

Chapter 1

AHEAD OF THE CURVE: INTRODUCTION

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Whilst it is generally true that the actions of firms to be more environment-friendly are driven by pressures of government regulation, this book aims to present examples of firms and other organisations that have been driven by 'vision' or by expectations of being ahead of regulatory pressures. The book's theme is how organisations are going, or have tried to go, beyond current requirements to arrive at more solid achievements in environmental performance. They are therefore cases that might provide other firms, organisations and policy-makers with ideas for innovative environmental responses that are outside the slowly rising trend of improvement that we are currently observing: firms and ideas that are 'ahead of the curve'.

1.1 Introduction

All organisations, including companies and firms, are increasingly active in dealing with the environmental impacts of what they do. So much so, that it has become harder to characterise their actions in a simple manner. The scope of environmental action has moved from a focus on pollution prevention and abatement to green marketing and strategies for sustainability. In addition, apart from these changes, the range and size of firms involved has also become more varied. Lastly, there has also been increased co-operation between firms and between firms and other social groups, building networks of a wide range of actors.

Companies have expanded their activities beyond a narrow focus on environmental management systems. Currently, company strategies might involve green market positioning, building relations with the local community around sustainability issues and approaching customers on the basis of their ‘green awareness’. It is generally true that most of what firms do is driven by pressures of government regulation; the cases in this book are examples of things that firms and other organisations have done that address this broader focus. A common theme in the cases is an emphasis on the interrelation of the *actions and attitudes of management* (or other decision-makers) and the *context* in which they work. The book’s theme is how organisations are going, or have tried to go, beyond current requirements to arrive at more solid achievements in environmental performance. They are therefore cases that might provide other firms and policy-makers with ideas for innovative environmental responses that are outside the slowly rising trend of improvement that we are currently observing: in short, the cases are of firms and ideas that are *ahead of the curve*.

1.2 Organisations, activities and technology

The case studies show that being ahead of the curve can mean doing a number of novel things. Four chapters focus on the way environmental management is handled internally by organisations (chapters 2 to 5). A second set of chapters deals with collaborative initiatives that have driven innovative ‘ahead of the curve’ activities such as sustainable tourism, car-sharing, and green marketing (chapters 6 to 9). Opportunities for and barriers to the implementation of cleaner technologies of either a more incremental or radical nature are the focus of a final cluster of chapters (chapters 10 to 13).

1.2.1 Organisations

Essential for understanding how environmental innovations emerge within organisations is knowing how organisational ‘routines’ are developed and improved to move those organisations into a more sustainable track. Whether the pressures for change come from outside pressures (such as regulations or environmental campaigning groups) or as part of the adoption of new management systems (such as ISO 14000), organisations need to make sense of what is demanded of them. The step to be taken in one organisation in a specific country may be an incremental one while for another organisation even within the same sector the same step might be a radical change. Studies in the 1980s of the dynamics of interaction between companies and regulatory bodies showed that, for a particular sector, there are considerable differences in the reaction to (upcoming) regulation ([Wallace, 1995](#); [Gouldson and Murphy, 1998](#)). Firms’ standpoints on environmental actions evolved in the longer-term from ‘passive’ to ‘active’, sometimes opposing but often pre-empting regulatory pressures. Scant attention has been paid to companies that operate in sectors other than the traditional industrial ones; so this book seeks to broaden our understanding of company reaction to regulatory and other pressures by looking at sectors that tend to be overlooked: so there are chapters on mobility (Belz), printing (De Bruijn), the financial sector (Schrama, Lawrence) and tourism (Halme).

Formal environmental management has become a common practice in North American and European firms and organisations; there has been a palpable sense of progress in the introduction of environmental management systems during the 1990s (De Bruijn, Groenewegen and Grolin, 1997). Numerous management tools have become available for firms to use. This does not mean that the implementation of environmental management systems is an easy task for firms; drastic shifts in vision are often needed, in addition to all sorts of organisational and managerial changes.

This is exemplified in chapter 2 by Nigel Roome, who describes how a Canadian manufacturer of pulp and paper products used a participative and creative approach to establish a ‘vision’ of its future position and approach to environmental management. The case history shows how the company sought to build a corporate culture which recognised environmental issues and stakeholders as key ingredients of its business process. It chose this approach rather than just applying ready-made environmental tools and techniques in an organisational vacuum. Traditional business strategy objectives such as achieving cost leadership were also part of the visioning process. The contribution of cost leadership to the company’s commercial position has been important and has supported efficiencies achieved through environmental performance. Cost leadership, however, was to be achieved

based on the company's commitment to its values and philosophy with environmental responsibility as an integral element. The case shows that, while the company was able to make significant achievements in environmental performance and to develop its vision based on environmental responsibility, its ability to maintain improvements in environmental performance also depends on environmental practices of the whole supply chain. At that level, the company will not be dealing with change in the relatively uniform culture of a single company but with change in the much more varied cultures and business processes throughout the supply chain, leading to complex processes of negotiating improvements.

