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Encouraging Environmental Management in Industry



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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FOREWORD

The OECD's Industry Committee has organised a series of Business and Industry Policy Forums on current and emerging issues facing the business community. These have included sessions on industrial aspects of the Asian financial crisis (1999), the growth and policy challenges posed by dynamic service industries (1999), and the effects of the "new economy" on industry structures and strategies (2000). A fourth Forum was organised on 27 September 2000 on *Environmental Management: Challenges for Industry*. The purpose of the Forum was to draw together major stakeholders – from government, industry, trade unions, academe and non-governmental organisations (NGOs) – to: *i*) discuss the factors that are driving some firms and industries to go beyond simple compliance with existing regulation when they take actions to address current and emerging environmental concerns; and *ii*) examine the policies that governments could pursue to strengthen and deepen these tendencies.

Mr. Fabio Colasanti, Director-General of DG Enterprise at the European Commission, chaired the Forum. Industry panellists included: Mr. Jean-Michel Basset, Director of Environmental Affairs at Schneider Electric SA; Mr. Wolfgang Viefers, General Manager of Management Systems and Auditing at Bayer, AG; Mr. Kirster Larsson, Director of Business Management Systems at Volvo Car Corporation; Ms. Tauni Sanchez, Managing Director of Dow Jones Sustainability Group Indexes GMBH and Mr. Simon Brown, Managing Director of Innovest Strategic Value Advisors Inc. Non-governmental organisations participating in the meeting included the Business and Industry Advisory Committee (BIAC), the Trade Union Advisory Committee (TUAC), Greenpeace International, Green Alliance and the European Environmental Bureau, and the World Business Council for Sustainable Development.

This report on the Forum briefly reviews the global environmental situation, describes the growing role that firms and industries are playing in addressing environmental challenges, examines the factors that are driving leading firms to adopt forward-looking environmental strategies, comments on the structural factors that are influencing the extent to which firms become proactive, and identifies policies that could be pursued to strengthen and deepen the proactive environmental initiatives being taken by industry.

The report, and the Forum itself, reflects longer-term work that the Industry Committee has undertaken on issues related to corporate environmental management. This work is contributing as well to the OECD horizontal project on sustainable development. This horizontal work was undertaken in 1998, at the request of OECD Ministers, who asked the Organisation to develop a strategy for countries to help meet the challenges posed by sustainable development (see <http://www.oecd.org/media/release/nw98-51a.htm>). A wide-ranging project was subsequently launched to examine issues related to, *inter alia*, climate change, technology, indicators of sustainability, and the environmental impact of subsidies. Interim reports on this work were published in 1999 and 2000 (copies of these reports can be accessed at <http://www.oecd.org/subject/mcm/1999/pdf/totrev4.pdf> and [http://www.oecd.org/subject/sustdev/oecd in sd.pdf](http://www.oecd.org/subject/sustdev/oecd_in_sd.pdf), respectively), with two final reports planned for 2001.

Further information on the Forum, including copies of the papers that were presented, can be accessed on the Internet at:

<http://www.oecd.org/dsti/sti/industry/indcomp/act/sust-dev/forum.htm>

TABLE OF CONTENTS

INDUSTRY AND THE ENVIRONMENT – TRENDS AND ISSUES.....	7
FACTORS DRIVING ENVIRONMENTAL INITIATIVES	13
STRUCTURAL FACTORS.....	33
CONCLUSIONS.....	35
<i>Annex A</i>	39
<i>Annex B</i>	43
<i>Annex C</i>	47
REFERENCES.....	49

INDUSTRY AND THE ENVIRONMENT – TRENDS AND ISSUES

Global environmental situation

Environmental issues are commanding considerable attention internationally. Climate change, water availability, pollution and waste generation and disposal are among the leading challenges in this regard. As a major user of raw materials and energy, and a major source of pollutants and waste, industry is an important player. Progress in dealing more systematically with issues has been made on several fronts during the past several decades, with industry taking a more active role in addressing current and emerging issues. During the late 1980s and 1990s, institutions for addressing environmental matters were developed, international co-operation and public awareness increased, and private sector actions became more common (UNEP, 1997). At the same time, legal frameworks and economic instruments were introduced, while technological advances helped to boost cleaner production. Finally, governments became more circumspect in pursuing developmental objectives, with mandated environmental impact assessments becoming more common worldwide.

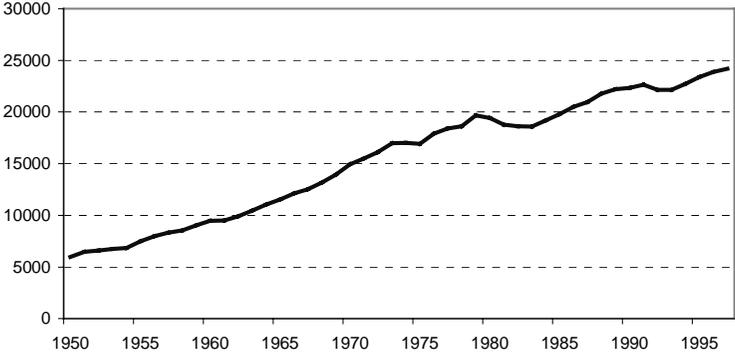
Despite the progress that has been made in developing institutions, methods and techniques, environmental degradation remains an important issue. In its recent analysis of the global environment (GEO-2000), the United Nations points out that full-scale emergencies exist in a number of areas, with environmental stewardship lagging behind economic and social development (UNEP, 1999).¹ Air pollution, for example, is at a crisis point in many major cities. Moreover, increased greenhouse gas emissions are seen as making it impossible to prevent global warming, despite the efforts undertaken in the Kyoto Protocol (**Figures 1 and 2**). As discussed at the Forum, there are also important issues to be addressed concerning resource use. Natural capital is declining in a number of key areas, with the implication that efficiency in the

1. Further information on global trends is also available from the World Resources Institute at Internet <http://www.wri.org/wri/trends/index.html>.

use of resources will have to increase, or substitutes will have to be developed in order to meet future consumer demands (Hohen, 2000).

Figure 1. **Global carbon dioxide emissions**

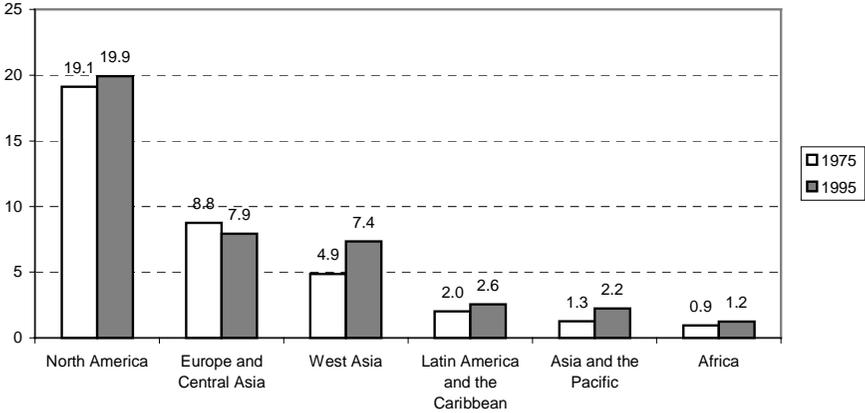
Million tonnes CO₂/year



Source: UNEP, 1999, and CDIAC, undated.

Figure 2. **Carbon dioxide emissions per capita**

Tonnes per year



Source: UNEP, 1999.

Industry role and trends

The positive role that industry can play in meeting environmental and interrelated social and economic challenges has been recognised for some time. It was highlighted in *Agenda 21*, the global plan for sustainable development adopted at the United Nations Conference on Environment and Development in 1992 (UNEP, 1992). More efficient production processes, preventive strategies, cleaner technologies and procedures throughout the product life cycle, for example, can be important mechanisms for reducing impacts on resource use and the environment. In practical terms, this means, in the first instance, identifying and promoting sustainable practices. This, in fact, is already being done increasingly in industry, reflecting changes in government policies and heightened industry involvement in identifying and addressing environmental challenges. As discussed at the Forum, industry is moving from an “end-of-pipe” reactive strategy that focused on capturing and disposing of pollutants generated during manufacturing, to a more holistic approach that integrates environmental considerations more effectively over a broader range of firm functions – including product design and procurement practices, as well as production processes.

The UN, in its *Global Environmental Outlook-2000* report, points out that industry has responded in several areas with impressive results (UNEP, 1999). The voluntary actions taken to reduce resource use and waste were viewed as a positive step that boded well for the environment. Industry was encouraged to pursue these initiatives, paying particular attention to ways in which these efforts could be expanded to include a broader range of small and medium-sized enterprises.

Pursuing environmental initiatives, however, does not occur in a vacuum. Such efforts can compete and conflict with other objectives – notably those concerned with financial performance. Some, in fact, have gone so far as to question the viability of “corporate sustainability” given the nature and scope of the potential conflicts (**Box 1**). If financial performance takes precedence, objectives in the environmental and social fields are likely to be compromised or, at the very least, be subject to important constraints. As discussed at the Forum, the trade-offs become most explicit when performance in different domains is evaluated discretely, using a *triple-bottom-line* (i.e. financial, environmental and social) approach.

