar expected impacts may differ significantly in the associated risks arising from different technological and managerial capacities to respond.

Access to company data relevant to this kind of analysis was very difficult, involving much 'digging in obscure but publicly available sources,' and was absent for critical issues such as energy sources and timber holdings preventing evaluation of climate change impacts. More importantly for investors, 'company reporting of environmental issues falls short of full and adequate disclosure under existing US Securities and Exchange Council values' e.g. under Item 103, SEC Reg. S-K, which requires a forward looking management discussion and analysis report. SEC enforcement action on the disclosure of financially relevant environmental risks has been limited: during the last 25 years there have been only three proceedings on environmental issues out of 5 000 issued by the SEC.

Source: Repetto and Austin, 2000a Pure profit: the financial implications of environmental performance, World Resources Institute. Repetto and Austin 2000b Coming clean: corporate disclosure of financially significant environmental risks, World Resources Institute, web site: www.wri.org.

In Europe, very few reliable studies have been published that attempt to examine the correlation between companies' environmental performance and financial return. However, Bank Sarasin & Co., which specialises in sustainable asset management, produced a study in August 1999, 'Sustainable investments: an analysis of returns in relation to environmental and social criteria'. The main findings of this study are as follows.

'There is a significant positive correlation between environmental rating and financial returns in sectors where environmental performance plays an important role in the public's perception (chemicals, pharmaceuticals, energy, construction, etc.)'.

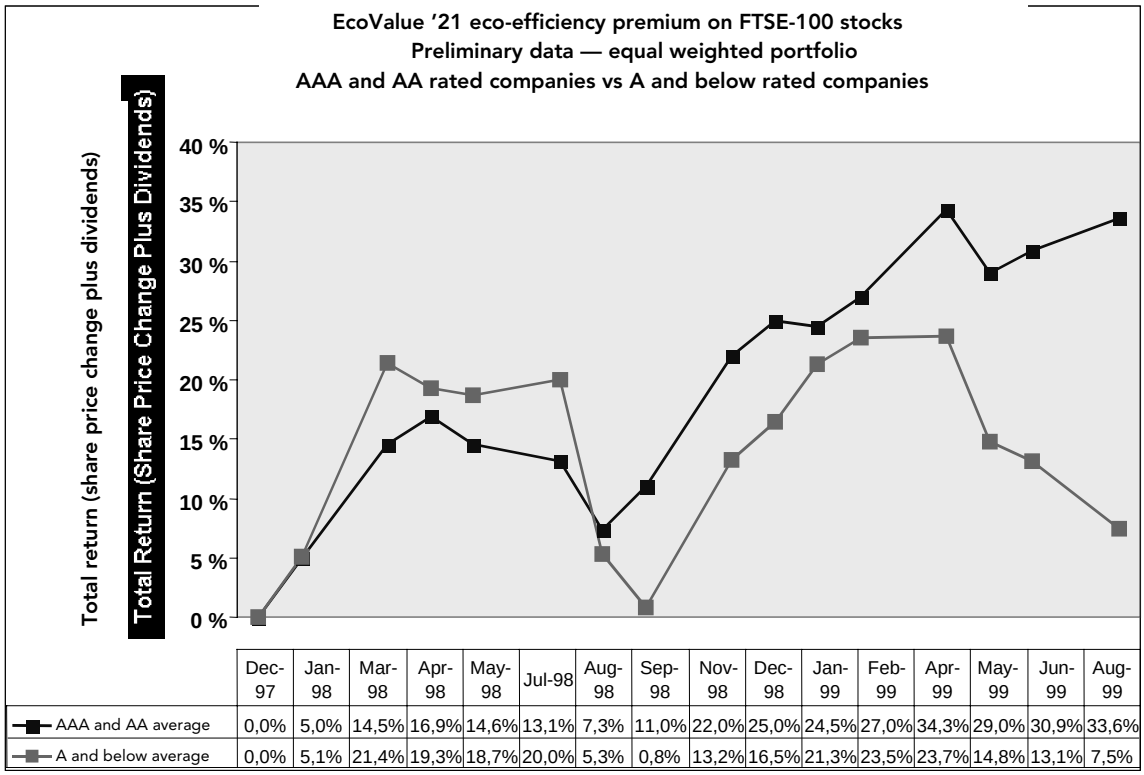
Innovest strategic value advisors have carried out a number of empirical studies on the link between environmental and financial performance. A study in 1994 looking at pollution prevention and firm performance showed that:

'It does indeed pay to be green. Efforts to prevent pollution and reduce emissions appear to drop to the bottom line within 1 to 2 years of integration.'

A more recent report, 'The computer industry — hidden risks and value potential for strategic investors' (Innovest, 1999) shows that the top environmental performers in

the computer sector have outperformed their industry rivals financially by 25 % since the beginning of 1998 (Figure 2.1.).

Figure 2.1. EcoValue '21™ Sample Results: FTSE-100



	Dec-97	Jan-98	Mar-98	Apr-98	May-98	Jul-98	Aug-98	Sep-98	Nov-98	Dec-98	Jan-99	Feb-99	Apr-99	May-99	Jun-99	Aug-99
AAA and AA average	0,0%	5,0%	14,5%	16,9%	14,6%	13,1%	7,3%	11,0%	22,0%	25,0%	24,5%	27,0%	34,3%	29,0%	30,9%	33,6%
A and below average	0,0%	5,1%	21,4%	19,3%	18,7%	20,0%	5,3%	0,8%	13,2%	16,5%	21,3%	23,5%	23,7%	14,8%	13,1%	7,5%

Source: Innovest, 1999.

The report presents evidence linking superior environmental performance with competitiveness and profitability (Innovest, 1999).

Fayers et al. states that a growing body of literature supports the idea that there is a positive correlation between responsible environmental stewardship and good financial performance.

The development of the Dow Jones sustainability group indices (DJSGI) represents increasing interest and recognition from the financial sector that environmental performance can affect the financial bottom line. The DJSGI states that sustainability companies are attractive to investors as they aim to increase long-term shareholder value, and demonstrate 'enlightened and disciplined management — a crucial success factor' (Dow Jones/SAM, 1999). A notional back calculation of the DJSGI world index between 1994 and mid-1999 has shown that it would have outperformed the Dow Jones global index by a substantial margin, achieving an annualised return of 17 % compared with the global index's 13 % (WBCSD, 2000). This index is further described in Section 5.

2.3. Summary

Various players in the financial sector have potential interest in environmental information, but there are several information gaps. The financial sector is uncertain about the type of environmental information that would be useful and of interest to them, and much of this uncertainty arises from scepticism about the links between

environmental and financial performance. However, there is increasing interest by the financial sector in the environment with the development of environmental funds, environmental accounting systems, rating/ranking schemes and various recommendations as to what environmental information would be of interest to financial players.

There is increasing evidence of a link between environmental and financial performance, and several key financial players are beginning to develop ways in which this can be maximised by the financial community.

However, there is still a large gap between market prices and full costs of production, use and disposal, and very few companies are accounting for environmental 'externalities'.

Despite the huge potential of the financial sector to encourage the more eco-efficient use of natural capital, very little of that potential is being used. But for the few financial players that are getting interested in environmental performance, what data, information and indicators are being provided by companies?

3. Environmental performance indicators

3.1. Introduction

Environmental performance indicators (EPIs) are becoming increasingly important at company level. This is in part due to stakeholders demanding environmental improvements and proof that these have been made. Bartolomeo (1995) defines environmental performance indicators as **the quantitative and qualitative information that allow the evaluation, from an environmental point of view, of company effectiveness and efficiency in the consumption of resources**. EPIs thus have the aim of evaluating company efficiency (economic and environmental) and effectiveness in achieving environmental objectives. They can help companies to achieve:

- the improvement of environmental policy by a better definition and monitoring of environmental **objectives**;
- an effective definition of **responsibilities** and the implementation of the environmental **management** systems;
- the adoption of the most appropriate measures of environmental protection in terms of **effectiveness and efficiency**;
- the improvement of external and internal **communication** on environmental achievements and programmes.

EPIs can be used by companies, policy-makers and other stakeholders including the financial sector to measure and assess progress in environmental performance.

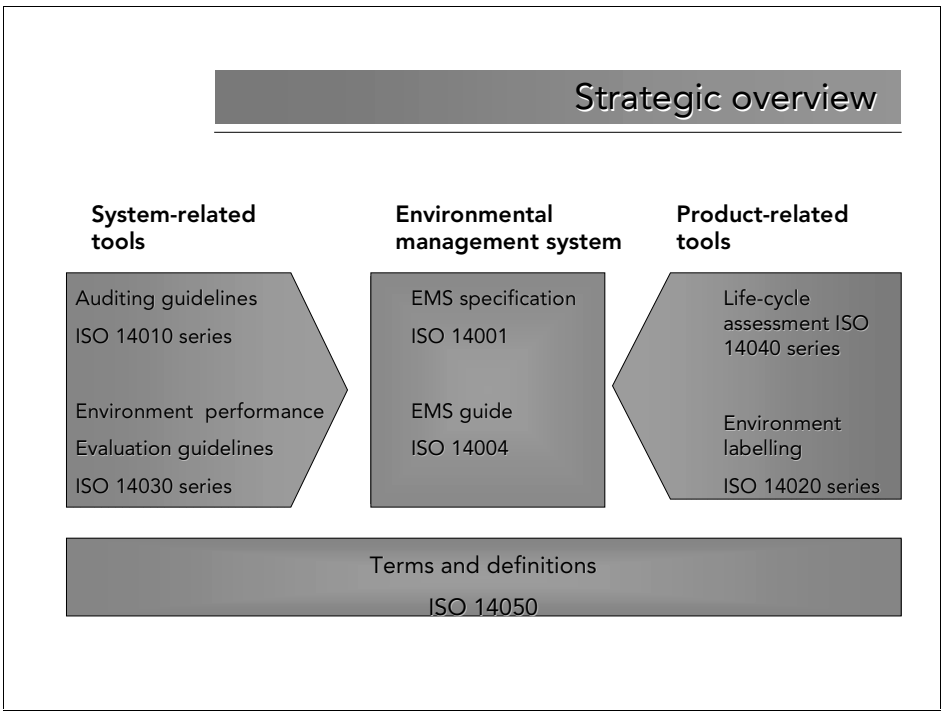
A report from the World Resources Institute (Ditz and Ranganathan, 1997), *Measuring up — toward a common framework for tracking corporate environmental performance*, stresses that for EPIs to be really effective, a common set of metrics must emerge that are universally adopted and understood by all. Developments towards the harmonisation of EPIs are described below.

3.2. ISO 14031: Standard for developing environmental performance indicators

The International Organisation for Standardisation (ISO) uses the term, environmental performance evaluation (EPE) as an all-encompassing term for the development of performance indicators. This is part of the ISO series of environmental standards (Figure 3.1). **ISO/DIS 14031,** a draft standard, defines EPE as:

'a process to facilitate management decisions regarding an organisation's environmental performance by selecting indicators, collecting and analysing data, assessing information against environmental performance criteria, reporting and communicating, and periodic review and improvement of this'.

Figure 3.1. Relationship of the standards in the ISO 14000 series of standards in environmental management



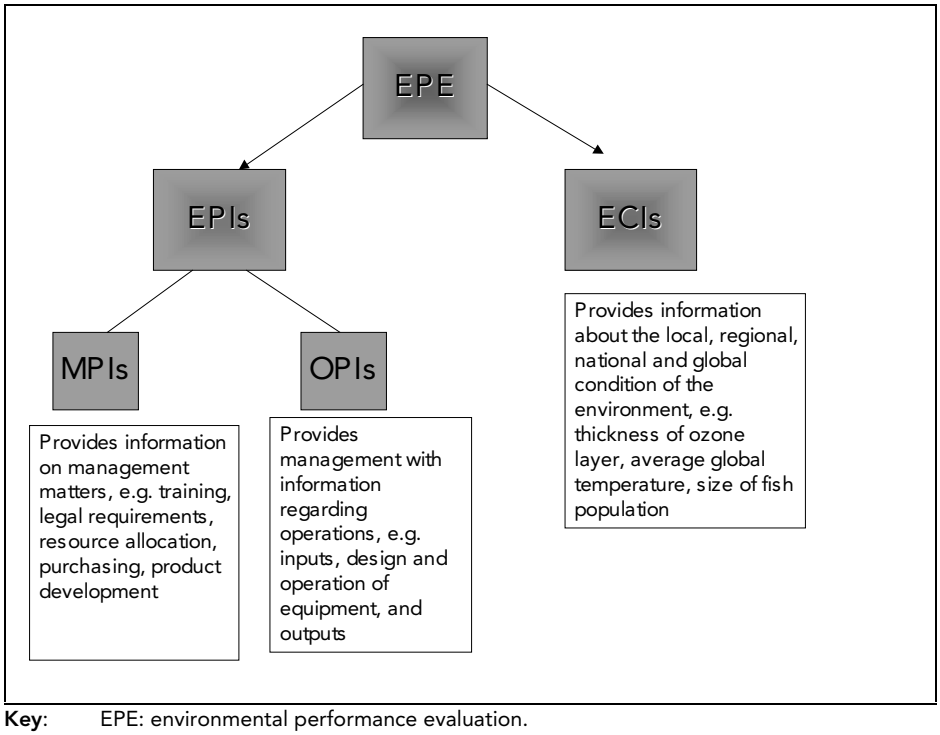
The ISO/DIS 14031 draft international standard provides guidance for EPE whilst ISO 14032 provides examples. The 14031 standard states that:
'Indicators for EPE are selected by organisations as a means of presenting quantitative or qualitative data or information in a more understandable and useful form. They help to convert relevant data into concise information about management's efforts to influence the organisation's environmental performance, the environmental performance of the organisation's operations, or the condition of the environment. An organisation should select a sufficient number of relevant and understandable indicators to assess its environmental performance.'
ISO/DIS 14031 identifies five kinds of quantitative measures:

- direct;
- relative;
- normalised/indexed;
- aggregated;
- weighted.