In chapter 3, Theo de Bruijn analyses the successful implementation of environmental management in a printing company (called DRUK) in the Netherlands. A main driver for the implementation turned out to be the policy program on environmental management of the Dutch Ministry for the Environment. This program led to a network of intermediary organisations that tried to convince, support and force companies into adopting environmental management systems. As a result, DRUK received a strong signal from a reliable source, its trade association. This, combined with some positive internal circumstances, turned DRUK into one of the leading companies in the Dutch printing industry in the application of new environmental management systems. The case shows that the combination of strong external pressures and the availability of support can make companies receptive to new developments. The fact that different organisations approached the company at the same time increased the chances for success. The most influential organisations turned out to be the ones that already had long-standing relations with the company, since they were seen as the most credible 'messengers', emphasising the need for co-operation of key-players. Intermediary organisations such as trade associations hold a strong position in the Netherlands, and play a vital role in environmental policy processes. These features should be kept in mind in translating the successes to other societies and cultures.

Byung-Wook Lee, in chapter 4, describes the introduction of a waste-costing approach aimed at improving the production process of a steel producer in a newly industrialised country, South Korea. The management of waste in the steel industry is one of the key areas in which environmental and financial considerations need to be in harmony. Lee shows how the introduction of waste-costing and subsequent measures encountered barriers in changing routines and mental models that underestimate the value of waste and the environment. It is difficult to choosing and implement an appropriate option for a plant's specific operations unless its employees are fully motivated. The company's efforts to be 'ahead of the curve' have been inspired by its commitment to cope with global environmental change as

well as being in the forefront of the industrialisation of a ‘developing’ country. Lee suggests that, although initial efforts to implement full waste accounting were not very successful, experience acquired in the process will pay off in the long-term. Two developments support his argument. First of all, the company has initiated a full-scale management reform to support the changes necessary to realise its ambitious environmental goals. The case shows that acquiring the ‘craft’ of pollution prevention is not straightforward. It requires a kind of change that “challenges existing knowledge, skills, routines and standard solutions and the self-evident world in which established communications, interactions and decision-making take place” (Dieleman, 1999: 225). Secondly, new Korean environmental regulations also prescribe and support waste reduction plans in Korea’s large industries. In this case, the proactive stance of the company therefore is partly fuelled by the highly competitive nature of the steel industry and the frontrunner position of Korea in environmental policy-making, especially amongst the newly industrialised countries (Jänicke and Weidner, 1997).

The drive towards merging economic and environmental goals in sustainability is diffusing to sectors outside the industrial core. The increased networked character of the world economy leads to the emergence of new economic players outside the type of firms traditionally concerned with environmental issues. As a result, sustainability has been put on the agendas of financial organisations. Banks and insurance companies have to make trade-offs between short and long-term gains as well as between financial performance and ethical conduct. Most banks are increasingly being confronted with such issues as customer demand for green financial products, and the need for due diligence concerning environmental risks related to loans and investments. While the significance attached to a green or sustainable image varies, considerations of social reputation are important. As Geerten Schrama shows in his case study of the Dutch Rabobank (chapter 5), the natural role of banks is to follow and not to lead societal developments, but banks can still have progressive or conservative leanings. The Rabobank is a progressive bank in this respect; it spends money and time on projects that do not offer obvious returns. Some of these projects are in controversial areas such as the code of conduct on genetic modification. The bank’s historical bonds with the agricultural sector and its co-operative trademark have been important factors in shaping its sustainability policy. The case shows that whereas banks are not likely to initiate sustainability efforts, they certainly can play a role in facilitating these efforts.

1.2.2 Activities

Organisations have engaged in wide range of activities in pursuit of environment goals: the use of environmental management systems, product stewardship programs, community relations etc. (cf. Groenewegen et al., 1996) Some of the new trends that have begun to be described in the literature on environmental management are represented in this book. The first is an emphasis on rethinking the environmental issue as a something *strategic* and long-term that requires a motivating campaign inside the company. While there is a lot written on corporate environmental statements and global agreements between companies to work on sustainability issues, detail on how such programs are implemented in companies is scarce. The second is an increasing focus on the value of *partnerships* in building progressive environmental strategies and in initiating activities which foster more environmentally benign linkages between production and consumption (Hartman, Hofman & Stafford, 1999). While community relations and the building of partnerships are commonly invoked in company transformation processes, they are also observable outside the direct corporate world. Coalitions can be built around various issues, but the contextual factors are not always clear. Phrased differently, what type of coalitions are successful and under what circumstances?