Box 1. Corporate sustainability

“The precise meaning of the term ‘corporate sustainability’ is much disputed. For some, a company that is truly pursuing sustainable practices must be phasing out its use of substances that are systematically at odds with a sustainable world, while measuring what share of the world’s limited regenerative capacity is occupied by its use of renewable resources. Similar to this is the view that corporate sustainability means establishing boundary conditions, limits, metabolic ratios, and footprints.¹ Others intellectually tied to the social auditing movement, assign more weight to the processes that lead to sustainable practices (as distinct from the results of those practices). They see the involvement of stakeholders – and indicators defined by those stakeholders – as a precondition for truly sustainable corporate activities. Still others, led by the World Business Council on Sustainable Development, define sustainability largely in terms of eco-efficiency, *i.e.* as producing goods and services of greater and greater value relative to the burden they impose on the environment. Finally, some commentators view corporate sustainability as an oxymoron. That is, they see today’s global corporations – which measure their success primarily in terms of short-term increases in shareholder value and which make few commitments to their communities or workers – as inherently at odds with the intergenerational and social equity aspects of sustainability.”

1. Boundary conditions, limits and metabolic ratios refer to the assimilative capacity of air, water and land relative to the resource use and wastes associated with a firm’s products and services.

Source: White, 1999.

The areas in which the three domains overlap appear to be growing, which is a tendency that could reduce the areas of conflict. Aligning business strategy with environmental performance and social responsibility is becoming more of a management focus. Influenced by public policy and legislation, non-governmental organisations (NGOs) and consumer activists, an increasing number of businesses recognise the need to take environmental and social issues into account in their activities and to report on their endeavours. Environmental mismanagement or poor human-rights records can tarnish corporate reputations and destroy shareholder value. Some companies are therefore rethinking their way of doing business. Many large companies, for example, now have environmental concerns reflected in their corporate mission statements and strategies, and many have implemented environmental management systems, generally in association with their health and safety programmes (see Annex A). As discussed at the Forum, these companies see a competitive advantage to moving beyond minimum compliance with regulations.

However, such enlightened businesses are still in the minority and more innovative means are needed to drive OECD industry in the direction of corporate sustainability. A recent Arthur D. Little survey on business and sustainable development, for example, found that 95% of the managers

surveyed believe that sustainable development is important, with 82% concluding that it offered business value. However, only 17% saw themselves as having made significant progress in this regard (**Table 1**). Some 75% felt that further progress would require companies to change their corporate vision and strategy. Such changes obviously can take a long time, first to formulate, then to implement. Indeed, the social, commercial and environmental benefits associated with recycling may be clear to a firm; technological, economic and related issues may, however, limit the extent to which processes and products could be modified to capture such benefits.

Table 1. **Corporate views on sustainable development**¹

Degree of importance	Percentage of responses
Important, well down the road	17%
Important, making some progress	46%
Important, just beginning to explore	22%
Important, don't know where to start	10%
Philosophy, too difficult to implement	4%
Unrealistic, waste of time	1%
Passing fad	1%

1. Results of a questionnaire to 481 executives world-wide on the importance of sustainable development.

Source: Arthur D. Little, 1999.

FACTORS DRIVING ENVIRONMENTAL INITIATIVES

The Forum provided an opportunity to evaluate the factors that were important in driving some companies to become proactive in an environmental sense, and to discuss how policy could be structured to strengthen and deepen these trends. The discussion revealed that such proactivity has surfaced in various forms, with initiatives being taken at the firm, regional, national and international levels, on both a sectoral and non-sectoral (*i.e.* generic) basis. The types, scope and effectiveness of the actions being taken vary considerably. They range from relatively weak measures that lack specificity, verifiability and accountability, to stronger measures that bind firms to taking concrete actions to improve their environmental performance.

Five interrelated factors appear to be driving the initiatives: government policies and regulations, commercial and economic considerations, corporate image, codes of conduct, and growing pressures from the financial/investment community. As discussed at the Forum, deriving the full benefits from these drivers depends in large measure on the knowledge and effectiveness of stakeholders (*i.e.* the general public, public authorities, the financial/investment communities, NGOs, and other interested parties). The more that these stakeholders know about environmental issues, the better able they will be to advocate and pursue more forward-looking strategies.

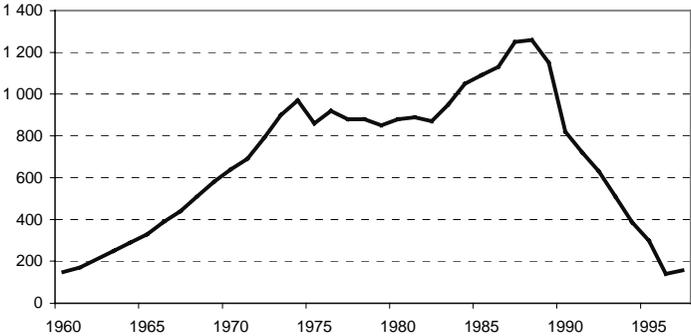
Insights into the relative importance of some of the “drivers” can be gleaned from a survey conducted by the World Business Council for Sustainable Development (WBCSD). More than 88% of respondents - a collection of firms which are leaders in sustainability - “agreed” that sustainable development – in which environmental stewardship plays a key role - is a key business driver for the firm, and 83% confirmed that sustainable development is an explicit part of the firm’s mission and values (Dearing, 2000). At the top of the list of drivers supporting this strategy are perceptions of company image and brand value. New product and service advantages, staff values and principles, and cost advantages were the next most important factors. Direct pressures from regulators, customers and special interest groups were cited as least important.

Government policies and regulations

Mandated measures

Compliance with government regulations and policies remains a most forceful driver of corporate environmental performance for most firms, as it requires them to take mandated actions, or meet certain standards, in the absence of which fines or other measures are likely to be imposed. The environmental regulatory climate has changed over time, as has the way that firms have been responding to environmental challenges. In the 1970s, the policy emphasis was on “command and control” measures which dictated how companies should meet certain environmental standards. These are seen as particularly effective in instances where certain practices have to be terminated. Indeed, such measures are still being used in certain instances to address environmental problems. A recent example is the banning of chlorofluorocarbons (CFCs), where the prohibition required firms to develop alternative materials that would not contribute as forcefully to ozone depletion (**Figure 3**).

Figure 3. **Global CFC production**
Thousand tonnes



Source: Environment Canada, undated.

In the 1980s, regulatory approaches in many areas moved away from specifying particular technology applications and began to focus more on performance levels or standards. This environment provided firms with more opportunities to formulate their own responses to requirements, which, in turn provided incentives to innovate. Corporate strategies thus shifted from finding

“end-of-pipe” solutions to developing “cleaner” production techniques. This was a natural development as it overcame some of the principle shortcomings associated with technology-based standards – namely that they did not stimulate innovation, and did not provide any incentives for companies to uncover potential commercial synergies within or across firms (**Table 2**). Performance-based instruments, on the other hand, tend to attach value to the generation, use and sharing of environmental information within firms, while encouraging innovation.

Table 2. **The incentive effects of alternative environmental policy instruments**

Policy instrument	Improved resource allocation within firms	Improved resource allocation across firms	Innovation stimulated
Technology-based standard	No	No	No
Performance-based standard	Yes	No	Somewhat
Market-based instrument	Yes	Yes	Yes
Voluntary agreement	Yes	Yes	Somewhat

Source: OECD, 2000a.

Issues related to regulation, however, continue to be of major importance. There was consensus among corporate participants in the Forum that most proactive companies and industries are already exceeding mandated criteria, and that regulation is therefore not a particularly strong “driver”. This raised an interesting issue for some, who felt that the lesser importance of regulation may instead reflect a tendency to set regulatory goals too low.

What had to be avoided, however, was counterproductive regulation that entailed technology lock-in, as this would tend to discourage innovation. Moreover, care had to be taken to avoid misguided or rigid regulation that required companies to modify practices and processes for invalid reasons. Regulations governing the use of lead are a case in point; scientifically justifiable restrictions have in some instances been applied universally, despite evidence that the metal could be used safely to obtain optimal results in certain situations (Basset, 2000).

It was further argued that regulation could in fact play several useful roles. First, it could be important in helping to ensure that companies which lag others in environmental performance are forced to meet certain basic standards. Regulation provides a means to do this. In this context, it would be important to

raise these standards on a regular basis so as to reflect the advances being made by industry leaders. At the same time, well-designed regulation could play an important role in stimulating innovation. In the United States, for example, the state of California has introduced ambitious targets which are encouraging automobile producers to explore ways to develop commercially viable zero-emission vehicles. This standard is one that is challenging the whole industry, with particular relevance to those companies that have been most active in developing more environmentally sensitive vehicles (Larsson, 2000).

In the 1990s, there was a shift away from regulatory “command and control” measures. Economic instruments – in the form of taxes, charges and tradeable permits – were increasingly used to induce firms to improve environmental performance. This market-driven approach provides firms with a measure of flexibility in responding to environmental challenges, rewarding those which develop cost-effective, innovative solutions. At the same time, incentives to explore solutions within and across firms are greatly increased. As discussed at the Forum, this shift has helped to improve the functioning of markets, which is key to stimulating innovative responses to current and emerging environmental challenges. While their potential contributions are great, they are, however, unlikely to be sufficient for generating fully-fledged dynamism in the private sector – regulation will continue to play an important role.