The basic thrust of the guidance is that the more indicator categories covered, the better the measurement system, and this has consequently led to a list of more than 100 indicators. However, the ISO/DIS divides these indicators into two distinct categories:

- environmental performance indicators (EPIs), further divided into management performance indicators (MPIs) and operational performance indicators (OPIs);
- environmental condition indicators (ECIs).

Box 3.1. The ISO/DIS 14031 environmental performance evaluation



Key: EPE: environmental performance evaluation.
EPIs: environmental performance indicators.
ECIs: environmental condition indicators.
MPIs: management performance indicators.
OPIs: operational performance indicators.

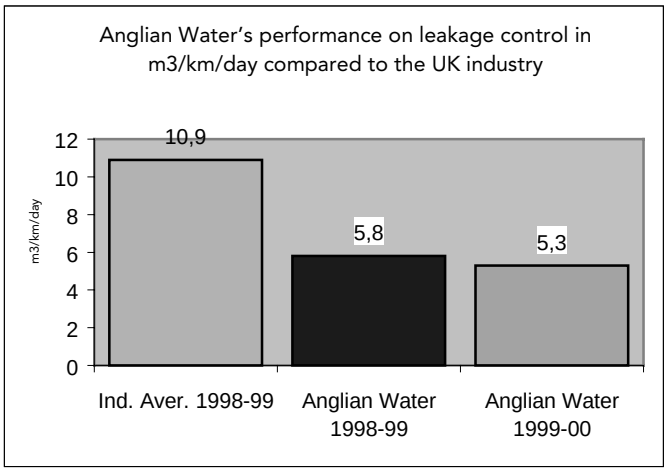
3.3. Harmonisation of environmental performance indicators

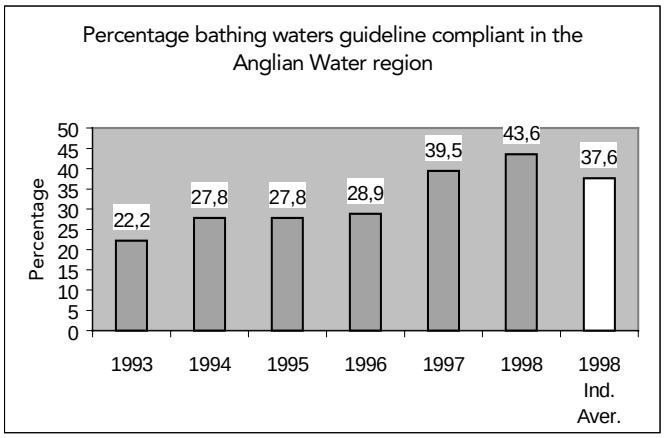
Harmonisation of indicators allows metrics to be credible and comparable. Without such guidance or standards in place, the range of indicators in use to measure environmental performance is so wide that it is difficult for stakeholders, particularly the financial sector, to use the information. Most corporate environmental reports (CERs) now include quantitative data, but still very few reports contain any kind of environmental performance indicators that allow for easy comparison between different companies. This is one of the most important areas for improvement if environmental reporting is to promote cleaner production and 'eco-efficiency'.

However, there is a trend towards increased comparability of the environmental performance data presented in environmental reports. For example, forestry companies in Sweden agreed on a format to present their environmental performance data in their 1996 environmental reports so that comparisons are possible. An early attempt to benchmark across an industry was provided by Anglian Water who won a 'commendation for this contribution to comparability when they won the UK ACCA award for their 1998 activity report (see Box 3.2 for examples of Anglian Water's work on industry benchmarking). Aggregated eco-efficiency indices have also been developed by various companies and can be an aid for the users of the reports, even though they are difficult to standardise.

Box 3.2. Industry benchmarking

Anglian Water Plc. http://www.anglianwater.co.uk Anglian Water develops performance data providing a comparison with industry average. The following charts were included in the 1999 and 2000 company reports to show key performance data.





The World Business Council for Sustainable Development (WBCSD) launched an **eco-efficiency metrics project** which was published in June 2000. Eco-efficiency is promoted by the WBCSD as a major driver in enabling corporate progress towards sustainability:

Eco-efficiency can be reached:
'by the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impact and resource intensity throughout the life cycle, to a level at least in line with the earth's estimated carrying capacity' (WBCS, 2000).

In this eco-efficiency project, a number of principles are recommended for the development of performance indicators, and these are summarised in Box 3.3.

Box 3.3. Core eco-efficiency indicators proposed by WBCSD

Product/service value category

- Unit/number/mass of product or service made or sold
- Net sales
- Value added
- Gross margin
- Profit/earnings/income
- Product/service creation environmental burden category
- Energy (gigajoules) consumed
- Materials (tonnes) consumed
- Water (m^3) consumed
- Green house gas (GHG) emissions (tonnes of CO_2 equivalents)
- Acidification emissions (tonnes of proton equivalents)
- Nutrification emissions (tonnes N & P substances) in water effluents
- COD/BOD in water effluents
- Volatile organic compound (VOC) emissions
- Persistent organic pollutant (POP) emissions
- Priority heavy metals emissions
- Land use

The project classifies indicators into three categories;

- product/service **value**;
- product/service **creation**;
- product/service **use**.

The WBCSD eco-efficiency metrics can be used by companies as a means to measure and report on their environmental performance. They provide succinct guidelines for the business community, although the metrics are limited to environmental issues, rather than sustainability issues. However, WBCSD has now begun to address corporate social responsibility (WBCSD, 1999).

Dow Chemical has developed an **eco-compass** to provide a simple, visual summary of the life-cycle data analysis. The compass is based mainly on WBCSD's eco-efficiency indicators, with some minor amendments. The eco-compass has six 'poles':

- energy intensity;
- mass intensity;
- environmental and health risk potential;
- sustainability of resource usage;
- extent of revalorisation (reuse, remanufacturing, and recycling);
- service intensity.

On a basic level, the compass can help highlight areas of concern and is a useful communication tool for interested stakeholders. It can also be used for product assessment, but this requires extensive life-cycle data (www.dow.com/environment/ehs.hml).

The American Institute of Chemical Engineers' Centre for Waste Reduction Technologies is undertaking a collaborative project to develop **sustainability metrics**. The project aims to develop a group of core and optional metrics for each of the seven areas of eco-efficiency that are put forward by the World Business Council on Sustainable Development. The project group consists of chemical companies, Department of Energy/Office of Information Technologies (DOE/OIT), USEPA, and

the World Resources Institute. The group has begun to pilot metrics, which have been agreed upon. The working group has essentially reached agreement on the impact categories (ICs) for which metrics should be sought or constructed. Those ICs are mass, energy, pollutants/toxics dispersion and resource depletion. The metrics are still under development (www.wri.org).

The World Resources Institute and the WBCSD are currently working in collaboration with many other businesses and organisations, to design and promote the use of an internationally accepted protocol for measuring and reporting greenhouse gas (GHG) emissions (Box 3.4). A standardised protocol could be used by businesses and others, across national borders and industries and would improve the credibility, comparability and utility of information.

Meanwhile, the UK Department of Transport and the Regions has produced 'Guidelines on comparing reporting on greenhouse gas emissions' (http://www.environment.detr.gov.uk/envrp/gas/index.htm).

Box 3.4. Greenhouse gas (GHG) protocol initiative: towards a common standard for company reporting on greenhouse gas emissions http://www.ghgprotocol.org

The GHG protocol initiative, launched in May 1999, is a multi-stakeholder initiative convened by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) bringing together business, governments and NGOs in working to design, disseminate and promote the use of standardised methods of estimating and reporting business greenhouse gas emissions.
The protocol is intended to serve a range of purposes including: helping companies to identify greenhouse gas reduction opportunities; establishing a foundation for greenhouse gas reduction goals; providing a tool for self-assessment or independent auditing; enabling stakeholders to assess progress; and providing data that supports flexible, market-oriented climate policies. Success of the project will ultimately be the adoption of the protocol. The project's output will include a delivery of three related modules to provide guidance on measuring a company's GHG emissions alongside implementation tools and supporting guidance. The three modules are as follows.

Core operations corporate inventory module

- aims to provide over-arching guidance on boundary and reporting issues, includes developing a GHG inventory and reporting standard;

Products life cycle

- aims to provide guidance on estimating and reporting GHG emissions over the entire life cycle of a product;

Carbon sequestration

- aims to develop a strategy for quantifying and reporting carbon storage information.

The work on the core operations corporate inventory module was released as a road-test draft for public comment and testing in November 2000 (the appendix lists the businesses, governments and NGOs who contributed to developing the draft). Work on the products life cycle and sequestration started in summer of 2000.

Source: GHG protocol initiative, 'Collaborating to build an international standard for measuring and reporting business greenhouse gases', WRI and WBCSD, May 2000.

The European Commission is funding research into enterprise policy integration indicators, which aim to quantify the link between sustainable development and enterprise policy. Three categories of indicators have been proposed:

Sustainability indicators — Box 3.5 provides some illustrative indicators.

Box 3.5. Some sustainability indicators relevant to corporations

Domain	Indicator/alternative indicators	Potential data sources
Economic		
Growth	Growth of GDP	Eurostat
Productivity	Rate of productivity change Rate of change of capital, labour and resource productivity	Eurostat
Start-ups	Births, deaths and survival of enterprises Start-ups in ICT sector	Competitiveness Benchmarking scoreboard
Innovation	Number of new products and services (NPS) Share of NPS on global markets Share of NPS sales in the EU market R & D expenditure as % of GDP Number of patent applications	Eurostat R & D Eurostat R & D
Trade balance	Trade balance as % of GDP	Eurostat
Social		
Employment	% of population unemployed Jobs created in new ventures Average length of contract	Eurostat
Education	% of population with upper secondary education	Eurostat
Income distribution	Ratio of income of poorest/richest 10 % % of population with income below 50 % of average	Eurostat
Access to digital services	% of population with Internet access % of population with mobile phones	Competitiveness Benchmarking scoreboard
Health and safety	Injury, lost day and absentee rates Number of deaths from industrial accidents	Trade unions Health and safety authorities
Environmental		
Energy intensity	Index of gross inland energy consumption compared to GDP	EEA environmental signals
GHG emissions	Emissions of GHGs (CO2, methane, NOx)	EEA environmental signals
Transport	Freight transport (by mode)	TERM key indicator and EEA environmental signals
Waste	Household and commercial waste	EEA environmental signals
Water use	Water use by sector Public water supply	EEA environmental signals EEA environmental signals

Source: Dr Frans Berkhout, Sussex University.

Process indicators — which address activities within businesses and policy-making institutions that can improve the integration of sustainable development into enterprise policy e.g. measuring the percentage of firms publishing environmental and sustainability reports; or measuring the percentage of new policies for which an assessment of environmental and social impact has been undertaken at the planning stage.

Integration indicators — which address issues that link or integrate two aspects of sustainability, e.g. productivity and material use, or eco-innovation and employment. (For further information on this project, contact Dr Frans Berkhout at Sussex University www.Sussex.ac.uk.)

3.4. Summary

A variety of environmental performance indicators are in use and there is a range of guidelines developing. A consensus needs to be reached by the business sector on a portfolio of core environmental indicators, overall and on an industry-specific level. These environmental indicators need to be qualitative, quantitative and monetary.