The Bank of America's strong corporate commitment to environmental stewardship was a significant factor in the success of the Carlsbad Highlands experiment involving nature banking, described by Anne Lawrence in chapter 6. However this case also contains some factors that alert us to critical factors in its success. The Bank was unusual in the financial services industry, and certainly among landowners in southern California, in its espoused commitment to biological diversity. Moreover, it had developed institutional mechanisms, in the form of a department of environmental policies and programs, to support these goals. In the absence of such institutional support, it would have been much more difficult to search broadly for solutions that would protect biological diversity. A critical factor in this situation was the establishment of a negotiation process, in this case facilitated by an independent consultant hired by the bank, who brought together potential adversaries to craft a collaborative solution to a complex multi-stakeholder problem.

Edwin Stafford and Cathy Hartman describe a new type of provocative co-operation in chapter 7. They argue that environmentalists have grown frustrated with industry's incremental response to environmental crises, as well as with market barriers inhibiting change, and the failings of government intervention. The pressure on companies to clean up their act (with or without forcing this directly through public campaigns on the

companies or through mediating pressure via governments) does not always lead to sustainable outcomes in the long run. NGOs now sometimes champion specific new technologies and processes that are more sustainable for industry ([Hartman and Stafford, 1997](#)). Greenpeace has adopted such a 'solutions' orientation. Mobilising its grassroots support, scientific know-how, and political clout, it advocates specific environmental technologies, thus blending activism with corporate collaboration. Greenpeace believes it can catalyse 'creative destruction', moving those companies who accept its ideas ahead competitively. Stafford and Hartman deal with the character and factors involved in organising such co-operation with attention to its social ramifications. One possible outcome they discuss is whether the co-operation between powerful entities such as the environmental multinational Greenpeace and important global corporation tends to favor relatively powerful social groups, leaving the cultural and ideological foundations of the present economic system unchallenged.

The partnerships that Greenpeace is engaged in building are based on political motivations that lead to system transformation through the targeting of critical actors. In chapter 8, Frank-Martin Belz discusses the emergence of a new entrepreneurial concept - Mobility CarSharing - that might be part of such transformations. This company is a successful car sharing organisation, but it is more than just this. It is a modern service company offering 'combined mobility'. In 1987 'green idealists' founded two co-operatives in Switzerland, 'AutoTeiletSchweiz' and 'ShareCom'. The development of the concept involved a wide variety of actors, leading to the current situation where alliances with external commercial and public partners form the basis of a widely applicable mobility service. What the chapter shows is that the networks necessary for the evolution of such a service concept in the environmental arena are constructed from mutual benefits between customers and suppliers. These interests might run parallel to the environmental gains made because they also make sense from other points of view. It is in part the national context and national government policies that help to explain the success of this organisation.

Minna Halme and Zinaida Fadeeva deal extensively with the structural and strategic aspects of network formation in chapter 9. They analyse to what extent networks within the tourism industry have moved towards sustainable development. In their view, 'value added' contributions towards sustainable tourism can contain environmental, socio-cultural as well as economic elements. This is relevant because the commitment of various actors to the networking process depends on their contribution to what they perceive as important elements of value to be added. Increased understanding regarding the multiple contribution of network processes to both environmental, socio-cultural and economic goals can enhance the

potential for forming these networks. Halme and Fadeeva argue in their comparison of four European networks in the tourism industry that both the nature of the network and its context partly determine the direction of its added value. All networks cross the private-public sector borders involving both business enterprises, authorities, associations and occasionally citizen groups. Some networks focus on environmental sustainability whereas, for others, socio-cultural aspects of sustainability are more central. The findings indicate that the sustainable development goals are interwoven with other personal, firm, regional or societal benefits provided by the network activity, and that such benefits have an important motivational role in the process in which sustainable development gets implemented a practical level.

1.2.3 Technology and innovation

Technology has always had a prominent role in the debate on the greening of industrial activity (see Green and Miles, 1996). The interest in technology development has two aspects. The first is the introduction of best practice environmental production technologies; this is mainly a result of the activities of companies, and follows the effects of regulation on innovation at the firm level. The other aspect is concerned with technology development as a broader process than that involving individual organisations alone. Attention to these broader processes is growing in direct relation to the necessary actions required for policies to combat climate change.