Voluntary and negotiated measures

Voluntary agreements (VA) in which firms commit with governments to improving environmental performance are becoming increasingly common. Such agreements typically take the form of public or negotiated programmes:

- *Public voluntary programmes*, in which firms participating in a programme established by a governmental agency enter into agreements which establish standards related to their environmental performance, technology or management. Examples are the 33/50 Program in the United States, in which the government asked companies to voluntarily reduce their releases of 17 toxic chemicals, and the Eco-Management Auditing Scheme in the European Union, which invites firms to establish an environmental programme, review sites, set improvement targets and monitor progress.
- *Negotiated agreements*, in which industry enters into contracts with public authorities, generally contain a target and a time schedule for achieving the target. Failure to meet goals can increase the risk of a new piece of legislation or regulation. Such agreements are an

important element of the National Environmental Policy Plan in the Netherlands. “Covenants” targeting reductions in greenhouse gas emissions and other pollutants have been signed with more than 50 industry sectors.

From industry’s perspective, such agreements can be interesting, especially to the extent that they provide opportunities to reduce compliance and enforcement costs and provide flexibility to firms. An important question is to what extent governments can be expected to respond with more traditional binding measures, in case the agreements do not work or are not adhered to.

An examination of the use of the different types of voluntary agreements indicates substantial variation among areas. Some 300 negotiated agreements have been identified in the European Union, compared to about 300 000 local negotiated agreements in Japan. The relatively large number of Japanese agreements reflects the significant role that localities play in negotiating and tailoring standards to reflect local conditions and needs; while not embodied in law, these agreements carry the same weight. In contrast, public voluntary agreements are the most common form of agreement in the United States, where over 40 were identified. The motivation for companies to engage in such initiatives are three-fold: *i*) regulatory gains – which involve the avoidance of potentially costly and burdensome regulations; *ii*) economic gains – associated with more efficient use of inputs, higher sales to “green” customers and image enhancement (which can improve worker morale, etc.); and *iii*) opportunities for more cost-effective burden-sharing among participants (OECD, 1999a).

While they are likely to generate significant positive “soft” effects related to the dissemination of information and awareness-raising, there is limited evidence demonstrating the environmental effectiveness of voluntary agreements which, in fact, seem to provide little incentive to innovate and can be weakened by a lack of credibility, especially *vis-à-vis* public opinion (OECD, 1999a). Evidence suggests that voluntary agreements and negotiated agreements should be used as a part of a policy mix with other economic as well as regulatory instruments. They could also be effective in new policy areas which are not yet fully understood and which are not covered by existing regulations.

Commercial and economic interests

Companies are implementing environmental measures and adopting environmental strategies in the interest of enhancing efficiency, performance and competitiveness. Some firms realise that there are significant opportunities to gain the competitive advantage that accrues to early movers in the environment area. Firms that give priority to resource productivity, process

change, and product innovation can achieve significant performance gains at lower cost. Introducing new technology ahead of regulatory requirements can avoid delays and higher costs later. And there are new business opportunities from entering market niches for added-value and “greener” products and services.

In recent years, companies of all sizes from a variety of sectors have realised a wide range of both tangible and intangible benefits from their efforts to reduce waste, maximise resource efficiency and design or redesign products and services while taking the environment into consideration. A number of eco-efficiency initiatives have produced quantifiable data linking proactive companies with environmental and financial savings (**Box 2**). As defined by the World Business Council on Sustainable Development, “eco-efficiency is reached by the delivery of competitively priced goods and services that satisfy human needs and bring quality to life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the earth’s carrying capacity” (WBCSD, 1996). In this, reducing material and energy intensities are in the natural interest of firms which want to minimise costs with a view towards increasing profits. Other aspects of eco-efficiency – such as enhancing recyclability and maximising the use of renewable resources – may be more difficult to address on this basis, particularly if they are not cost-effective.

In addition to the cost benefits that are often associated with eco-efficiency, some companies have realised that there is substantial consumer interest in “green” merchandise. The appliance manufacturer Electrolux, for example, developed a line of products with high environmental performance characteristics which, in 1996, accounted for 5% of sales and 8% of profits. By 1998, the differentiated product line accounted for 16% of sales and 24% of profits. Striving for environmentally friendly choices, Ben & Jerry’s developed a new container, the “Eco-pint”, made from unbleached paperboard with a non-toxic printable clay coating which has become part of their customer appeal. Another example is Interface, which conceived a new way of doing business by leasing rather than selling commercial flooring and then retaking the flooring and re-manufacturing it into new products.

Box 2. Corporate case studies of eco-efficiency

Cost savings

The **3M Company** (a US-based producer of diversified industrial products) adopted a *Pollution Prevention Pays Program* which in the period 1975-96 prevented 750 000 tons of pollutants and saved USD 790 million. During the same period, the company achieved an energy efficiency improvement of 58% per unit of production or per square foot of office and warehouse space in its operations in the United States. In 1996, the company announced a breakthrough in the process for making medical adhesive tapes that reduces energy consumption by 77%, cuts solvent use by 2.4 million pounds, lowers manufacturing costs and cuts manufacturing cycle time by 25%.

Risk management

STMicroelectronics (a French-based electronics firm) developed a productive use for sludge which allowed the company to divert 100% of the sludge previously destined for landfills, to cement production. The main motivation was to reduce the risk of having to pay higher disposal costs, which were rising with regulatory tightening on landfill. By providing the sludge as a by-product, the company was guaranteeing itself a predictable cost. At the same time, there was a beneficial environmental effect (*i.e.* less waste disposal by STMicroelectronics, and decreased need for the cement industry to extract raw materials).

Business expansion

The Beacon Press (a UK-based printing company) developed an environmentally-friendly, waterless printing system which – in addition to doing away with the use of water – eliminates the need for ozone-damaging isopropanol alcohol (and the unacceptable pollutants it produces) from the printing process. In addition to cost and waste savings, the company has expanded their market by providing a superior product that has met corresponding increases in demand. The company has been able to achieve significant production increases, which is notable in light of the degree of traditional fluctuations in demand.

Source: Justus, 2000 and WBCSD, undated.

The competitive advantages that can be achieved by companies that pursue “green” strategies is supported by some empirical analysis, though questions remain. Work conducted by Hart and Ahuja (1996), Konar and Cohen (1997) Khamman and Damon (1999), for example, show that US firms that have reduced toxic wastes have experienced favourable effects on performance (if not in the short run, then over longer time periods). Studies carried out by Levy (1995) and Hamilton (1995), however, do not find positive relationships, nor do three Canadian studies (Lanoie *et al.*, 1998; Laplante and Lanoie (1994); and Cormier *et al.*, 1993). The different results in part reflect the different ways in which the analysis was performed. Overall, it appears that there is evidence of a

positive relationship between environmental and commercial/financial performance on items such as sales growth, return on assets and valuation of intangible assets. While the evidence does not hold up well when looking at short-term variables such as stock market valuations, as discussed later, the situation may be changing.

The success that some companies have had in identifying and pursuing “win-win” environmental opportunities may, however, represent only a small fraction of the potential. Within sectors, for example, there are disparities among companies that cannot be readily understood. In these and other instances, the failure to exploit opportunities more profoundly and broadly could reflect the costs associated with the discovery, collection and evaluation of information; organisational impediments; and difficulties in assessing the benefits that various initiatives could yield (OECD, 2000a). Issues related to the availability and rationing of capital may also be significant in some instances.

Corporate image

Corporate image is an important aspect of a company’s marketing strategies and can be a significant driving factor for improving environmental performance, particularly in high-visibility issues where public concerns are greatest. It is also becoming key to the marketplace, where consumers are becoming more selective in their purchasing decisions. The role of the public is in fact becoming stronger with regard to promoting corporate responsibility on various fronts, including through boycotts that affect the image of companies while reducing sales. A survey of 25 000 consumers in 23 countries found that 23% of the consumers had “punished” a company in the past year for behaviour that was deemed to be socially unacceptable (Enviroics International Ltd., 1999).

For some firms, adopting a greener corporate image is a proactive marketing strategy. For example, Ben & Jerry’s advertises the environmental and social ethics of the founders and the environmental soundness of all its operations. The Body Shop bases its appeal on the friendliness of its production processes to both the environment and animals. Interface Inc. (a producer of broadloom carpets, textiles, chemicals, architectural products and flooring systems) markets the strategies and visions of its CEO to become a fully sustainable enterprise, including closing the manufacturing-use-recycle loop for major materials. Both IKEA (home furnishings) and Home Depot (home improvement retail) developed environmentally friendly product lines to appeal to a certain customer base.

For other firms, the greening of the corporation is a reactive strategy to consumer dissatisfaction with their operations. The public reaction to the proposal to dispose of the Brent Star in the North Sea was one of the principal factors spurring Royal Dutch/Shell to modify its corporate principles, policies and practices to include a commitment to sustainable development. In the case of athletic footwear, 99% of world production is sourced in Asia. The largest companies (Reebok, Nike, Adidas, Hi-Tec and Puma) differentiate their products on the basis of design and image (as opposed to cost and quality). In the mid-1990s, these companies found themselves having to defend the poor working and environmental conditions in their Asian facilities. Nike, for one, took actions to improve conditions through a redesign of its product that eliminated the use of toluene (a hazardous chemical widely used in shoe production) and by supporting a series of research initiatives on manufacturing processes, while establishing an independent programme to monitor facilities.