They need to concern both environmental performance and environmental impact. They need to focus on process, product and system. The draft standard on environmental performance evaluation, ISO 14031, and the WBCSD eco-efficiency metrics are a first step in the direction of such a consensus. This is an area in which the business community, NGOs, governmental authorities and the EEA can work together during the next couple of years to improve the credibility and comparability of key indicators.

At country and EU level there are initiatives that are **making sustainability accountable** (EEA, 1998b) via 'headline indicators', such as those being developed by the EU, and some Member States, e.g. Germany, the United Kingdom and the Netherlands. Similar 'headline' indicators are being used at corporate level in order to focus the attention of managers and the financial sector on measures of performance that can be used to encourage and monitor the more eco-efficient use of capital. Examples include the 'core' indicators of WBCSD or the 'key' indicators of the global reporting initiative, described in the next section. But how is the environmental performance of companies being communicated?

4. Current trends in environmental reporting

'Corporate environment reports have quickly become the key channel for companies to communicate their environmental performance and, just as important, have become an effective tool to demonstrate company-wide integrated environmental management systems, corporate responsibility and the implementation of industry voluntary codes of conduct' (UNEP/SustainAbility, 1994).

Environmental reporting can be defined as an umbrella term that describes the various means by which companies disclose information on their environmental activities, including **corporate environmental reports (CERs),** which represent only one form of environmental reporting. CERs are publicly available, stand-alone reports issued, usually voluntarily, by companies on their environmental activities (Brophy and Starkey, 1996).

There has been a rapid growth in corporate environmental reporting in the 1990s, as various stakeholders have begun to take a greater interest in the environmental performance of companies. According to KPMG's 1999 international survey of environmental reporting, 44 % of the *Fortune* global top 250 companies in the non-financial sector produce an annual report on their environmental performance (KPMG, 1999). Key findings from the 1999 survey are summarised in Box 4.1.

Box 4.1. Main points of KPMG international survey of environmental reporting 1999

- A substantial increase in the number of top companies worldwide producing an annual environmental report, from 13 % of companies in 1993 to 24 % in 1999, as well as improved quality of reports.
- In contrast to the European trend, the proportion of top American firms issuing environmental reports fell from 44 % in 1996 to 30 % in 1999.
- The role of banks and insurance companies, in the environmental behaviour of their clients, is not communicated clearly to clients, the general public and competitors.
- The scope of verification is still varied and is a long way from a standard which readers rely on to guarantee the reliability of the reported data and information.
- There is a convergence of administrative and environmental registration systems in major companies, combining the framework and methodology of the financial controllers with the knowledge and expertise of environmental staff.
- Companies are now working towards a balance between financial, environmental and social/ethical performance and are starting to report in all three areas.

Source: KPMG, 1999.

4.1. Why report?

CERs can be the result of pressures between a company and its stakeholders, (Bartolomeo and Ranghieri, 1996), such as corporate customers who want to 'green' their supply chain. In other cases competition encourages companies to publish a CER.

New laws or voluntary codes may also encourage companies to report. For example a new UK regulation, which came into force 3 July 2000, requires occupational funds to include in their statement of investment principles the extent to which social, environmental or ethical considerations are taken into account in the selection,

retention and realisation of investments. Environmental reporting is also a key requirement for industrial sites wishing to be registered under the voluntary EU eco-management and auditing scheme (EMAS). And the action plan for sustainable development, 'Agenda 21', which was adopted at the United Nations Conference on Environment and Development in Rio de Janeiro in June 1992, encourages business and industry to communicate their environmental performance and to report 'annually on their environmental records, as well as on their use of energy and natural resources' and 'on the implementation of codes of conduct promoting best environmental practice' (Chapter 30 of Agenda 21). In addition, there are internal benefits to environmental reporting, since the reporting process helps the company to pinpoint problems and inefficiencies in its operations.

Environmental reporting can be categorised into three types of disclosure (Deloitte&Touche Tohmatsu International, 1993):

- **involuntary disclosure:** for example as a result of environmental campaigns, media exposure and legal liability investigations;
- **mandatory disclosure:** for example the toxic release inventory (TRI) in the United States, the pollutant release and transfer registers (PRTR) in some European countries, for example the United Kingdom and the Netherlands (see Table 4.3 below) some of this may not be publicly available e.g. toxicity testing of chemicals;
- **voluntary disclosure:** for example EMAS information and any environmental information a company voluntarily makes available to the public. **Confidential** voluntary disclosures are also required by banks, insurers, customers and joint partners but these are not publicly available.

Currently, most CERs are the result of voluntary disclosure and registration under EMAS is often a triggering factor for company disclosure. Mandatory schemes, such as the TRI, and the PRTR recommended by the OECD can provide powerful incentives for companies to reduce their toxic releases (see Table 4.3). Making toxic release information accessible to any interested party encourages companies to take pollution prevention measures (OECD, 1996; World Bank 1999). Liability issues are becoming more important and will increase pressure to disclose environmental information. For example, Finland introduced a new liability law in 1999 and the EU has issued a white paper on environmental liability. Once begun, environmental reporting can lead to several benefits for companies, including better stakeholder relationships, improved management accounting and good public relations. But good reporting needs good management and this is being encouraged via European and international standards.

4.2. Eco-management and auditing scheme (EMAS) and the International Organisation for Standardisation (ISO) guidance on environmental management and reporting

EMAS was developed with the aim of promoting continual improvements in the environmental performance of organisations by:

- establishing and implementing environmental management systems;
- auditing the performance of such systems;
- providing information on environmental performance to the public and other stakeholders.

A major difference between ISO 14001 (environmental management systems guidance and certification) and EMAS is that any environmental management system

registered with EMAS has to produce a publicly available environmental statement (see Table 4.1). EMAS also asks for 'legal compliance', whereas ISO 14000 only requires a 'commitment' to comply. ISO 14031 provides guidance for the use of good performance indicators but EMAS also demands that there is improved environmental performance over time in order to maintain registration. In an effort to try and clarify the position of EMAS in relation to ISO 14001, and to strengthen its own registration, EMAS II proposes to improve the current EMAS by:

- covering more environmental effects: more sectors, more products
- using international standards;
- having better visibility: a new logo;
- allowing for better environmental reporting.

Table 4.1. Some comparison between ISO and EMAS

	ISO 14001	EMAS
Status and geographical area	A certifiable standard, based on inputs from a variety of interested parties worldwide	A regulation, that reflects the needs and expectations of governments, citizens and consumers in the EU Member States
Applicability	Any organisation even government offices	Manufacturing industries — site based
Voluntary or mandatory?	Voluntary	Voluntary, with European registry
Objectives	Define an international standard for an EMS	Improve environmental performance in the EU
Requirements:		
Annual environmental performance statement	No	Yes
Environmental policy	Yes	Yes
Environmental review	Identification of significant environmental aspects and impacts	Comprehensive initial environmental review
EMS	Yes	Yes
EMS audit	Yes	Yes
Environmental objectives with a plan to meet them	Yes	Yes
Required improvements	EMS	Environmental Improvements
Information required to be made available to the public	Policy	Annual environmental performance statement

Source: Based on ANSI-RAB NAP accredited advanced EMS auditor course for qualified and environmental professionals, Boston, September 1999. p. 36, and the European Commission.

The growth of EMAS or ISO 14000-registered companies has been much slower than the growth of companies registering for quality control (ISO 900 series), but this is likely to speed up as pressure increases via customers and the supply chain. Current EMAS registrations are shown in Table 4.2. Common elements between EMAS and ISO 14001 are used to avoid duplication, so that EMAS can be obtained via ISO.

Table 4.2. Number of EMAS certification/registrations by 14 September 2000

Austria	232
Belgium	9
Denmark	140
EC-unofficial/other	0
Finland	30
France	35
Germany	2 097
Greece	1
Ireland	6
Italy	32
Luxembourg	1
Netherlands	25
Norway	58
Portugal	1
Spain	64
Sweden	162
United Kingdom	77
Total number	**2 970**

Source: European Commission, 14 September 2000.

There are 10 629 cases of ISO 14000 certification/registration as of June 1999, 21 % of which are represented by Japan and 14 % represented by Germany.

SIGMA (sustainability: integrated guidelines for management) set up in July 1999 — funded by the UK Department of Trade and Industry and supported by the Department of Transport and the Regions — (under the guidance of the British Standards Institution, Forum for the Future and the Institute of Social and Ethical Accountability) is developing tools for merging various strands of corporate sustainability ranging from eco-efficiency and product stewardship to employee learning and social accountability.

4.3. Trends in corporate environmental reports

The first voluntary corporate environmental reports were published in the late 1980s and early 1990s, by, for example Norsk Hydro, Norway's largest industrial group, and the US chemical company, Monsanto. Leading up to the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, several more companies started environmental reporting. Many of the reports were however 'green glossies', containing more scenic landscape photographs than actual information about the environmental performance of the company. The International Chamber of Commerce's (ICC) business charter for sustainable development, and the chemical industry's 'responsible care' programme, both stimulated environmental reporting. The charter developed 16 principles, 2 of which refer to promoting openness and reporting. The 'responsible care' initiative also has the dual goal of improving real performance and demonstrating this to a sceptical public, applying the 'don't trust us, track us' principle.

The first international survey of corporate environmental reporting was published in 1993. *Coming clean — corporate environmental reporting, opening up for sustainable development* was produced jointly by SustainAbility, Deloitte&Touche Tohmatsu International (DTTI) and the International Institute for Sustainable Development

(IISD). One key feature of the study was a five stage reporting model, running from so-called 'green glossies' at Stage 1, through to sustainable development reporting at Stage 5. This was one of the first attempts to develop a 'taxonomy' of reporting.

The second international progress report on company environmental reporting, *Engaging stakeholders*, was published by UNEP and SustainAbility in 1996. The report was a result of a research programme supported by the United Nations Environment Programme (UNEP) and 16 international companies from Australia, Belgium, Denmark, France, Germany, Sweden, Switzerland, the United Kingdom and the United States. The report stressed the importance of stakeholders and their needs, raising questions as to what companies have learned from stakeholder feedback.

Some key findings in *Engaging stakeholders*, were:

- a new and growing focus on verification, environmental benchmarking, performance indicators, full cost accounting and the implications of sustainability;
- increasing demands for environmental performance data from market users (e.g. customers, financial stakeholders);
- corporate environmental reports (CERs) are increasingly being used to monitor, benchmark and rank companies;
- an increasing pressure for mandatory — rather than voluntary — reporting;
- leading report-makers see the social dimension of reporting as a critical new area.

In September 1999, the results of the KPMG International Survey of Environmental Reporting 1999 were published (Table 4.3). The survey showed that environmental reporting rose significantly in all the European countries examined, especially in countries with mandatory reporting rules (e.g. Denmark 29 % in 1999 compared to 8 % in 1996) and where there is a high uptake of EMAS (e.g. Germany 36 % in 1999 compared to 28 % in 1996).

Table 4.3. Main findings of KPMG Environmental Reporting Surveys, 1993-1999

	1993	1996	1999
No of companies	810	1 300	1 100
Response rate (%)	85	69	98
No with CER	105	220	269
— of those surveyed (%)	13	15	24
— externally verified (%)	-	15	18
Sustainable development covered (%)	-	12	36
Top 250 companies with CER (%)	-	-	35
Top 250 'polluting' companies with CER (%)	-	-	44
% of 1 100 surveyed companies with environmental information in other corporate reports	-	-	47
Progress with targets (%)	-	26	53

Source: KPMG, 1999.

4.4. Guidelines for environmental/sustainability reporting

Guidelines cover the content of environmental reports, including qualitative and quantitative information and monetary and non-monetary data. Areas addressed in many of the guidelines include:

- organisational profile;
- environmental policy;
- environmental management;
- legislative compliance;
- emissions;
- resource efficiency;
- life-cycle perspective of product impacts;
- environmental liabilities and costs;
- stakeholder relations.

The scope is widening however with the increased interest in sustainability reporting which requires additional information about social and economic, as well as environmental factors.

A number of guidelines have been published. The public environmental reporting initiative (PERI) in North America is one of the best known. Another established format of environmental reporting in North America is the one promoted by the Coalition for Environmentally Responsible Economies (CERES). The World Industry Council for the Environment (WICE, now the WBCSD) also published a manager's guide to environmental reporting in 1994.

Dozens of other organisations, have also developed standards or guidelines for environmental reporting. For example, the Advisory Committee on Business and the Environment (ACBE, UK), the European Chemical Industry Council (CEFIC), European Green Table (EGT), Global Environmental Management Initiative (GEMI, US), International Network for Environmental Management (INEM), the Japan Federation of Economic Organisations (KEIDANREN, Japan), the Prince of Wales Business Leaders Forum (PWBLF, UK) and the Social Venture Network (SVN). With so many available guidelines in circulation, there is little consensus and some confusion over what guidelines should be used. In response to this profusion of guidelines, the global reporting initiative was launched.

The **global reporting initiative** (GRI) is the first set of **sustainability** corporate reporting guidelines, and was launched as a draft in March 1999 by CERES (CERES, 1999). The GRI is the result of a multistakeholder process initiated by CERES in 1997 to establish an international framework for environmental reporting. During the first meetings in early 1998, the global reporting initiative (GRI) widened its scope to aim to establish guidelines for sustainability reporting, including not only the environment, but also social and economic factors. Several organisations were involved in the process, such as WBCSD, New Economics Foundation (NEF), Council on Economic Priorities (CEP), UNEP-IE, ACCA and the big auditing firms, companies such as General Motors, Electrolux and Tokyo Electric Power, as well as researchers and academics.

Twenty-one companies participated in the pilot test programme on the draft GRI (see appendix). 'A key sustainability issue raised during the pilot stage was the unclear linkage between corporate indicators and biological/ecological limits, i.e. the need

for indicators to be linked to scientifically and politically determined environmental limits: 'performance indicators,' in the EEA 'typology of indicators' (EEA, 1999a). An EEA database of sustainability reference values, and political reference values for most environmental issues is accessible, as the Star database, via the EEA web site.

A new version of the GRI guidelines was released in June 2000, after having been revised according to the feedback received from the pilot testing companies and other stakeholders.

The GRI was created because:

- companies receive diverse incompatible, and unclear requests for information from internal managers, investors, and citizens;
- managers, investors, labour; human rights groups receive diverse, incompatible inconsistent, unverified information.

The GRI proposes to meet these problems by creating a common reporting framework developed through a multi-stakeholder process.

The GRI mission is to:

- make corporate sustainability reporting as routine and credible as financial reporting;
- design standardised reporting guidelines reflecting the three dimensions of sustainability: environmental, economic and social;
- ensure a permanent and effective institutional host.

Box 4.2. Main points of the global reporting initiative (GRI)

The GRI are the first sustainability reporting guidelines, which aim to embody environmental, social and economic factors of a company.
The guidelines recommend specific data related to sustainability performance, along with explanatory notes to assist in interpreting and compiling the recommended information. The guidelines are divided into nine parts:

- CEO statement;
- profile of reporting organisation;
- executive summary and key indicators;
- vision and strategy;
- policies, organisation, and management systems;
- performance;
  - — environmental performance
  - — economic performance
  - — social performance
  - — integrated performance.

The GRI's *Sustainability reporting guidelines* encompass the three linked elements of sustainability as they apply to an organisation.

Economic: including, for example, wages and benefits, labour productivity, job creation, expenditures on outsourcing, expenditures on research and development, and investments in training and other forms of human capital. The economic element includes, but is not limited to, financial information.

Environmental: including, for example, impacts of processes, products, and services on air, water, land, biodiversity, and human health.

Social: including, for example, workplace health and safety, employee retention, labour rights, human rights, and wages and working conditions at outsourced operations.

When the guidelines were released in June 2000, these three elements were largely treated as separate reporting elements. Over time, the GRI will move towards a reporting framework that links the economic, environmental, and social elements to form a more integrated reporting structure. The 'integrated indicators' in the guidelines are a step in that direction.

4.5. Award schemes and rating/ranking of environmental reports

The rating/ranking of environmental reports promotes environmental reporting and provides incentives to improve the quality of environmental reports. It can encourage innovation and leadership and reward companies for their efforts. The UK ACCA award scheme for best environmental report was initiated in 1991. There are award schemes in many other countries such as in Sweden, Denmark, Norway and the Netherlands. The first European Environmental Reporting Awards were presented in May 1997, sponsored by professional accounting organisations in the United Kingdom, Denmark and the Netherlands. Since then several other countries have joined the scheme. The award has been awarded to the Danish company Novo Nordisk for the first three years, but with commendations for initiatives such as industry benchmarking (by Anglia Water, Box 3.2), product stewardship (Vauxhall Motors, Box 4.3) and stakeholder relations (Co-operative Bank, Box 4.5). In addition to award schemes, there are yearly ratings/rankings of published environmental reports, for example in Germany by the Institute for Ecological Economy Research (IÖW) in Berlin, and in the Nordic countries by Deloitte & Touche.

Box 4.3. Product stewardship

Vauxhall Motors **http://buypower.vauxhall.co.uk**:
The CER, available in HTML format, covers the environmental performance and policies of Vauxhall Motors. The company presents a profile of its workplace health and safety and other relevant chapters dealing with: environmental policies, community participation and accountability; product stewardship; supplier relationships; use of natural resources; emissions and waste; priorities and challenges. The chapter on product stewardship presents the issue of environmental impact at the different stages of the product life cycle. Topics such as the use of recyclable materials in the construction phase, the actual impact of the vehicles used by Vauxhall's customers, and the vehicle end of life disposal, are discussed in rather comprehensive manner.

Impacts considered during the design phase of product development					
	Manufacturing	Packaging	Distribution	Use	Disposal
Material use	✔	✔		✔	✔
Hazardous materials in product	✔			✔	✔
Energy use	✔		✔	✔	
Water use	✔				

Each of the award schemes and rating/ranking organisations have set up their own list of criteria for what constitutes a good environmental report and how each criteria should be weighted. The award schemes have a significant effect on how the contents of environmental reports evolve, as they indicate what is considered to be best practice

in environmental reporting. This means that the criteria for rating and ranking reports also act as guidelines for environmental reporting.

However, since an environmental report can have many different audiences with different needs, it is impossible to use the results of such ratings for assessing the effectiveness of the reports. Stakeholder needs vary, for example, environmental liabilities are more interesting for the financial sector, while customers might be more interested in information about environmental management practices and product stewardship. To understand different needs and interests, it is essential to communicate with stakeholders as an additional means to assessing if environmental reports have achieved their purpose. For this, 'stakeholder dialogue' is necessary, as is illustrated by the UNEP/SustainAbility report *Engaging stakeholders* (UNEP, 1996).

Awards and surveys often get a lot of attention from the media, and in this way they promote a wider adoption of environmental reporting. But they can be misinterpreted as a rating/ranking of the environmental performance and/or environmental management of the companies, rather than a ranking of environmental reports. Corporate performance ranking tools are therefore needed and these are reviewed in Section 4. The extension of award schemes to environmental and social performance ranking tools could accelerate the improvement in their efficiency and utility to the financial sector. The EEA will be exploring the possibility of developing an award scheme for environmental performance ranking tools with relevant partners.

4.6. Some issues and challenges in environmental reporting

4.6.1. The need for an environmental communication strategy

'It is important to remember that a printed environmental report is only one tool for communication' and that 'there are many different ways to provide environmental information' concluded the World Industrial Council for the Environment (WICE) document *Environmental reporting — a manager's guide*, (1994). Many companies see the Internet as the main channel for environmental performance reporting. The world wide web offers an opportunity to provide professional stakeholder groups such as customers, financial analysts and environmental activist groups with the information they require in a more efficient way.

'As the focus continues to shift from words to action, the Internet will help by promoting proactive — and increasingly customised — interaction between companies and their key stakeholders. We will see a shift from 'push' media and approaches, where companies decide what information they offer the outside world, to 'pull' media approaches — where information users decide what they need and, often, compile their own reports' (*Engaging Stakeholders 1999, The Internet Reporting* by SustainAbility and UNEP (1999).

'Increasingly, younger people are "growing up digital". The Internet is their vehicle for revolution — their tract, megaphone, teach-in, bookstore, fundraising event, demonstration, makeshift stage, and war room all in one' (Tapscott, 1997).

The CER, either printed or electronic, is often used as the main mode of environmental communication, but should be seen as just the tip of the environmental communications iceberg (van Dijk, 1994). The **process** of extracting

the information and identifying the type of information needed is as important as the report itself and engaging stakeholders is an important part of this process.

Box 4.4. The global responsibility initiative

Influenced by among other things the work with the CER report for the EEA, the International Institute for Industrial Environmental Economics at Lund University, Sweden, initiated a project in 1998 that has attempted to tackle the issues and challenges presented here.
The core of the project is an Internet-based application facilitating sustainability reporting and meaningful stakeholder dialogue. The individual user will be able to get access to information tailored to their needs and requirements. The companies reporting on the platform will also get feedback on which user groups use what information and thus be able to adapt their reporting accordingly. The global responsibility initiative became its own entity and started working with around a dozen pioneer companies in the spring of 2000. A first version of the Internet-based application was released in June 2000 for public review and the first annual Global Responsibility Forum will take place in November 2000.

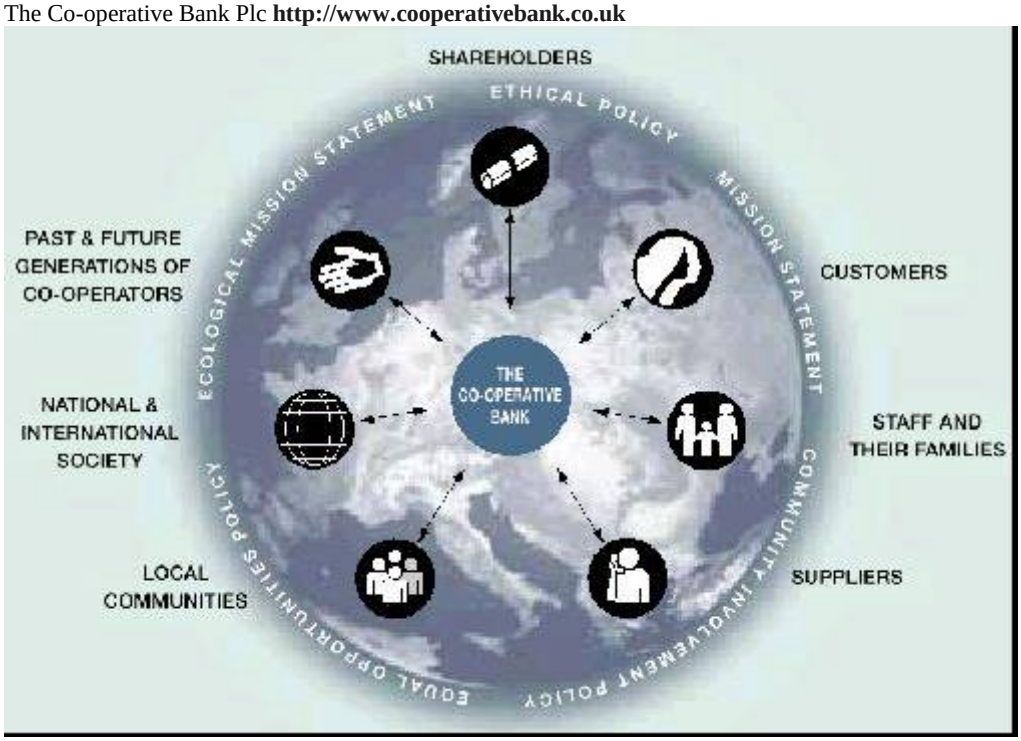
The application will facilitate reporting for individual sites, corporations as well as complex supply chains. An important part is also to help SMEs and corporations in developing countries meet the demands of information put upon them by their customers. Reducing the amount of time and resources needed for supplier assessment and in this way facilitating e-commerce is key if the new economy is to contribute to a shift towards more sustainable patterns of production and consumption. The project has taken the GRI guidelines as a starting point and will continue to integrate other initiatives (such as for example the Greenhouse Gas Emissions Protocol) into the concept in order not to reinvent the wheel. The difficult issue of comparability is addressed both by mandating that definitions and reporting principles be communicated along with the actual indicators, as well as allowing companies to put the indicators in a perspective with an explanation. The credibility of the information is assessed by random assurance engagements carried out by auditors Deloitte & Touche and KPMG (www.global-responsibility.com).

4.6.2. Engaging stakeholders

There is growing recognition by businesses that they need to consider the interests of stakeholders as well as shareholders. For example, the Co-operative Bank, UK won a European Environmental Reporting Award in 1998 for its 'stakeholder' report (Box 4.5). The Accountability 1000 guidelines were recently published by the ISEA (Institute of Social and Ethical Accountability, 1999) to help improve the quality of the consultation and dialogue between a company and its stakeholders. These guidelines define the aims, methods and techniques for stakeholder engagement in social and ethical accounting, auditing and reporting (see Section 4.7 on Social and Ethical Reporting). The Copenhagen Charter, also released in November 1999, is a management guide to stakeholder reporting that PricewaterhouseCoopers, Ernst & Young, KPMG, and Huset Mandag Morgen developed. (PricewaterhouseCoopers et al., 1999).