The results of adopting an environmentally friendly corporate image are mostly positive, as companies which have used environmental responsibility as a means of enhancing their reputation or brand image have been shown to have increased sales and to have attracted investment capital. A 1996 study conducted by ICF Kaiser International, an engineering, construction and consulting firm, examined the policies and performance of 300 large companies. The study concluded that “adopting a more environmentally proactive posture has, in addition to any direct environmental and cost-reduction benefits, a significant and favourable impact on the firm’s perceived riskiness and, accordingly, its cost of equity capital and value in the marketplace.”

As discussed at the Forum, corporate image also has important implications for human resources. The ability of a firm to recruit, retain and motivate employees, for example, is seen as being tied in part to its image. Firms with poor environmental and social records are seen as being disadvantaged in recruiting and retaining employees, and are more likely to experience morale problems. Firms with more progressive records and goals, on the other hand, are seen as more likely to become “employers of choice”, an “intangible” distinction that would help to attract higher calibre workers.

Codes of conduct

Firms are institutionalising their approaches to environmental issues through the adoption of principles or standards that are designed to promote improved environmental performance. These are commonly embodied in codes of conduct that are either developed by the firm itself, or through joint efforts

with other stakeholders (see OECD, 1999b and Mega, 2000).² Such codes provide frameworks that have the potential to change the way that companies view their business operations – from the selection and sourcing of raw materials, to the design, manufacture, distribution and discard (or recycling) of products.

A recent examination of 1 600 firm-level codes in Europe reveals significant differences in their use and content among countries and industries (OECD, 2000b). The analysis indicates that firms with relatively high environmental impacts are considerably more active in developing guidelines and reporting on performance than other types of firms, and that there is also considerable variation among countries in these (Annex B, Figures B1-B3) (OECD, 2000b). On an industry basis, the forestry and paper sector has taken a leading role in key areas, while service sectors with relatively low environmental impact are far less engaged (Annex B, Figure B4).

In commenting on these codes, one Forum participant underscored the importance that workers could play in designing and implementing codes. This was already occurring to a growing extent through the incorporation of environmental elements into collective bargaining agreements. The agreement that Canadian automotive workers union had negotiated with management was a case in point. On the implementation side, work done by UNEP emphasised the need for employee involvement to help ensure that environmental principles and objectives were integrated effectively into work environments.

A description of the main types of codes being used by industry follows. They include codes that: *i*) articulate general guidelines and principles; *ii*) provide the structure for environmental management systems; *iii*) establish reporting guidelines; *iv*) focus on specific sectoral approaches to environmental challenges.

General guidelines and principles

Codes providing general statements of environmental principles are numerous worldwide. At the international level, such codes include the OECD Guidelines for Multinational Enterprises, which devotes a chapter to environmental matters. The Guidelines were revised in 2000, with a substantial strengthening of the provisions related to the environment. Specifically, multinational enterprises are now encouraged to raise their environmental

2. Those involving governmental entities are discussed above in the section on “Government policies and regulations”.

performance through improved internal environmental management and better contingency planning for environmental impacts (OECD, 2000c). In addition, the International Chamber of Commerce's (ICC) 16-point Business Charter for Sustainable Development, which was initiated in 1990, identifies the generic principles that businesses should adopt in the field of environmental management (see Annex C). While the approach endorsed by the ICC is probably in evidence in many areas, endorsement by firms is uneven. As of 1997, some 2 000 entities worldwide supported the ICC Charter, of which some 748 of the companies (about one-third of the total), were in Malaysia. In contrast, the number of supporting companies located in G7 countries totalled only 447, led by the United Kingdom (111), the United States (86) and Germany (84). The uneven and limited support could reflect a number of factors, including the existence of numerous competing and related initiatives at the national and sectoral levels.

Environmental management systems

One of the key actions that firms have taken to improve the way in which they identify and respond to environmental challenges is the development and implementation of environmental management systems. Such systems seek to identify ways and means for establishing, monitoring and evaluating environmental objectives. The number and types of systems vary, ranging from firm-designed, customised approaches, to highly standardised mechanisms. The International Organisation for Standardisation (ISO) has contributed to this latter area through the development of a series of voluntary guidelines and standards (the 14000 series).³

ISO 14001, published in 1996, specifies five principal elements that are to be included in systems (Kirby, undated). The first concerns *environmental policy*. Top management is required to commit its organisation to pollution prevention, regulatory compliance and continual improvement, to provide a framework for setting (and reviewing) objectives, and to communicate the policy to employees. In support of the policy, a *planning* mechanism must be in place that addresses commitments, legal requirements, technological and financial options and the views of interested parties. Proactive programmes must be designed that assign responsibility clearly while providing a means and a time frame for meeting objectives. In terms of *implementation and operation*, the standard requires companies to develop documented procedures and work

3. The European Council adopted a related Eco-Management and Audit Scheme in 1993, under which companies voluntarily commit to continuous improvement in environmental performance.

instructions to carry out their plans. Procedures for *checking and corrective action* also have to be in place, as does a system ensuring *management review*.

The ISO standard appears to be a promising one that can help support a more spontaneous, holistic response by companies to environmental issues by changing the way they think about, and react to, challenges in the field of environment. It is not, however, a means through which environmental performance will necessarily be raised. The standard does not, for example, attest to the environmental attributes of a product, nor does it certify compliance with any national or international regulation, nor does it mean that facilities have been inspected to determine their “environmental” performance (Corbett and Kirsch, 2000).

Industry interest in the ISO standard has been rising, for a number of reasons. Customers, for example, are demanding more often that companies and their suppliers be part of a total “supply chain” which is environmentally sound. In addition, certification can improve the public image of companies, leading to market advantages. In fact, many firms are using certification as part of a proactive environmental communications strategy that showcases environmental commitment. On the cost side, conforming to ISO 14001 is requiring firms to view their operations in a more comprehensive fashion. In some cases, this has resulted in the development of more cost-effective, integrated procedures and approaches. In addition, the contribution that an environmental management system can give to crisis prevention (as opposed to crisis management) can be significant. Other benefits include regulatory relief; while some countries have been hesitant to offer such relief, others – such as Mexico, the Netherlands, Brazil and Japan (at the prefecture level) – have been more forthcoming.

There are now about 10 000 firms certified for ISO 14001 worldwide, meaning that they have an environmental management system in place. The geographic distribution is, however, skewed, as some 50% of the certified companies are in the European Union, 20% in Japan, 16% in the rest of Asia, a mere 3% in the United States, 1% in Latin America and about 10% in the rest of the world. The regional disparity reflects a variety of factors. In some areas, governmental agencies have made certification a condition for bidding on contracts. In others, the perceived costs and resources required to gain certification could be a deterrent, as could the questionable value of certification to companies which already have an effective environmental management system in place. In the case of North America, the “lack of a compelling reason for business to adopt the standard” has been cited for the relatively low level of interest (Anderson, 2000). This is supported by a 1997 study which concludes that most global corporations have environmental management systems in place which are more advanced than ISO 14001 (US-AEP, undated).

The importance of such systems for firms was stressed at the Forum. In the case of Bayer AG (a leader in the chemical and health-care industries), an integrated system which drew together health, safety and environmental concerns was essential to the way the company operates, given the diversity of its products, the large number of countries in which it has operations, and the different regulatory environments prevailing in the different countries and areas (Viefers, 2000). To maintain coherence and effectiveness, the company has articulated a common approach and goals which are applied universally to all its operations throughout the world. Individual units are responsible for adapting and refining corporate objectives in these areas, with the parent corporation assuming the role of monitoring and policing performance. Continuous improvement was at the heart of the system. The same was true for Schneider, which has also been actively encouraging suppliers to develop environmental strategies (Basset, 2000). Rather than insist on adherence to specific regimes (like ISO 14001 or EMAS), however, the company had adopted a more flexible approach that requires evidence that suppliers have an environmental strategy and that they have an organisation in place for carrying the strategy out. This was viewed as a more pragmatic and effective way of addressing the matter, particularly in developing countries that were not in position to develop and adhere to more formal systems.

This flexible approach adopted by Schneider contrasts with the approach being taken by a number of other firms. Ford and General Motors, for example, have announced that their suppliers will need to be certified under ISO 14001 in order to do business with them (Anderson, 2000).

The different approaches received considerable comment at the Forum. There was concern that firms that did not have the resources to implement formal plans would be discriminated against, and that the burden might fall unfairly on developing countries where, it was noted, environmental goals and priorities might be quite different from those prevailing in many OECD countries. On the other hand, governments were seen as playing an important role in improving environmental awareness in SMEs. This had occurred in Finland through a localised programme that helped smaller enterprises identify ways in which environmental stewardship could improve performance. The programme was not complex, was easy to use, and resulted in impressive waste reduction.