Box 4.5. Partnership approach

The Co-operative Bank Plc **http://www.cooperativebank.co.uk**



The 'Partnership report: measuring our progress in 1999' illustrates the Co-operative Bank approach to relations among shareholders, customers and all seven partners involved in the bank's activities. The issue of ecological sustainability is raised as a societal responsibility where the conflict of interest of the partners who subtract from others based on competition and quest for profit, is discussed in the light of perusing balance within the outreach of the financial services provided. The bank seeks to deliver value (as defined by the partner, not the bank) to all. Are we getting the balance right over time? This is the question that the bank strives to address with the report. The report allows each of our partners to review the bank's performance and decide for themselves.

4.6.3. Mandatory and voluntary environmental reporting

Mandatory reporting obligations play a crucial role in promoting cleaner production and ensuring corporate accountability (UNEP/SustainAbility, 1994). Governments are examining how to implement the recommendations contained in Agenda 21, particularly concerning 'Environmentally sound management of toxic chemicals' (Chapter 19) and some countries have introduced mandatory reporting of toxic releases and other impacts (Table 4.4).

Table 4.4. Some mandatory schemes for corporate environmental reporting

Scheme	Where?	Description
IPPC Directive Article 19 1996. The EU Council Directive 96/61/EC	Pilot scheme proposed on EU level for 2002	A European PRTR system of toxic emissions. Information to Commission during pilot phase and then to the public.
Toxic release inventory (TRI) 1986 Established under Emergency Planning and Right-to-Know Act	United States	A public 'report card' for industry, which requires all companies with more than 100 employees to submit data on use, manufacture, emissions of over 600 toxic chemicals. Information available to the public.
Miljörapport 1993 Kungorelse med föreskrifter om miljörapport för tillståndspliktiga miljöfarliga verksamheter (SNFS 1993:1)	Sweden	Companies operating on permits have to report to authorities regarding emissions. Information for authorities only.
Miljöinformation I förvaltningsberättelsen, 1999 Law of Accounts.	Sweden	Companies must report on emissions and state significant impact. Information available to the public.
'Green Accounts': 1996 Established under the Environmental Protection Act.	Denmark	Certain companies have to report on environmental impact. Information is available to the public.
1993 Established under an extension of the Environmental Management Act.	Netherlands	Certain categories of industry have to report emissions and impacts. Information is available to the public.
Companies Act and the Law of Accounts 1990 Established by the Norwegian Government.	Norway	Companies must report emissions and impacts and any preventative plans. Information is available to the public.
Plan general de Contabilidad (RD 437198) Electrical Utilities	Spain	Must report environmental impact, investments, provisions and liabilities, and energy savings and efficiency programmes Available to the public.

In addition, the OECD has recommended that Member States promote pollutant release and transfer registers (PRTR).

Many business leaders prefer mandatory environmental reporting, particularly if they see it as an alternative to regular inspections. Research published by the Green Alliance and the environmental consultancy Entec revealed that 58 % of company respondents to the second 'UK business and the environment trends survey' were in favour of compulsory environmental reporting. A parallel interview survey undertaken with 50 'opinion formers' showed a 72 % level of support for mandatory environmental reporting (Green Alliance/Entec, 1997).

However, mandatory environmental reporting is still rare, and voluntary reporting guidelines, such as ISO 14000, EMAS, GRI and sector initiatives, such as Responsible Care in the chemical industry, are providing a major driver for CER.

There is evidence from the United States and Asia that information to the public and local media about factory pollution is effective in achieving pollution reduction. For example, TRI in the United States is credited with success (EEA, 1999) and similar 'naming and shaming' approaches have worked in Indonesia (Box 4.6), and the Philippines (Afsah and Ratunanda in Bennet and James, 1999 and World Bank, 2000).

Box 4.6. Greening of industry: improving the environment in developing countries by communicating environmental information to the public

The case of Indonesia suggests that improved information, public disclosure of environmental performance rating can be powerful tools for improving the environment in developing countries.

In 1995, Indonesia was the first developing country to introduce a public environmental reporting initiative 'Programme for pollution control, evaluation and rating' (Proper). Under this programme the environmental performance of industrial companies is evaluated by the Indonesian Government's Environmental Impact and Management Agency (Bapedal). The evaluations are translated into a five colour rating system:

Rating
Performance level
Definition

Gold
Excellent
All requirements of Green, plus similar levels of pollution control for air and hazardous waste. Polluter reaches high international standards by making extensive use of clean technology, waste minimisation, pollution prevention, recycling, etc.

Green
Good
Pollution level is lower than the discharge standards by at least 50 %. Polluter also ensures proper disposal of sludge; good housekeeping; accurate pollution records; and reasonable maintenance of the waste-water treatment system.

Blue
Adequate
Polluter only applies effort sufficient to meet the standard.

Red
Poor
Polluter makes some effort to control pollution, but not sufficiently to achieve compliance.

Black
Very poor
Polluter makes no effort to control pollution, or causes serious environmental damage.

The system (that currently only covers water pollution) is very clear and straightforward and the results of the rating are communicated to the public through press conferences, the media and the Internet. Results suggest that the programme has been successful. It has helped increase the level of compliance with regulation and has increased public awareness and ultimately created pressure at community level for further pollution reduction. Moreover, the project has proven to be very cost-effective.

In June 1995 the level of compliance with regulation was 35 % compared to a level of 51 % compliance in December 1996. In the same period pollution as measured by biological oxygen demand (BOD) was reduced by 43 %. Evidence from July 1997 suggests that Proper continues to have strong impacts. In December 1995, 118 factories were non-complaint with regulation, 113 rated red and 5 rated black, by July 1997, 38 of these had achieved blue or green ranking. Viewed against these statistics and with an expenditure of only USD 100 000 over the first 18 months, the programme has indeed proved very cost-effective.

The Indonesian experience therefore challenges the conventional wisdom that economic development and pollution necessarily come in tandem and that pollution control is necessarily costly and requires strong regulatory powers. Proper has been a major source of inspiration for the Philippine Government and Thailand, India, Mexico and Columbia are introducing schemes that are based on or are strongly influenced by Proper. The World Bank has provided support for this initiative.

Source: Afsah and Ratunanda 'Environmental performance evaluation and reporting in developing countries' in Bennett and James (1999), Sustainable measures and World Bank (2000), Greening industry, new roles for communities, markets and governments.

4.6.4. Small and medium-sized enterprises (SMEs)

A link between the financial sector and SMEs is provided by the growth and environment scheme which was initiated by the European Parliament in 1995. It is sponsored by the European Commission and managed by the European Investment Fund, and seeks to promote sustainability by supporting environmentally friendly investments of small and medium-sized enterprises (SMEs) in the European Union. A network of intermediaries, currently consisting of 25 institutions throughout the European Union, offers beneficial financing conditions under the scheme. Intermediaries are in a position to do so because the European Investment Fund guarantees a part of the risk (up to 50 %) of each loan. In line with the delegation principle, intermediaries select the relevant loans on the basis of their normal credit procedures. SMEs wishing to enjoy support under the scheme should therefore contact the respective participating institutions. Intermediaries also assess the environmental eligibility of each proposed investment. By the end of June 1999, some 1 400 SMEs had benefited from the scheme for total investments of EUR 525 million, with an average loan of EUR 265 000 and an average SME employment of 19 people. The scheme contributes significantly towards promoting environmental awareness in financial institutions and small and medium-sized enterprises.
Some SMEs are also beginning to issue CERs (Box 4.7).

Box 4.7. Example of SME and environmental reporting

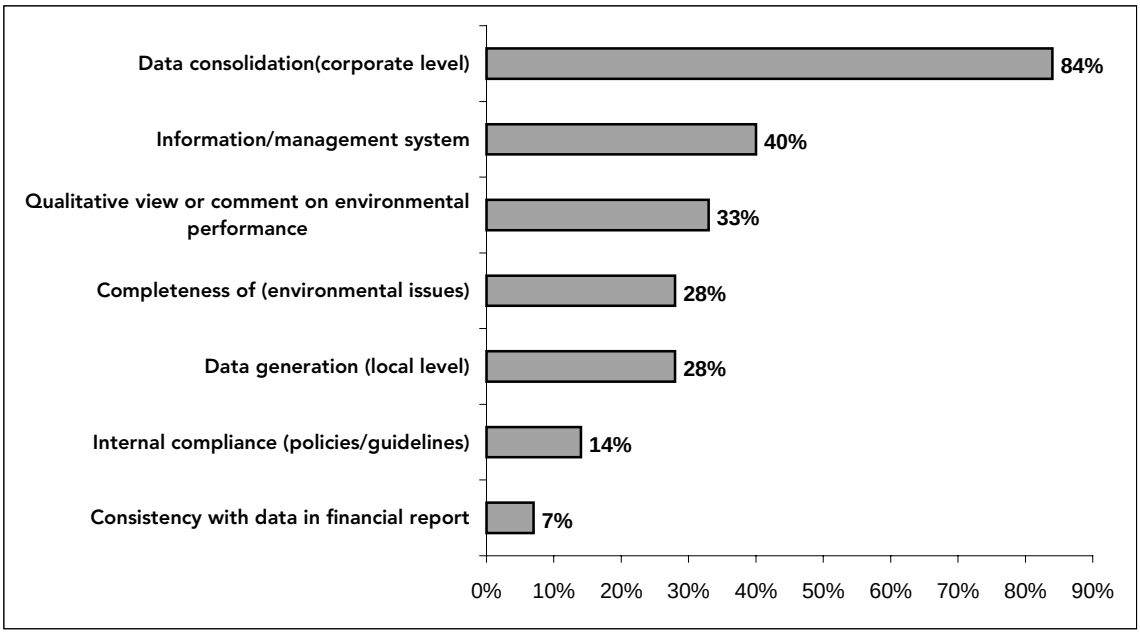
HÅG is a Norwegian manufacturer of office chairs with around 370 employees and an annual turnover of NOK 417 million. With a business concept that focuses on ergonomics and human needs, environmental concern fitted naturally into the philosophy of the company. The environmental initiatives picked up speed in 1993 with 'Design for the environment' initiatives and implementation of an environmental management system (the HÅG manufacturing facility is EMAS registered). For the past three years, a summary environmental report has been included in the annual report, aimed primarily at the financial markets. HÅG has shown that environmental reporting of an SME can be of high quality with limited resources. The 1995 HÅG environmental report received a honourable mention by the Norwegian Environmental Reporting Award programme and was also among the best in the Nordic survey of environmental reporting by DTTI. The company calculates that 10 to 15 % of its sales in Germany are dependent primarily on the company's environmental image, which was also a decisive factor for recent large orders from the State of California.

The German SME, Neumarketer Lammsbrau won a European Environmental Reporting Award in 1998 for its encouragement of good SME reporting.

4.6.5. Third-party verification

Verification of environmental reports by independent auditors can improve the credibility of the reports. However, research published in 1996 by the Global Environmental Management Initiative (GEMI) and the Investor Responsibility Research Centre (IRRC) in Washington DC found that stakeholder groups thought that verification added little, if anything, to the overall credibility of the reports. The lack of standards for verification was the main drawback (GEMI, 1996), as verifiers do not have any benchmarks to verify the report against. At the European level, initiatives such as the European benchmarking network are tackling the issue more systematically to achieve better performance assessment. Auditors review financial statements for compliance with legal requirements as well as against generally accepted accounting principles, but for the verifiers of environmental reports, there is no such guidance. Most CER verification processes are simply concerned with consolidation at corporate level (Figure 4.1). The KPMG 1999 international survey of environmental reporting found only 18 % of companies surveyed had external verification of their CERs.

Figure 4.1. Aspects covered by verification statements



Source: KPMG 1999.

The current trends towards normalising and standardising environmental performance indicators will make it easier for external verifiers to assess if the environmental report gives a complete and truthful account of the company's environmental performance (Azzone et al., 1996).

The Fédération des Experts Comptables Européens (FEE) published a Europe-wide survey of verifiers' reports in 1996. Its conclusions were similar to those of the GEMI study. FEE found that an expert statement could add value to corporate and site environmental reports, but that current reporting is too varied for it to add value from a user perspective. One of FEE's main recommendations was that expert statements should contain a description of the scope of the audit and the audit objectives. FEE also proposed contents for the expert statement (FEE, 1996).

However, standardised wordings will not be sufficient to avoid a gap between the expectations of users and the reality of current verification, a gap that has increased since the GEMI and FEE surveys.

In 1999, Royal Nivra in the Netherlands published a report on *Audits of environmental reports — Are we witnessing the emergence of another expectation gap?* (Kamp-Roelands, N., 1999). This report noted that a small, but increasing number of companies were using external auditors to verify their environmental reports, but that the companies expected more than the auditors could deliver. The variability of the levels of assurance provided by auditors was not appreciated by companies.

Verification will be of greater value to companies and users when there are agreed standards covering the scope, limitations, content and sampling techniques of third party audits and expert statements.

Qualifications of the environmental verifier are also important. The verifiers for EMAS statements, for example, need to be accredited by the national accreditation body, but there are no generally accepted qualification standards.

Meanwhile, many companies will still feel the need to let a third party verify the accuracy of the report particularly in industries where the public distrust the companies. As an environmental executive of a major chemical company put it: 'We could report until the cows come home but no one would believe us. Credibility is only going to come if environmental reports are verified by independent people.'

4.7. Social, ethical and sustainability reporting

The millennium poll on corporate social responsibility conducted by Environics International Ltd, held interviews with over 25 000 citizens across 23 countries on 6 continents about the changing expectations of companies (Environics International Ltd 1999). A major finding was that citizens in 13 of the 23 countries think their country should focus more on social and environmental goals rather than economic goals. The millennium poll also asked to what extent companies should be held responsible to society. While the results vary by country, the overall findings were that:

- consumers hold companies accountable for protecting the environment and the health and safety of the employees; treating employees equally, avoiding bribery or corruption and not using child labour;
- and these come before making a profit and paying a fair share of taxes.

Measuring and reporting on corporate 'triple bottom line' performance (Elkington, 1998), i.e. financial, environmental and social performance, is an emerging trend. The KPMG 1999 survey showed that sustainable development is now addressed in 36 % of the environmental reports, compared to only 12 % in 1996 (KPMG 1999). This trend has been triggered by the need for companies to be transparent and accountable; changes in societal expectations, and the threat of media exposure. Box 4.8 illustrates some business definitions of 'sustainable growth'.

Box 4.8. Sustainable growth: some business definitions

'Achieving social and shareholder value while reducing the environmental footprints…knowledge intensity versus material intensity'. (Chad Holliday, CEO, Dupont in 'Tomorrow' March/April, 2000)
'Social progress and environmental development that meets the desires of the present without compromising the needs of future generations' (Danfoss, Denmark, advertisement in 'Tomorrow' March/April, 2000).
'The economic, social and environmental components of sustainability really strike at the heart of what we must accomplish at Dow … these three components are not at all in conflict … we must simultaneously succeed in all three' (Bill Stauropoulos, President, CEO, Dow Chemicals).
'Measuring and communicating the economic footprint of business and how this in turn creates social and environmental outcomes is a pre-requisite for companies wishing to engage in a meaningful long-term dialogue with stakeholders' (BT, 'Adding values, the economics of sustainable business', May 2000, British Telecommunications plc, p. 13).

The Shell Brent Spar case, followed by their involvement in Nigeria, and Nike's labour relations with Asian suppliers are examples of where companies have underestimated consumers' expectations about their social/ethical role. In response, some companies are reporting on social as well as environmental and economic issues, e.g. Shell's 'People, planet, profits 1999' report and the Dow Chemical, 'Triple bottom line report 1999', which is the first in the chemical industry to report its progress in balancing economic growth with environmental and social responsibility. However, triple-bottom-line reporting is still a new phenomena in business and finance with the Co-operative Bank being the only retail bank in Britain to produce independently verified triple-bottom-line reports (as of August 2000).

But how can corporate sustainability be measured? Much research is required to develop sustainability indicators that are generally acceptable, particularly in the social/ethical area, where expectations are changing quickly, and experience is scarce. A report for the UK Association of Chartered Accountants, *Making Values Count* (ACCA, 1998) summarised different approaches to social/ethical reporting (Table 4.5) and provided eight principles to guide such reporting.

Table 4.5. Approaches to social/ethical accounting

Stated or 'named' approach	Description	Examples of organisations using these approaches
Capital valuation	Regularly disclosed process to understand, measure, report upon and manage various forms of capital (which could include intellectual, human, social, environmental, organisational, structural and financial capital).	Skandia
Corporate community involvement reporting	Description, illustration and measurement of community involvement policies and activities through occasional reports. This approach may also include benchmarking against other company performances.	Diageo (Grand Met), British Petroleum
Ethical accounting	Regularly disclosed process, based upon shared values which stakeholders develop through public sector ongoing dialogue, aimed at designing future actions.	Sbn Bank, Scandinavian public sector
Ethical auditing	Regular, externally verified process to understand, measure, report on and improve organisation's social, environmental and animal testing performance through stakeholder dialogue. The resulting report incorporates three separate social (see 'social audit' below), environmental and animal testing reports.	The Body Shop International
Social auditing	Regular, externally verified process to understand, measure, report on and improve upon an organisation's social performance through stakeholder dialogue.	VanCity Credit Union, Black Country Housing Association
Social balance	A regular reconstruction and aggregation of financial data across stakeholder groups which specifies financial costs associated with 'social activities'.	Coop Italia, Unipol
Statement of principles and values	Statement which develops, evolves and describes an organisation's principles in meeting its financial, social and environmental responsibilities.	Shell International
'Sustainability' reporting	Evolving report process which identifies ways forward and reports upon progress against sustainability principles.	Interface

Source: ACCA, 1998.

It is the integration and balancing of economic, environmental and social objectives that is required if 'sustainability' is to be achieved. At the recent conference; Triple Bottom Investing 2000 in Rotterdam, Richard Barrett of Richard Barrett & Associates, presented an analysis, which showed that the valuation of companies on the stock market is actually based on 40 % tangible assets (physical assets) and 60 % intangibles (like brand names, knowledge capital, cultural and structural capital). Thus, the future is for value-driven companies, which achieve a complete alignment of the personal values of the human resources and the corporate culture values.

The link between socially engaged companies and financial performance is even less researched than the environment/finance link, but one detailed review concluded that companies which are successful place emphasis on values, make long-term investments in employees, and pursue objectives other than profit (Collins and Porras, 1995).

The Bank Sarasin study (1999) also looked at the emerging agenda of social responsibility and found that:

'As regards social compatibility: no statistically significant relationship could be identified between social performance and financial return.'

However, the report commented that this could change in the future as public perceptions changed.

Some companies have addressed ethical issues in some depth, e.g. the Danish company Novo Nordisk, three times winner of the European Environmental Reporting Award (see Box 4.9).

Box 4.9. Bioethics at Novo Nordisk

At Novo Nordisk, bioethics encompasses all ethical issues related to the use of life science technologies for the development and production of biotechnological and pharmaceutical products. Animal welfare, patenting, the use of GMOs in food production, access to genetic resources and benefit sharing, and the safe application of gene technology are among the issues discussed in this report.
One of the conclusions from our review (by SustainAbility, UK, and the Centre for Bioethics at Aarhus University, Denmark) was that inside Novo Nordisk bioethical issues are seen to be important in maintaining the company's 'right-to-operate' and equally importantly, the 'right-to-innovate'. These are especially significant for Novo Nordisk, given that the company is dependent on new technologies and the pace of change in the development and application of biotechnology is very rapid.

Source: Excerpts from Novo Nordisk Bioethics Report, 1998.

Some companies are reporting on their social performance in the areas highlighted in Box 4.10

Box 4.10. Key elements of corporate social performance

- **Employment rights and conditions**: the provision of a safe working environment; financial and job security; equal opportunities in terms of race, gender, age, and opportunity for professional development; equity issues.
- **Human rights**: engaging in practices that promote issues such as freedom from oppressive regimes, freedom of speech, social justice, survival of indigenous societies, and no forced or child labour.
- **National rights**: the contribution of a company to the host nation, in terms of domestic investment, and the level of participation of the host nation in company decisions; avoidance of bribery and corruption.
- **Community relations**: the contribution of a company to community development, including community assistance programmes, educational support, job creation, community health and safety, voluntary work and philanthropy.
- **Supplier relations**: the contribution of a company to ensure its social and ethical principles are maintained along the supply chain, engaging in fair practices with suppliers, distributors, and partners.
- **Stakeholder rights**: meeting the needs of interested parties such as shareholders, investors, employees, customers, NGOs, suppliers, communities and regulators.

Source: Taylor-Gee, 1999. See also PricewaterhouseCoopers 1999 and Gonella C. et al., 1999.

Equity is a sustainable development issue and the distribution of income is a key part of equity. Little research is done in the corporate world — but work by Zafar Khan from the financial company Société Générale (London) showed large differences between the earnings of top directors in the engineering sector and average employees, i.e. around a 15 fold difference, in the engineering sector with some being up to 80 times, in 1992. A partial update by Paul Farrelly, in *The Observer* 29 October 2000, showed similar relations i.e. income differences of 30 to 60 times. Income distribution is also a relevant parameter for national welfare indicators, when the GDP may be adjusted for income distribution. This contributes to the 'index of sustainable economic welfare' (ISEW) which is a more comprehensive measure of total well-being than the GDP (EEA, 1999 *Environment in the European Union at the turn of the century* p. 43).

Engaging in fair practice also involves the avoidance of corruption, which is a key barrier to investment in developing countries. The cost to companies of corruption at local level is leading many 'to support international conventions' (Carel Mohn of the anti-corruption campaign 'Transparency International', in *The Financial Times* 17 October 2000).

For further information on corporate social responsibility see Section 7 'Further information on corporate social responsibility'.

Common environmental and social accounting methodologies, and the adjustment of economic indicators to reflect environmental and social externalities will need to be developed if sustainability reporting is to be robust enough to engage the interest of the financial sector. An initiative on the European level is corporate social responsibility Europe (CSR) (formerly European business network for social cohesion) which aims to encourage sharing of practices and the reporting of social and environmental policies through a coherent framework. Meanwhile, new perceptions about the relationship between corporate economic activity, the environment and societies are needed: Box 4.11 provides some examples of these.

Box 4.11. The 'Aalborg aphorisms' — some guidelines for more sustainable businesses

'Matter matters as much as money'. Economies depend on the environment, not vice versa, and resource productivity/eco-efficiency becomes a key objective.
From linear, 'throughput' economies to circular, multi-use economies (elegance with inputs, diversity with outputs: as in nature).
Go with the 'flow' — don't stick with the 'stocks', of energy, e.g. renewables, not fossil fuels.
Limited growth in quantities, unlimited growth in qualities and well being.
The context is shifting from 'hard (scientific) facts and soft (public) values', to 'soft facts' and 'hard values': therefore align business and public values through stakeholder involvement and pursuit of sustainability objectives.
More 'service' less 'products' via demand side management, e.g. produce 'negawatts' of energy efficiency, 'negalitres' of water use efficiency; 'negakilometres' of transport access efficiency, etc.
'Everything connects' — so integrated assessments and systems approaches are vital, e.g. multi-causality (in risk assessments), multi-functionality (of economic activities e.g. agriculture), multi-pollutants/effects approaches (to pollution control).
NB: Produced for a speech to the first European 'Conference on Industry and Environmental Performance', Aalborg, Denmark, 1998, by David Gee, EEA (in personal capacity), and updated October 2000.

4.8. Summary

Key criteria for corporate environmental reporting are:

- **continuity** by publishing environmental reports at regular intervals, by setting targets and reporting back on progress, and by using the same performance indicators over time;
- **comparability** by using standardised and normalised environmental performance indicators. A reporting structure with mandatory site reports and mandatory disclosure in the annual report and financial statements will also improve comparability;
- **credibility** by openness, balance in the report, and verification.

Dialogue with the stakeholders is important for ensuring that the strategic environmental management initiatives of a company have the right content and direction to fully exploit new opportunities and avoid unnecessary risks.

Embracing the social and ethical dimensions to the sustainability concept is an emerging challenge. An increasing number of corporations report on 'triple bottom line' and improved tools for such reporting are being developed. The same criteria as for environmental reporting, i.e. continuity, comparability and credibility, will be needed for sustainability reporting.

Corporate environmental reporting can only fulfil its potential if it is viewed as a process rather than as a product. Part of that process is being able to identify and meet the needs of the financial sector, which requires information on the comparative ranking of environmental performance if it is to steer its investments towards those companies who can make the most 'eco-efficient' use of capital. But who is providing information on corporate environmental performance ranking? The following section summarises current developments.

5. Rating and ranking of corporate environmental performance

Environmental rating is a useful way of engaging the financial community's interest in environmental matters.