Reporting guidelines

The effectiveness and significance of industry efforts to address environmental challenges can only be judged to the extent that firm performance can be evaluated. Reporting and accounting mechanisms are key in this respect. They are also a key means through which environmental

consciousness can be raised. While much reporting currently occurs worldwide, it is largely unstructured, with firms, business organisations, governments and NGOs using a multitude of programmes with different scopes and characteristics. All of the world's largest industrial concerns, for example, issue separate environmental – or environmental, health and safety – reports, with a good number also including information on environmental activities in their annual reports (**Table 3**). While underscoring the rising interest in environmental issues, the proliferation of approaches may be diminishing their individual and collective effectiveness.

Initiatives are, however, being taken to address this. As discussed at the Forum, the initiatives include one being pursued by the Coalition for Environmentally Responsible Economies (CERES), which established a Global Reporting Initiative (GRI) in 1997. The intention is to promote “international harmonisation in the reporting of relevant and credible corporate environmental, social and economic performance information to enhance responsible decision making”, and in doing so, to raise reporting standards to the level attained in most countries for financial reporting. Work towards this goal is proceeding through the development of: *i*) a set of core metrics applicable to all business enterprises; *ii*) sets of sector-specific metrics; and *iii*) a uniform format for reporting these metrics and related information. Draft guidelines were prepared and released in March 1999 for public comment and pilot testing (GRI, 1999). The guidelines are structured to provide stakeholders with reliable information in accordance with accepted external reporting principles; in a uniform format that facilitates comparison with other enterprises; and in a way that illuminates the relationship between an enterprise's financial performance and its performance on the three aspects of sustainability – environmental, social and economic. As of June 1999, some 21 companies from a broad range of industries had agreed to participate in the pilot testing of the guidelines.

Table 3. Treatment of environmental issues in corporate annual reports

Corporation ¹	Sector	Country of headquarters	Type of environmental reporting	Treatment of environmental issues in 1999 Annual Report (except as noted) ²
General Motors	Motor vehicles and parts	United States	Environment, health, safety	Section on corporate and social responsibility
Exxon Mobil	Petroleum refining	United States	Environment, health, safety	Section on safety, health and environment
Ford Motor Company	Motor vehicles and parts	United States	Environment	Several references in the Chairman's letter and the body of the report
DaimlerChrysler	Motor vehicles and parts	Germany	Environment	Section on environmental commitment and activities
Toyota Motor	Motor vehicles and parts	Japan	Environment	Discussed in the message from management, with scant reference thereafter (2000 report)
General Electric	Diversified (manufacturing, financial)	United States	Environment, health, safety	Several references to environmental issues and costs
Royal Dutch/Shell Group	Petroleum refining	Netherlands	Environment	Describes the company's Social Responsibility Committee; several other references made to environmental principles. Calls attention to separate report on environmental issues
International Business Machines	Computers; office equipment	United States	Environment	References separate report on environmental issues
BP Amoco	Petroleum refining	United Kingdom	Environment	Section which reviews environmental and social performance
Volkswagen	Motor vehicles and parts	Germany	Environment	Section on environmental principles and activities
Siemens	Electronics, electrical equip.	Germany	Environment	Scant reference
Hitachi	Electronics, electrical equip.	Japan	Environment	Section on environmental activities
Matsushita Electrical Industrial	Electronics, electrical equip.	Japan	Environment	Section on environmental performance and activities
Phillip Morris	Tobacco	United States	Environment	Paragraph on environmental conservation project; references separate environment report
Sony	Electronics, electrical equip.	Japan	Environment	Section on environmental activities; references separate report (2000 report)

Note: Companies are listed according to revenues.

1. Excluding telecommunications, trading and financial firms.

2. Does not include reporting on environmental litigation.

Source: Companies are listed on the basis of the Global 500 list published by Fortune.com (undated). Comments on environmental reporting are based on a review of annual reports, as published on each company's Internet site, and OECD database on codes of conduct.

If successful, the GRI would meet an important need for standardised information that could be used to assess the relative performance of firms and industries in key areas. This would help answer the calls from the financial community for a more effective and systematic treatment of the environmental aspects of specific firms. It would also benefit individual firms, which would have a means to measure their environmental performance against other firms in key areas, while learning about ways in which their performance could be improved (through the more comprehensive information exchange). Similar benefits would accrue to other stakeholders (such as government agencies, NGOs and the public at large).

Sectoral agreements

At the industry level, codes of conduct have been developed by corporations in particular sectors which allow them to focus on those elements with particular relevance to their operations. Additionally, they provide opportunities to establish objectives that may go significantly beyond what might be possible in a more generic context. A survey conducted by UNEP in 1998 identified 27 such commitments in the European Union, some 14 of which were associated with the chemical industry's "Responsible Care" programme (UNEP, 1998). In Japan, while a generic commitment for industry was put in place by the *Keidanren* industry association, all major branches of industry – including manufacturing, energy, distribution, finance and construction – drafted their own codes. In the United States, most unilateral commitments are associated with the chemicals industry, with the exception of one sustainable forestry initiative.

The "Responsible Care" programme was discussed in further detail at the Forum. The programme, which is monitored by the International Council of Chemical Associations, is based on a set of principles which commit a company to manage its activities so that they present an acceptably high level of protection for the health and safety of employees, customers and the public, and for the environment (ICCA, 1998). Participation in the programme is high, being present in 42 countries and representing over 85% of world chemical production. The incentive for companies to participate in the programme varies. In the case of Canada (which is where the initiative originated), the programme was prompted by growing pressures on the industry to improve performance in light of major accidents – such as Love Canal. The consequences of not taking action were significant in light of a growing threat of new legislation, consumer boycotts and local pressures. In the United States, public concerns about the manufacture and use of chemicals was a driving force (ACC, undated). Image was also a factor, as a 1989 survey found that the chemical industry ranked only above the tobacco industry in terms of its public image (OECD, 1999a). The

context in France was quite different when the industry launched its initiative in 1990 as there had been no major accidents and there was no threat of new legislation. As a result, the country's programme is less ambitious, leading some to conclude that it is unlikely to have much impact on firms' environmental performance – a tendency which appears to have been confirmed by monitoring data (Börkey and Glachant, 1997).

Financial/investment community pressures

Environmental stewardship is increasingly being assessed in terms of the positive contributions it can make to firm performance and shareholder value. The financial community (commercial banks and insurers), began to change their perspective during the 1980s, as the consequences of environmental negligence by firms mounted (Descano, 1998). Lending agencies found themselves liable for the environmental degradation caused by companies that had been foreclosed and insurance companies were affected by rising claims from new environmental liabilities. With the stakes rising, a group of financial institutions and insurance companies separately developed sets of principles pertaining to environmental performance and sustainable development under the auspices of the United Nations Environment Programme (UNEP, 2000a and UNEP, 2000b). These initiatives underscore the importance of routinely identifying, quantifying and evaluating environmental risk along with other risk factors in connection with loan, insurance and related activities.

Beyond the environmental risk aspects, the growing evidence that companies which address environmental issues effectively outperform other firms is increasing investor interest. According to research by Innovest Strategic Value Advisors, an investment advisory firm, there is a strong, positive and growing correlation between companies' eco-efficiency and their competitiveness and financial performance (Kiernan and Martin, 1999). An assessment done by the firm on UK large-capitalised stocks shows that the total returns of top-rated eco-efficient firms outperformed others by over 26% during the December 1997 to April 1999 period. The results were similar to a related assessment conducted on the Standard & Poor's 500 universe of stocks.

Dow Jones & Company has developed for investment purposes a Sustainability Index comprised of companies that are leaders in sustainability in their respective industry groups. These include producers of basic materials (such as steel and paper), as well as electronic component makers and financial institutions. In addition to efficient and effective use of resources, evaluation criteria include the way the companies are managed and their interface and relations with investors and society (Dow Jones Sustainability Group Index, 1999). Dow Jones concluded that a company's decision to pursue sustainability

provides insight into one of the most important factors that investors should consider when deciding to buy stocks – the quality of management (Moran, 1999). As in the case of the Innovest analysis, the Dow index indicates that companies with a strong commitment to sustainability have performed better than other companies in recent years. On a global basis, the increase of share values of sustainability leaders was more than 65% higher than the industry average from December 1993 to mid-2000 (Sanchez, 2000).

Interest in investing in sustainability is also reflected in the establishment of a number of investment funds that focus on companies that meet high environmental standards – including the Environmental Value Fund and the Global Care Asia Pacific Fund (Descano, 1998). In the case of the Value Fund, factors that are taken into account in making investments include the impact of a company on global warming, its contribution to ozone depletion, toxic releases, water use, energy intensity, materials use efficiency, environmental liabilities, and environment management quality. Special loan programmes are also being developed for sustainable companies. NatWest in the United Kingdom is offering middle market firms with superior environmental performance an interest rate benefit of 100 basis points (Descano, 1998). Sumitomo Bank in Japan is extending specially priced loans to small and medium-sized enterprises that are designed to enhance “eco-efficiency”. In the insurance sector, one firm has been extending certain chemical manufacturers discounts of up to 30% on premiums for environmental impairment liability insurance, based on their compliance with the “Responsible Care” programme.