Environmental rating is defined as the use of one or more environmental assessment criteria to assign a score, or to rate a specific company. Environmental ranking is the resulting list of companies, in relative order depending on the attained score.

The goal of ranking is to assess at least some dimensions of the processes, products and/or management of companies and their related environmental aspects.

A common method in ranking is to use information provided in the corporate environmental report. The potential reliability and credibility of ranking instruments is thus dependent on the current and future quality and comparability of corporate environmental reports, as well as on the environmental performance indicators used.

5.1. Why environmental performance rating?

There are several potential advantages of using rating systems (Hadley, 1996). Rating/ranking systems offer a simple means of **benchmarking companies**, both within and across industry sectors, and also provide a method for **assessing company progress** over time. Rating/ranking systems can determine the nature of and the size of **environmental risks** associated with a company, and can provide a picture of both **managerial and financial resource use efficiencies**.

Some financial institutions need to **satisfy their own stakeholders** and ensure that business is only transacted with environmentally sound companies using rating/ranking systems that incorporate environmental/ethical criteria to screen companies.

For a company that has invested heavily in new, cleaner technology and environmental management systems, rating/ranking systems can allow the company to get recognition in the financial marketplace and to receive more **favourable treatment** than competitors that have not made such investments.

5.2. Rating of what?

One of the earliest rating strategies was to assess a company's physical impact on the environment, for example, their emission volumes and consumption of natural resources. The main target group interested in rating were investors wishing to channel their investments to companies with an environmental profile and good environmental status, or environmental activists. But for the majority of the financial community who were primarily interested in profitability and risks, this information was of little interest (Schmidheiny and Zorraquín, 1996). To capture the interest of the financial community, systems for controlling historical compliance with environmental legislation developed, together with approaches regarding emissions as risks for regulatory intervention and third party damage claims. This development was

also triggered by a series of environmental catastrophes such as Exxon Valdez, Sandoz, Bhopal etc.

More recently, criteria used for rating systems have expanded to include the assessment of environmental management. These approaches evaluate the presence and quality of the company's EMS, environmental policy, audit process, environmental targets, etc. **Environmental risk rating** primarily concentrates on environmental risks and exposures. Environmental risk can be said to represent an aggregate of individual risks: regulatory, technological, operational and event risk. These environmental risk rating systems have been developed primarily for banks and insurers, and consider two elements (Lascelles, 1993):

How large are the company's environmental liabilities and costs?
How able is the company in dealing with them, managerially and financially?

Other approaches consider more strategic environmental parameters such as dependency on petroleum oil or nuclear energy. These rating systems can also include non-environmental ethical issues such as charitable giving, workplace risks, or gender issues. Others assess the environmental value of the product or service, and reward products that improve energy efficiency, waste management, recycling, etc.

Some 'hybrid' rating schemes combine criteria for environmental performance with criteria for financial performance. Thus, a 'good' score for environmental performance would not be possible without the company also having a good financial performance.

5.3. Who rates and for whom?

There is still not much specialisation in the field of rating/ranking with most instruments targeting a wide group of clients. The majority of system managers list lenders, investors and fund managers, financial or business analysts and insurers as potential users. Some also mention the corporations themselves, environmental NGOs, environmental local authorities, environmental consultants and lawyers, purchasing organisations and the public.

Rating/ranking systems can be grouped into seven categories of providers:

1. independent and semi-independent agencies: companies that market and sell their rating as a service, for example environmental consultancies;
2. rating for environmental funds or portfolios;
3. academic institutions;
4. governmental organisations: usually undertaken to evaluate environmental impact of each industrial sector on a national level. The results are sometimes used in rating/ranking lists;
5. business organisations: some have expressed interest in measuring and rating/ranking companies;
6. information providers: these do not do the rating, but provide information to rating agencies, see No 1;
7. corporations: usually for internal use, e.g. the Swedish forest industry, and can be used to differentiate between various suppliers and subcontractors.

The diversity of environmental raters and their varying interests, means that a number of environmental rating schemes exist. The following section looks at the different categories of environmental rating schemes, and illustrates these with some examples.

5.4. Types of rating systems

Five different types of rating systems can be described, according to their main focus:

1. single issues, e.g. toxic emissions;
2. environmental liabilities;
3. eco-efficiency and resource use;
4. enviro-ethical issues;
5. safety and environmental risk management.

Some systems focus on several of these issues, as the examples below illustrate. Methodologies vary from simple, desk-based assessments of published information to sophisticated investigations and comparative analyses that involve on-site investigations.

1. Single issue systems: concentrating on a single technical issue, e.g. land contamination or toxic emissions.

Example:
Benchmarking US petroleum refineries, the Environmental Defence Fund (EDF), US NGO
Ranking environmental performance of 166 oil refineries. Publicly available data on toxic waste generation and pollutant release was normalised by refinery capacity to adjust for size (Ditz and Ranganathan, 1997).

2. Liability systems: assessing compliance with environmental regulations, and risk of claims for damage.

Example:
ECCO-CHECK Index, Environmental Risk Rating Ltd, Surrey, UK
Described as a fully commercial index of corporate environmental performance in Europe, with the aim of providing definitive information about a company's potential liability under key elements of site-specific UK legislation. Potential number of companies in database is said to be 850 000. The information sources would be almost exclusively from public domain, or which could be independently corroborated, e.g. public registers with Environment Agency or Local Authority Environmental Health Offices, waste handling registers, records of prosecution for polluting events, EMAS verification records, definition of polluting industrial processes with pollution risks in national and EC legislation. The system coverage is the whole industrial sector. Targeted users are banks, insurance companies, purchasing organisations, local authorities, business analysts, and academic researchers.

3. Eco-efficiency and strategic systems: assessing the efficiency in use of resources of the product, process and management.

Examples:
Investor Responsibility Research Centre (IRRC), Washington DC, US (www.irrc.org)
Independent non-profit research firm which offers an environmental information service. It produces a corporate environmental profile directory consisting of a series

of indicators of emissions (total weight of corporate toxic release inventory emissions), volume of oil spill, volume of chemical spill, hazardous waste (number of Superfund national priority list sites), compliance (punitive fines for environmental non-compliance), environmental litigation (number of disclosed environmental litigation incidents) normalised by considering 'environmental risk per unit revenue', enabling comparisons of companies of different sizes. Directories also include information on EMS, environmental policy, projects and targets. For each environmental indicator a revenue-weighted industry average has been derived based on all companies included in an industry sector of Standard & Poors listing. The data is quantitative and the rating is done by the client. Data is compiled from government records and financial information, for example Form 10-K from company financial reports. The targeted users are: institutional investors, boards of directors, government agencies, consultants and law firms.

Council on Economic Priorities (CEP), New York, US (www.cepnyc.org)
CEP is a public service research organisation, providing reports that rates companies' environmental performance. Ethical factors, such as charitable giving, community outreach, family benefits and workplace issues are also assessed. Thirteen areas of corporate environmental performance are evaluated: releases, policy, packaging, office recycling, raw materials/waste, toxic reduction, community impact, energy conservation, natural resources, accidents, Superfund sites, compliance and environmental technologies. The information used is provided by the company, and assessment can be made on a sector or industry basis. The targeted users are ethical investors, environmental NGOs, lawyers, environmental consultants, corporations and the public.

Oeko Sar Fund, Bank Sarasin & Cie, Basel, Switzerland (www.sarasin.ch)
The bank assesses environmental performance for its own environmental fund (DEM 64 million). The assessment system was developed by environmental consultant Ellipson Ltd in Basel and is the same as the system used by Norwegian UNI Storebrand (also designed by Ellipson). The following categories are used for environmental and social ratings:

Environmental dimension	Social dimension
Policy/strategy	Customers/suppliers
Production/provision of service	Employee relations
Products/services	Public relations
Environmental management systems	Shareholders/investors

Companies are divided into three groups according to the potential environmental impact: high (e.g. an energy producer), medium and low (service sector companies). To be included in the fund, the company must attain a certain level of rating depending on the impact group. In addition, negative criteria are used, avoiding any company that drives more than 5 % from the defence industry, nuclear power and nuclear power plant construction, gene technology, chlorine industry, agrochemical and automobile industries. Certain ethical criteria are added for the pension fund extending to the weapons industry, and gambling. Assessment is based on CERs, annual reports and other material from the companies, management interviews, a newspaper article database, information from environmental pressure groups such as Greenpeace, and a questionnaire.

Storebrand Scudder Environmental Value Fund, Oslo, Norway (www.storebrand.no)
The Storebrand Scudder environmental investment fund was set up in 1996 by the Norwegian insurers, UNI Storebrand. It uses a proprietary sustainability index to

assess business environmental performance. The index is calculated from environmental indicators of: global warming, ozone depletion, material efficiency, toxic release, energy intensity, water use, environmental liabilities, and environmental management quality. Storebrand uses the index to measure the 'environmental dividend' — the difference between the fund's environmental performance and the market on average. Although termed a sustainability index it only focuses on environmental performance, and does not include social issues.

Innovest strategic value advisors (www.innovestgroup.com)
This is based in the United States and uses a proprietary investment model 'Eco Value 21' to evaluate both the environmental risk and opportunity profiles of companies and determine the implications for investors. This analysis of the upside potential is a unique facet of the rating. It too can provide a fund rating as well as a customised portfolio analysis on both US and Canadian stocks.

Sustainable asset management (SAM) Zurich, Switzerland (www.sam-group.com)
This serves as an in-house department for the investment company Sustainable Performance Group (founded by Swiss Re, Volkart Brothers Group and SAM), but also assesses companies for external clients such as Credit Suisse Eco-Efficiency Fund. Their approach is to 'invest worldwide in companies which have committed themselves to sustainability: in companies which, thanks to the successful integration of their economic, ecological and social interests into the way they conduct their business, are able to recognise opportunities and risks early and thus create for themselves long-term, sustainable competitive advantages, and achieve above-average profitability.' The assessment involves looking at a company's 'sustainability chances' (its strategic chances; product; corporate sustainability), and its 'sustainability risks' (stakeholder exposure; environmental management; resource efficiency; strategic risks; sustainability costs). In total, more than 100 criteria are used for the rating.

Together with the Dow Jones indices, SAM recently launched a series of sustainability indices. The global index contains 225 components, selected from the Dow Jones global index of 2000 blue chip companies.

Dow Jones sustainability group indices (DJSGI), US (www.sustainability-index.com)
The DJSGI and the SAM Sustainability Group created the first collection of global sustainability indices in September 1999. The DJSGI allows for the benchmarking of the performance of investments in sustainability companies and funds. It tracks the performance of the top 10 % of the companies in the Dow Jones global index that lead the field in sustainability, which is 200 companies with a market capitalisation of USD 4.4 trillion. The criteria by which the sustainability companies are identified and ranked are based on five 'sustainability' principles (Dow Jones/SAM 1999):

- **technology**: innovative technology and organisation that uses financial, natural and social resources efficiently, effectively and economically;
- **governance**: high standards of corporate governance including management responsibility, organisational capability, corporate culture and stakeholder relations;
- **shareholders**: demands should be met by sound financial return, long-term economic growth, long-term productivity increases, sharpened global competitiveness and contributions to intellectual capital;
- **industry**: lead an industry shift towards sustainability by demonstrating commitment and publishing superior performance;

- **society**: encourage lasting social well-being by appropriate and timely responses to social change, evolving demographics, migratory flows, shifting cultural patterns and the need for continuing education.

The criteria facilitates a financial quantification of sustainability performance by focusing on a company's pursuit of sustainability opportunities, and reduction and avoidance of sustainability risks and costs. Each company's sustainability performance is given a score, and the companies are ranked according to their score.

Criteria	Maximum score
Opportunities	**36**
Sustainability policy and strategy	12
Management of sustainability opportunities	12
Industry group specific sustainability opportunities	12
Risks	**36**
Strategic sustainability risks	12
Management of sustainability risks	12
Industry group specific sustainability risks	12
Information quality	**2**
Maximum score	**74**

The sources of information are company policies and reports, a sustainability questionnaire and an analysis of stakeholder relations. Data filters, audits and quality assurance tools are used to monitor and maintain the accuracy of the input data and the evaluation system.