Despite the intensified arguments advocating a positive relationship between strong environmental performance and shareholder value, the linkage between the two often seems weak.. A survey of selected security analysts and chief financial officers conducted in 1996 in the United States found that while environmental factors were taken into account by analysts, they were not among the key criteria used for corporate valuations (Gentry and Fernandez, undated). Cash flow and earnings growth were two of the top three quantitative valuation factors for both groups, with margins and return on equity also high on the list. Both analysts and financial officers rated environmental factors as the least important among quantitative and qualitative factors, except where expenditures to address liabilities or assure regulatory compliance would affect financial performance. In general, the lack of an effective means to link environmental and financial performance represents a barrier preventing broader consideration of environmental factors. Where such factors are considered, they rely principally on financial filings (SEC) and annual reports, with little attention paid to more specialised and comparative information.

This differentiation means that many financial analysts will be cognisant of the environmental liabilities facing firms (which must be reported in financial

statements), but they may be poorly informed about the long-term benefits that good environmental stewardship may be providing to companies. This point was made during the Forum, when one company noted that the announcement of environmental initiatives was often quickly followed by a decline in stock prices as financial analysts focused on the cost aspects of such initiatives, with little apparent appreciation for the benefits. This underscored the need for effective communication, but, as pointed out by the financial analysts participating in the Forum, it also required firms to take a broader view of such initiatives (Sanchez, 2000; Brown, 2000). Opportunistic traders might influence short-term movements in share prices, but their actions were not seen as having lasting influence, particularly in view of the growth in the number of investors (funds and individuals) who were focusing on longer-term growth potential.

A number of Forum participants were, however, sceptical. Indeed, there is ample evidence that successful companies are not necessarily the most environmentally sensitive. Moreover, financial markets do not appear to discriminate strongly between companies on the basis of their environmental records. Nor is it clear that companies are internalising environmental factors to the extent that would enable markets to be truly effective. Despite these reservations, the trend towards increased environmental (and related) screening by investors cannot, however, be denied. In the case of the Dow Index alone, the assets under management that were tied to the Index had risen from an initial level of about EUR 10 million in September 1999, to EUR 1.5 billion in September 2000 (Sanchez, 2000).

STRUCTURAL FACTORS

The extent to which firms respond to the factors that are driving forward-looking environmental management is influenced by a number of structural factors. These include the size of the firm, its industrial sector and the nature of public/private governance (Table 2). It is not surprising that larger firms are more active than smaller ones in adopting environmental management. Larger firms are able to exploit economies of scale that lessen the cost of supporting and implementing environmental programmes.

Smaller enterprises generally lack the capital for environmental investments and tend to be more ignorant of their environmental impacts and the legislation that governs their activities, less aware of the importance of sustainability, less knowledgeable about the benefits of self-regulation and the management tools that could assist them in improving environmental performance; and generally difficult to reach, mobilise or engage in environmental improvements (Hillary, 2000). There are exceptions, of course, such as the case of Ben & Jerry's (premium ice cream) or The Body Shop (personal care products) that started out as small enterprises whose products were targeted to niche environmental markets but which have now become multinational enterprises. Another exception is the range of small and medium-sized firms that have been created since the 1980s to provide pollution prevention and control equipment and services.

Different industry sectors have environmental challenges that vary considerably in scope and intensity, which, in turn, affect their environmental activities. The chemical, steel, petroleum, mining and automotive industries, for example, have to confront major environmental issues, while other sectors such as electronics or many services have fewer or more benign environmental problems. Those sectors with the most at stake appear to be the most active. Within sectors, however, there are also disparities that cannot always be readily understood, particularly when there are clear "win-win" situations. In such instances, the failure to exploit opportunities more broadly could reflect the substantial discovery costs that are sometimes associated with the collection and evaluation of information, the challenges associated with introducing organisational changes that may be required, and an underestimation of the potential benefits that various initiatives could yield. Also, firms that specialise

in narrowly-defined product areas tend to be more effective than highly diversified firms in identifying environmental opportunities at relatively lower cost (OECD, 2000a).

Publicly traded firms tend to be more active in environmental management due to pressures from shareholders (particularly those which support environmental causes). Companies that rely on internal sources of capital are more likely to be in a position to finance environmental initiatives (*i.e.* due to the fact that they are likely to be subject to fewer constraints) (OECD, 2000a). In addition, there is some evidence that government-owned firms are slack in environmental performance because of weaker enforcement. There is less evidence to support hypotheses that foreign firms or companies with younger capital stock are consistently associated with better environmental performance.

Table 2. **Structural factors in firm environmental performance**

Characteristic	Hypothesis: higher environmental performance may be associated with ...	Evidence suggests that the hypothesis is ...
Firm size	Larger firms	Generally supported
Ownership	Publicly traded firms	Generally supported
Sources of capital	Firms that rely on internal sources	Generally supported
Government role	Privately held firms	Generally supported
Diversity of product lines	Firms that are specialised	Generally supported
Exposure to international competition	High degree of international trade	Weakly supported
Age of capital stock	Newer equipment	Not supported
Foreign ownership	High levels of foreign ownership	Not supported

Note: Conclusions based on a review of approximately 20 studies cited in the source document.

Source: OECD, 2000a.

CONCLUSIONS

Through their respective regulatory and economic environments, governments do much to influence the way that corporations address environmental challenges. The decisions that firms make in such environments, however, often tend to be reactive and conservative. Their objectives are simply to assure compliance with established standards, or to structure operations in ways that take full advantage of the incentives governments may have introduced to, for example, increase energy efficiency, recycling, etc.

Finding ways to induce companies to go beyond mere compliance (*i.e.* become more proactive), is a more daunting challenge that nonetheless deserves attention in view of the significant, positive effects that it could have on behaviour. In the past, oil spills, chemical explosions and other disasters have provided powerful catalysts that have worked to sensitise companies to the need to integrate social and environmental considerations more effectively into the way their businesses are run. Reliance on such catalysts obviously has downsides, however, and there are questions concerning the durability of the sensitivity over time, and the degree to which such sensitivity tends to penetrate an organisation.

It seems clear that economic interests can play an important role in driving proactive approaches to environmental challenges, and that this an area which could be exploited far more effectively. These interests go far beyond the “win-win” situations in which reduced use of energy and materials enhances financial performance while diminishing environmental impacts. They also involve finding ways in which mandated environmental actions can be redefined in a corporate context into opportunities. This is being pursued by leading firms through the development of increasingly “holistic” environmental management systems which are being designed to enable companies to respond to the changing demands placed on them by society (*i.e.* governments and civil society alike) in an integrated – often anticipatory – manner. Such behaviour is providing opportunities for forward-looking firms to enhance their image – which can carry a substantial commercial benefit – and is enabling them at the same time to “cash in” on the growing consumer interest in “green” products, practices and processes. Internally, companies are finding that the more proactive approach has important spill-over effects on the workforce,

particularly to the extent that it helps to attract, retain and motivate qualified workers. The more forward-looking and comprehensive approaches to environmental management are enabling companies to lower their exposure and risk to potentially damaging and costly incidents and situations involving the environment.

One of the ways that economic forces can play a greater role in stimulating proactive behaviour is by strengthening the linkages between environmental and financial performance. Investors, lenders and insurers are placing greater weight on environmental and social performance in evaluating investment opportunities, and are pushing the development of instruments which will enable interested parties to screen and monitor corporate performance more effectively in these areas. Interest in the linkage is likely to continue to grow as there is increasing evidence that firms which are leaders in environmental stewardship are increasing shareholder value more than those which have been less ambitious. Much more needs to be done, however, to explore and develop this linkage. Promotion of transparency, standards, auditing and reporting on environmental matters is essential in this regard, as it will improve on the information that is needed to benchmark and evaluate performance. In addition, while voluntary agreements are not by themselves sufficient to improve environmental performance, it is clear that they can play an important role, by providing platforms through which industry can explore ways to address key issues, in specific areas. Governments can support initiatives in each of these areas, by encouraging and/or by assisting companies, or by going further by requiring that certain actions be taken. As indicated at the Forum, however, whether, to what extent, and how government could or should intervene is dependent on individual circumstances.

Whatever is done in these areas, it is apparent that regulation will continue to play an important role in modifying firm behaviour. When proactive firms improve performance, for example, regulatory standards can accordingly be raised to require laggards to improve their performance. In addition, regulation can be important in spurring innovation, by setting ambitious, realistic targets which challenge firms to explore new ways to tackle environmental issues. In formulating such regulation, there is, however, a recognised need for, and value in, stakeholder dialogue. There is, moreover, a corresponding need for consistency in regulation over time, and a need to avoid regulation that results in technology lock-ins.

The ability to promote proactivity will also need to take a number of structural factors into account. Large enterprises with high environmental exposure appear to be particularly active, reflecting the higher risks that they face. Small firms, however, pose difficult challenges. Lack of information and understanding, as well as the costs associated with undertaking and maintaining

initiatives, represent important impediments. This is another area where the governments could play an important role – through technical and other forms of assistance that help smaller firms identify ways in which proactive environmental actions could improve overall firm performance.

Annex A

STRUCTURE OF ENVIRONMENTAL COMMITMENTS

Companies which develop environmental strategies generally follow a similar series of steps. Their overall philosophy is typically embodied in a statement of environmental principles and standards that are endorsed by the company's Chief Executive Office (CEO) or by its board of directors. Most statements express a company's intentions to respect the environment in the design, production and distribution of its products and services; commit the company to be in full compliance with all laws; and establish an open-book policy whereby employees, community members and others can be informed of any potential adverse impacts the company might have on the environment. The elements of a comprehensive framework are summarised below (Justus, 2000).