4. Enviro-ethical bias: incorporating dimensions of all the above, but which also have an enviro-ethical bias.

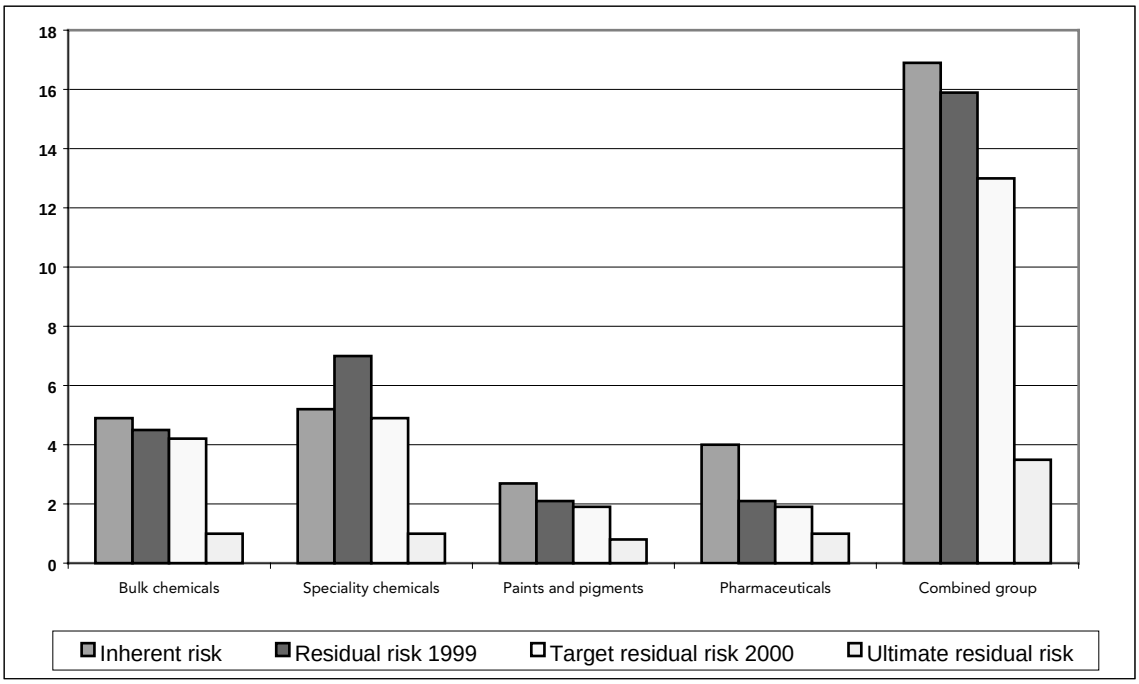
Examples:
Jupiter Income Trust Funds (subsidiary of Jupiter Tyndall Group PLC), UK (www.jupiteronline.co.uk)
This is a fund management service, with eight UK unit trusts, and 11 investment trusts especially created to pursue environmental and financial objectives. They use very substantial investment criteria to assess companies and avoid companies that derive more than 1 % from oppressive regimes, or armaments, nuclear or tobacco industries. The fund encourages higher standards and pushes companies to respond beyond compliance.

5. Safety and environmental risk to capital

Examples:
Safety and Environmental Risk Management (SERM) Rating Agency (www.serm.co.uk)
This is a UK company that provides an overview of a company's ability to manage its safety and environmental risks. SERM adapts a self-approval rating approach where companies list environmental performance information by check-marking a pre-defined set of questions. Rating is based on a 27-point scale from AAA to C. Rating results are designed to place the costs of environmental and safety management into the context of risk reduction. In this way, SERM creates incentives for improvements in safety and health management. The essential rating output is the measure of the 'net environmental risk to capital'. An example of a comparison among four divisions of a major chemical company is shown in Figure 5.1. In this example, each division's inherent risk is calculated as direct safety and environmental risk plus indirect costs of a tarnished reputation. The first derive from direct costs such as personal injuries,

fines and lost production. Indirect costs are calculated for occurrences such as reduced employee morale and lost sales due to protest action. For each cost scenario, the company's management system effect is then calculated which may produce an increase or reduction of the risk. The result of this is residual risk. Figure 5.1 also shows the target residual risk for a particular industry which is the risk achievable by the effect of management on curbing risks. The ultimate residual risk is fixed inherent industry specific risk: this varies widely from industry to industry and is not influenced by management practices.

Figure 5.1. Total safety and environmental risks across a major chemical company's four divisions (2000)



Source: SERM, 2000.

5.5. Issues and challenges in rating/ranking

5.5.1. Generality

Most rating/ranking systems target several types of financial players: investors, insurers, creditors, companies, etc. To assess companies' environmental performance is expensive, and whatever approach is used, it is likely that the results are marketed to a broad group of potential users. This generality could be one of the causes for the low acceptance by the financial community, as the various dimensions of the systems do not seem relevant to a specific audience within the financial community.

To overcome this barrier, schemes for different target groups could be promoted.

5.5.2. Reliability of assessment methods

A crucial factor for the value of the rating is the information or data on which it is based. Is it reliable? For example, are questionnaires filled in correctly, and by the most appropriate person, and returned to be used as input for the assessment process? What is the value of an environmental report? As verification becomes increasingly

important, the level of reliability will improve. Many of the information sources used in rating systems vary according to the country of operation, and this has limited the establishment of a European-wide rating system. With the introduction of the global reporting initiative, the sources of information and the possibility of establishing European or global rating systems will increase. The Dow Jones sustainability group index is an example of this.

A major difficulty in environmental assessment is estimating the extent of potential environmental liabilities. These depend on the outcome of national regulations and liability issues, and on specific impacts on particular companies (WRI, 2000).

It is also very difficult to compare different rating/ranking systems. The overriding objective for the different assessment methodologies is not the same. There is also little transparency as to how the systems are built. This in itself leads to a low credibility for environmental rating/ranking as a whole. Also, since the types of environmental impacts are numerous and of a complex nature, they are impossible to assess by the same measurement. A comparison and weighting of different environmental problems, for example, climate change against biological diversity, will inevitably be based on subjective values.

5.6. Summary

Corporate environmental performance rating and raking schemes are increasing and improving. A degree of subjectivity in rating/ranking systems is inevitable, but credibility will be improved by increased transparency, quality of input data, and verification of company CERs.

Environmental rating has been widely perceived as a useful way of engaging the financial community's interest in environmental matters. But the new environmental rating/ranking services appear to have been developed in the belief that traditional players in the market **should** be looking at environmental performance. In the words of Schmidheiny and Zorraquín (1996), 'this is definitely a case of product push, rather than market pull'.

There is a need to encourage a market pull, via leaders from the financial sector engaging in standard improvements. The development of the Dow Jones sustainability group index and the growing acceptance by the financial community that improved environmental performance can increase long-term shareholder value is a clear indication that this market pull is growing. With improved quality of corporate environmental reports and environmental information, and therefore more accurate ranking systems, the interest of the financial sector in sustainability performance will increase. An award scheme for ranking tools may help to improve their quality, and the EEA will be exploring this option with partners.

6. Conclusions

6.1. Environmental reporting and the financial sector

The financial community is a diverse set of players with different potential interests. Environmental information needs to be tailored to suit the varying interests of the financial community, and be of a reliable quality. Developing a harmonised set of environmental performance indicators, like that of the global reporting initiative, is required if the information is to be credible and comparable, and of use to the financial community and other stakeholders. Key environmental performance indicators need to be identified at least for the major business sectors. Industry has started this process itself (WBSCD, 2000), but needs to be encouraged by both governments and the financial sector. There are a number of environmental performance rating systems, which are encouraging eco-efficiency and strategic environmental management such as the Storebrand Scudder and the Dow Jones sustainability group index. SERM (2000), the risk to capital rating agency found that large corporations have twice the management capacity to reduce risk to the environment than small or medium-size enterprises. These rating/ranking systems however need to be improved via greater transparency and reliability. However, their small yet increasing impact on the financial sector is helping to initiate its contribution to 'integration' of environment into economic sector activity (EEA, 1999). Access to information and dialogue between companies and their stakeholders is also important to allow a more transparent approach to company information related to environment and safety and health issues.

Easy access to corporate environmental information is vital and Internet technologies are making this possible. There is also, a growing need to facilitate dialogue between corporations and their stakeholders.

6.2. Evaluating and internalising environmental impacts into corporate accounts

The business sector imposes large environmental costs on society which are not reflected in the market prices of their products and services, nor in their financial accounts (BSCD, 1994; CSERGE, 1999). These 'externalised' costs represent a significant subsidy from those who bear the costs (tax-payers, future generations, etc.) to the companies' shareholders. In other economic sectors, particularly transport and energy, attempts are now being made to 'internalise' these environmental costs via taxes, regulations and tradable permits, so that market prices become more 'fair and efficient' (CEC, 1995). Such policy instruments have been used in the business sector to help reduce environmental impacts to today's levels, but further action is needed if impacts are to be sustainable. A first step is to estimate the economic costs of such impacts and to adjust company income statements accordingly. This process has only just begun, based on methodologies developed for the 'greening' of national income accounts (CSERGE, 1997; Ekins, 1998).

6.3. Social and ethical accounting

Consumers and other stakeholders are taking an increasing interest in the social and ethical impacts of corporate activity, such as employment conditions and human rights. In November 1999, two of several accounting guidelines on these

emerging issues were launched in Copenhagen, (Accountability, 1999; PricewaterhouseCoopers et al., 1999). However, neither mentions the need to internalise environmental costs of doing business, which is a key ethical as well as an economic issue. There is a danger that this latest development in corporate reporting could divert attention from the integration of environmental concerns into economic activity: 'triple bottom line' reporting requires a balanced focus on environmental and economic factors as well as on the social dimensions to business activity (Elkington, 1998).

7. References

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8. Further information on corporate social responsibility

The World Business Council for Sustainable Development
www.wbcsd.ch

The Prince of Wales Business Leaders Forum
www.pwblf.org

The European Business Network for Social Cohesion
www.ebnsc.org

Business for Social Responsibility
www.bsr.org

Business Partners for Development
www.bpdweb.org

Amnesty International
www.amnesty.org

Human Rights Watch
www.hrw.org

Transparency International
www.transparency.de

NorWatch — Monitor on Norwegian Companies in the South
www.fivh.no/norwatch

International Alert
www.international-alert.org

Norwegian Ministry of Foreign Affairs
www.mr.dep.no

Dow Jones sustainability group index
www.sustainability-index.com

United Nations Global Compact
www.unglobalcompact.org

Forum for the Future
www.forumforthefuture.org.uk/

Institute for Social and Ethical Accountability
www.accountability.org.uk/

Global Responsibility
www.global-responsibility.com

Appendix 1: Companies participating in the GRI pilot test programme 1999/2000

Company	Primary industry	Country
Baxter	Health care products	United States
Body Shop International	Personal care products	United Kingdom
Bristol-Myers Squibb	Drugs/consumer products	United States
British Airways	Air transport	United Kingdom
Eastern Group	Energy	United Kingdom
Electrolux	Appliances	Sweden
Esab AB	Welding materials/equipment	Sweden
Excel Industries	Chemicals	India
Ford Motors	Vehicle manufacture	United States
General Motors	Vehicle manufacture	United States
Henkel	Chemicals	Germany
ITT/Flygt	Pumps and valves	Sweden
KST Hokkaido	Construction	Japan
NEC Corporation	Electronics	Japan
Novo Nordisk	Pharmaceuticals	Denmark
Procter and Gamble	Consumer products	United States
Riverwood International	Paper packaging	United States
SASOL	Petrochemicals	South Africa
Shell	Petroleum	United Kingdom
Sunoco	Petroleum	United States
Van City Credit	Finance	Canada

Annex 2: Businesses, governments and NGOs contributing to develop 'Corporate Greenhouse Gas Inventories: Proposed reporting Standard, guidance and estimation tools' as part of the greenhouse gas protocol initiative

500 PPM, Inc.	Global environmental management initiative	Tata Energy Research Institute
Arthur D. Little, Inc.	Global reporting initiative	Texaco
Australian Greenhouse Gas Office	GrupoNueva	The Climate Trust
BP	Imperial Chemical Industries plc.	ThermoRetec
Canadian Institute of Chartered Accountants	Interface Research Corporation	Tokyo Electric Power Company Inc.
CEO Coalition to Advance Sustainable Technology	International Paper	Torrie Smith Associates
CERES	Norsk Hydro	Trexler & Associates, Inc.
Center for Energy and Climate Solutions	Pew Center on Global Climate Change	UNEP
CH2M Hill	PowerGen	US Department of Energy
Clean Energy Group	Pricewaterhouse Coopers LLP	US Environmental Protection Agency
Climate Neutral Network	Public Service Enterprise Group	United Technologies Corporation
Consolidated Edison Company of New York	Rocky Mountain Institute	WBCSD
Cumming Cockburn Limited	Ruddy Consultants	WRI
Dow Chemical Company	Shell International	World Wildlife Fund
First Environment	STMicroelectronics	
General Motors	Suncor	