Objectives and goals

Green design

Green design applies to the design of both products and facilities. Some companies are designing and building environmentally conscious buildings in which the life-cycle costs – the total cost of building, owning and maintaining the structure – are equal to or lower than that of a conventional building. Green product design includes a variety of techniques and strategies, which aim to increase a product's recycled content, eliminate problematic ingredients, or create a system to take back a product or its packaging for reuse, refurbishing or recycling at the end of its useful life. This includes designing products that can be easily upgraded rather than replaced when they become outmoded, or that can be easily disassembled for reuse or recycling.

Green procurement

To help ensure that their products and processes are environmentally responsible, many companies are seeking to buy greener products and materials from their suppliers, or to ensure that their suppliers operate under a statement

of environmental principles. This includes buying recycled paper for office use and products or packaging that reduce waste but do not compromise costs, reliability or quality. Some companies participate in buyers' groups in which they leverage their collective buying clout to push suppliers to provide alternative products or processes, or technological innovations.

Toxics reduction

At the heart of many companies' environmental commitments is risk management through the reduction or elimination of toxic chemicals in their operations. Many engage in pollution prevention, which seeks to reduce chemical waste and emissions by redesigning manufacturing processes that involve these chemicals and implementing safe disposal methods. Others are eliminating problematic chemicals by redesigning products or substituting non-toxic alternatives. Even non-manufacturing companies are finding that they can eliminate or reduce the use of toxics found in office machines, printing processes, cleaning materials, or in the repair and maintenance of vehicles.

Energy efficiency

All companies depend upon energy, whether it is in an energy-intensive manufacturing process such as metals production or the corner grocery store. Using it efficiently cuts a company's cost of doing business. Many companies conduct an energy audit to assess their potential energy and financial savings from a menu of options such as energy-efficient lighting, variable speed drives on motors or process changes. Others might purchase "green" energy from renewable energy sources, promote telecommuting for employees, purchase or lease fuel-efficient or alternative-fuelled vehicles, etc.

Waste minimisation and recycling

Minimising or eliminating waste involves a wide range of initiatives to ensure that materials are not used needlessly, and that all processes – from the front office to the loading dock to the shop floor – are examined for their potential to reduce waste. Waste minimisation is not only confined to manufacturing and offices. Fletcher Construction, an Australian subsidiary of New Zealand's Fletcher Challenge, has shown that it can be applied to the building and demolition sector too. Its RECON system aims to avoid waste creation wherever possible and increase recycling of steel, concrete, timber, etc. The initiative reduced the amount of waste sent from a trial site to the landfill by 43% and saved 55% in waste removal costs.

Employee involvement

Many companies recognise that to be effective, an environmental policy needs to be embraced by employees throughout the firm, not just those in an environmental function. They engage in a variety of activities, particularly training, to help employees understand the environmental impacts of their jobs. Beyond education, some companies create incentives, rewards and recognition programmes for employees who demonstrate their environmental commitment. Some, such as Royal Dutch/Shell, include environmental performance indicators in employee evaluations, bonuses and career advancement.

Community involvement

Some companies, especially manufacturers, work with their communities on environmental issues. They may do this by inviting community leaders and the public into their facilities to see the environmental safeguards and to hear at first hand the company's environmental commitment. Others send employees into the community to participate in a wide range of environmental projects, such as setting up recycling programmes, cleaning up streams or parks, refurbishing homes of those without the resources to do so themselves, talking to school groups, etc. Companies perceived by their neighbours to have potential environmental problems may set up community-involvement groups, bringing together community leaders, citizens, activists and others with company management and employees to share concerns and address problems collaboratively. In a wider sense of community, many "green" companies engage with a wide range of stakeholders including NGOs in developing their environmental strategies and may use these groups for independent verification of their environmental reporting.

Evaluation and control

Environmental audit

An enterprise needs a good understanding of its environmental effects before it can design competent strategies to reduce its impact. This usually involves some kind of environmental audit. The audits identify the type and amount of resources used by a company, product line or facility, and the types of waste and emissions generated. Some companies also try to quantify this data in monetary terms to understand the impact, and are introducing systems of environmental management accounting. This helps to set priorities for where a company can get the greatest monetary return on its efforts.

Monitoring and evaluation

Measuring environmental performance is essential to assess a company's initiatives to gauge whether they are on track in meeting their objectives. They help to measure whether the financial resources are being applied to the best possible effect and set priorities for action. A wide variety of measures are employed, although most focus on three core areas: inputs such as materials and energy; processes; and outputs such as waste and emissions. Many companies also supplement absolute measures with normalised measures that relate environmental impact to an aspect of business activity such as production, e.g. energy consumption per ton of output. This allows extraneous factors such as increases or decreases in production to be screened out.

Normalised comparisons also make it easier to undertake either internal, for example between plants, or external benchmarking, which can be a powerful driver of improvement. A study by the Dutch National Institute of Public Health and Environmental Protection found up to a ten-fold difference in emissions from similar processes in several industries. Both the worst and the best performers were frequently unaware of how they compared relative to others in their industry. Further investigation showed that the reasons were often trivial, for example minor differences in process controls that could be readily changed to produce substantial improvements.

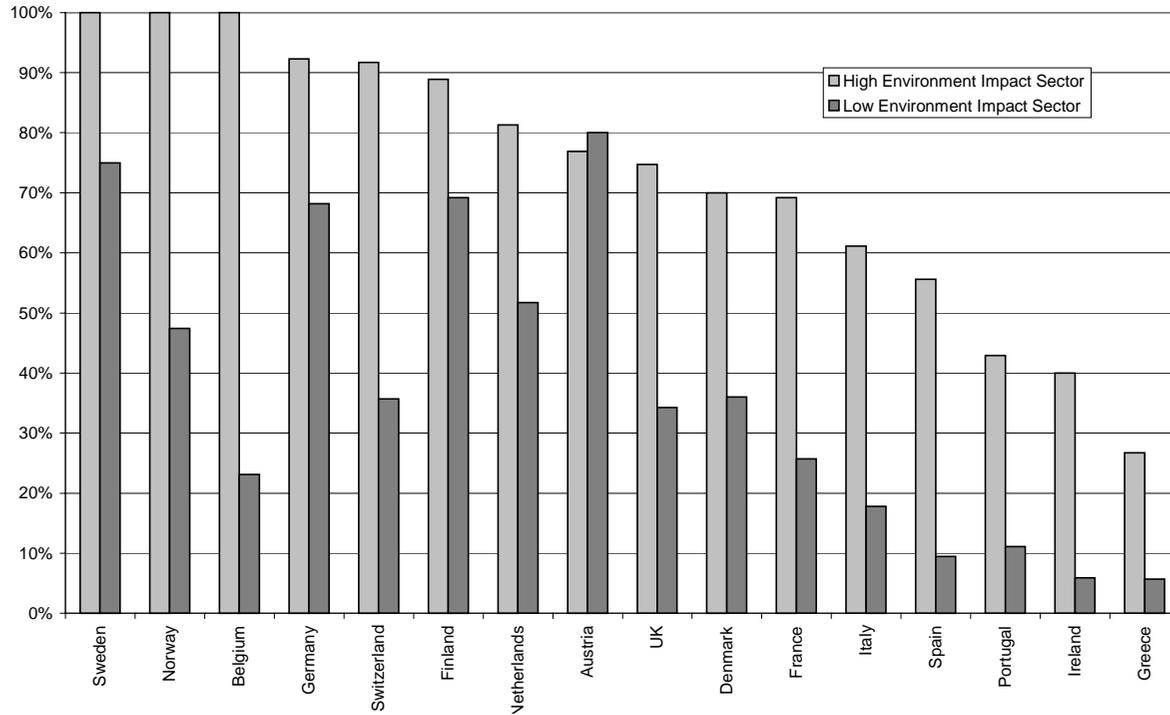
Reporting

Communicating the results of environmental performance evaluations helps to build support for the initiatives among employees and set the course for improvements. Making the results known externally in a transparent fashion helps to build public and consumer confidence that a company's environmental initiatives are more than just a public relations ploy. "Green" companies need to show that they can deliver on their promises, or else they lose credibility.

Annex B

Figure B1. Companies publishing environmental policy statements:
a comparison of high- and low-environmental impact sectors

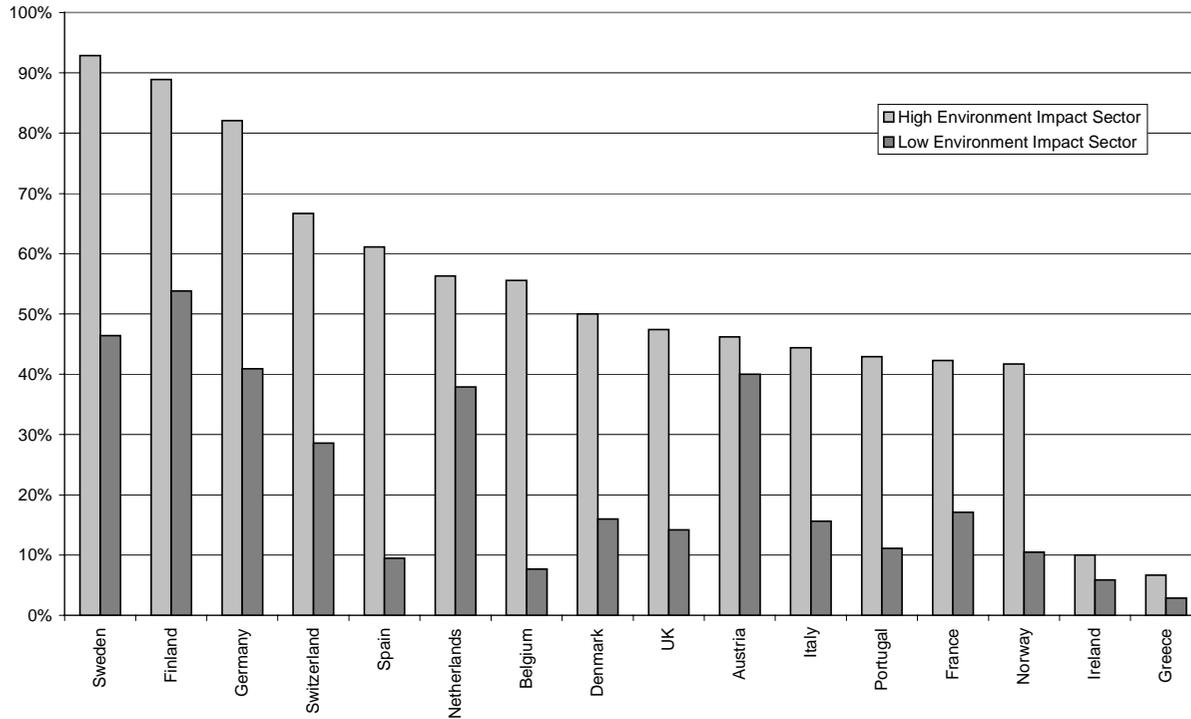
As a percentage of sample by country



Source: OECD, 2000b.

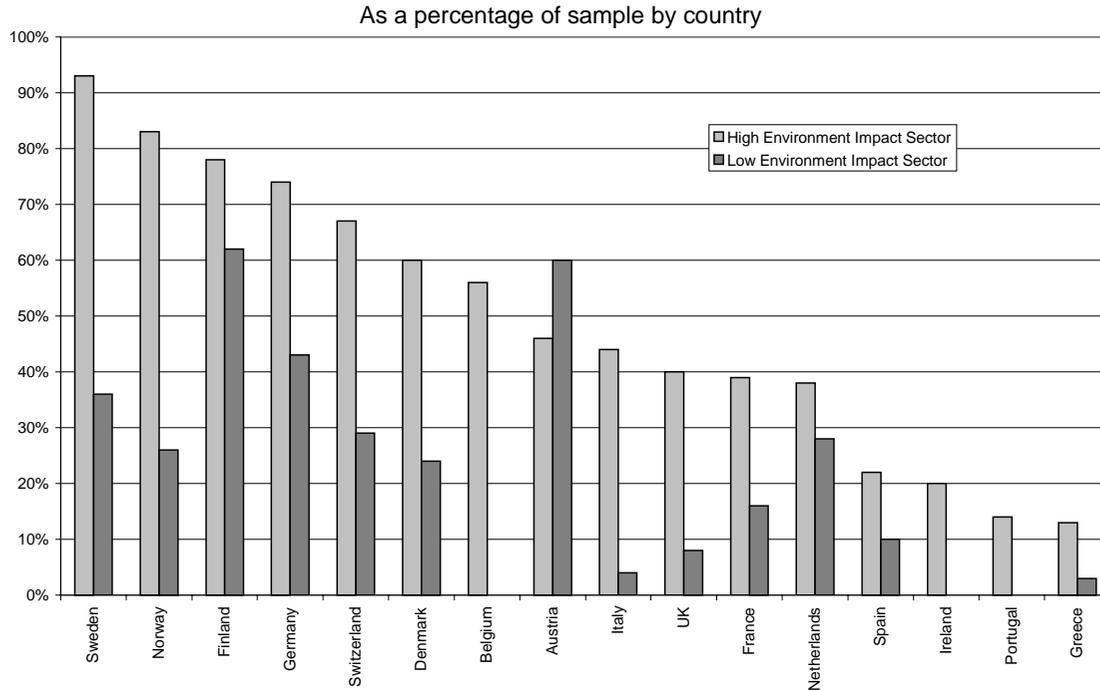
**Figure B2. Companies with environmental management systems:
a comparison of high- and low-environmental impact sectors**

As a percentage of sample by country



Source: OECD, 2000b.

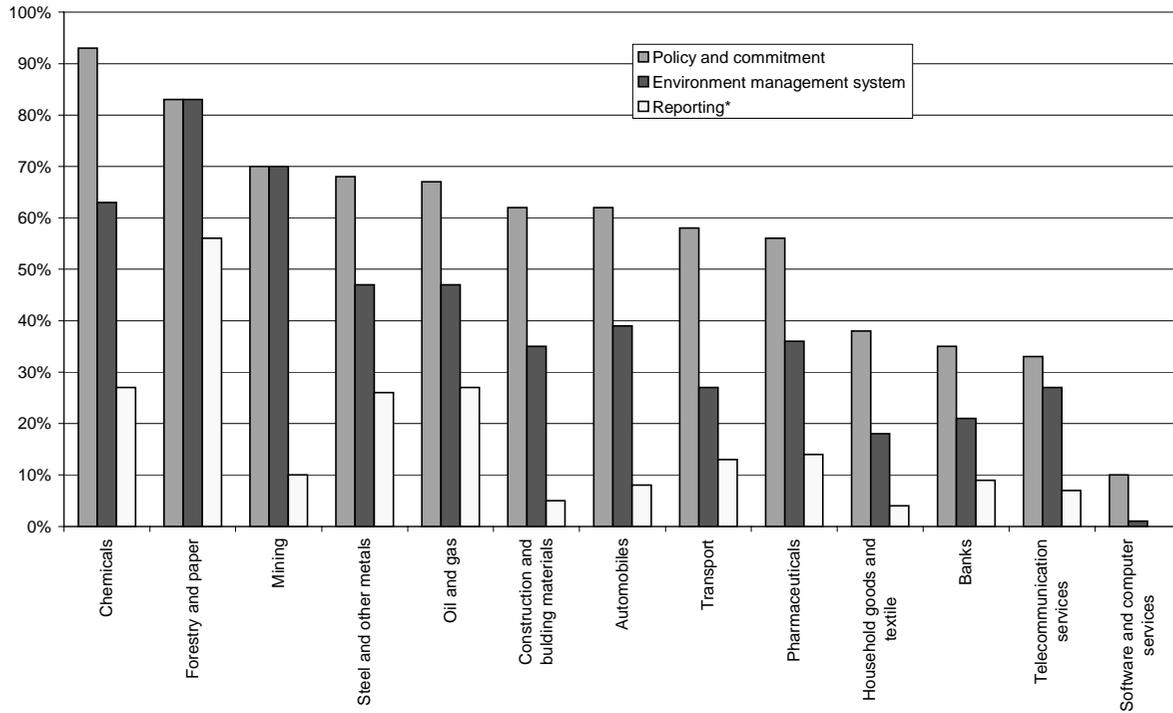
**Figure B3. Companies reporting on environmental performance:¹
a comparison of high- and low- environmental impact sectors**



1. Companies that publicly report more than three essential indicators defined by EIRIS (basic environmental policy, description of main impacts, provides quantitative data, performance against targets) or/and any desirable indicators (outline of environmental management system; non-compliance, prosecutions, fines or accidents; financial dimensions; verification; stakeholder relations or involvement; coverage of sustainability).

Source: OECD, 2000b.

Figure B4. Industry comparison of environmental practices
As a percentage of companies adopting practice by industry



* Companies publishing stand-alone environmental report.
Source: OECD, 2000b.

Annex C

ICC business charter for sustainable development

Corporate priority. To recognise the high priority that should be accorded to environmental management.

Integrated management. To support the integration of policies and programmes into all aspects of *business*.

Process of improvement. To improve environmental performance continuously.

Employee education. To train and sensitise employees on importance of environmental performance.

Prior assessment. To assess environmental impacts prior to commissioning or decommissioning plants.

Products and services. To develop goods and services that are environmentally sound.

Customer advice. To advise customers on the safe use, transportation, storage and disposal of goods (and services).

Facilities and operations. To develop, design and operate eco-efficient facilities.

Research. To conduct or support research on the environmental impacts of operations, and the ways to minimise adverse effects.

Precautionary approach. To modify practices to prevent serious environmental degradation.

Contractors and suppliers. To promote adoption of principles by contractors and suppliers.

Emergency preparedness. To develop and maintain plans to address emergencies, where significant potential hazards exist.

Transfer of technology. To promote transfer of environmentally sound technology and management techniques.

Contributing to the common effort. To support public and private initiatives that will enhance environmental awareness and protection.

Openness to concerns. To promote openness with employees and the public on environmental issues.

Compliance and reporting. To evaluate environmental performance and provide reports to stakeholders and other interested parties.

Source: ICC, undated.

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