Companies have a variety of options for the way they deal with the technological side of sustainable production. The key role of technology can be distinguished under four different headings, each of which plays a role in the repertoire of most companies. The first is the addition of technologies to existing processes, so-called 'end-of-pipe' technologies. The second approach consists of actions based on the analysis of the production system and parts of the supply system, variously called pollution prevention or waste minimisation. The third approach covers 'cleaner technology', process technologies with environmental considerations of resource reduction and low pollution 'designed in' from the start. The last is product innovation with environmental principles, like low energy consumption in use or ease of recyclability, as constraints on the design of the product. While end-of-pipe treatment is only implemented for environmental reasons, the middle two approaches – waste minimisation and cleaner technology - may be carried out for both environmental and economic reasons. In particular, cleaner technology has been promoted as a 'win-win' solution, offering both financial and environmental benefits ([Porter and Van der Linde, 1995](#)). This however throws up two further questions. First, why are such approaches not more widely adopted if they (supposedly) have such clear economic

benefits? Second, how might we best promote resource efficiency? These questions are typical of the issues that are still on the table with regard to the implementation of new technologies in existing industries.

In chapter 10, Robin Williams and Graham Spinardi deal with these issues with regard to oil refining. Their conclusions are that there still remains much scope in industry for incremental innovation in cleaner technology. Radical innovation, however, is typically not even on the agenda. Competitive pressure, not environmental concern, is the main driver for improvements in process efficiency. Perceptions of environmental requirements (which often go beyond regulatory requirements in these large, high profile companies in industries regarded with some public suspicion) tend to favour reliable solutions. Because it involves discovering, developing and applying radical process changes, cleaner technology thus often involves more uncertainty than end-of-pipe solutions. For this reason, cleaner technology is not always compatible with strict regulatory enforcement. If regulators insist on specific effluent reductions within an inflexible, short-term timescale then this may tend to favour conservative end-of-pipe approaches. Conversely, regulatory regimes that specifically allow some flexibility in compliance timescales can provide the 'breathing space' for firms to attempt cleaner innovation. Indeed one obvious implication from their cases is that economic and other pressures are moderated through corporate and managerial structures, and shaped by the specific decision-making practices, criteria, traditions and contexts of those involved.

That even small steps need to be taken is sometimes ignored. In his chapter on the experience of firms in Sub-Saharan African countries with the implementation of environmentally sound technologies (chapter 11), Mammo Muchie argues that cleaner technology is still externally induced. Examples are provided of cleaner production activities from Tanzania and Zimbabwe. From the technology to the consultants, all have come from outside these two countries. Though there is evidence that a number of African countries have begun to take cleaner production seriously as an internal matter, at the moment the technologies that the firms choose is *ad hoc* and is not governed by any comprehensive national strategy integrating environmental constraints into African industrialisation and poverty reduction programs. The chapter is therefore a reminder of one of the underlying and returning elements in this book that the curve of progressive environmental action of firms is not 'natural', not a 'given' but dependent on context and on government policies.

Chapter 12 by Lloyd Dale, Phil Gamlen and Ken Green concerns 'Avocet', an innovative chemical additive for greener fuels for public service vehicles, developed by the UK-based chemical company ICI. This case is a prime example of an innovation that made sense in both economic and

environmental terms and originated in the private sector. Yet, despite ICI's best intentions, it proved a failure in the market, due to the shifting nature of the regulatory regime to which the product was a response. Avocet was also a prime example of an alternative technology attempting to penetrate a market that was essentially 'locked-in' to diesel fuel. To escape the existing technological lock-in, legislation would have been required to initiate the transition to an alternative fuel. However there was a choice of alternative fuels, and ICI would inevitably have a difficult task in obtaining legal affirmation and public choice for their own technology. To succeed, Avocet would also have to fight off competing alternative technologies. Ultimately Avocet failed because the innovation was not sufficiently backed and was against a powerful opposition who saw it as a threat.

A return of a persistent issue is the relative progress made by an innovation. This is clear in the case of the successful introduction of energy technologies in an Italian bottling company. Davide Nicolini and Silvia Gherardi show in chapter 13 that perceptions of an environmental uncertainty and organisational opportunities – present in the Avocet case as well – do not necessarily lead to positive outcomes. Uncertainty in this case, combined with environmental awareness, created conditions for an innovation that can be considered radical in a number of respects. The adoption of the energy generating technology was a largely one-off event. The energy saving concerns became part of the local patrimony of expertise and managerial attention, largely because the decision to adopt the technology was based on considerations concerning the company's overall development and not on the benefits deriving from the financing available.

All the cases presented here that deal centrally with the issue of technology, contradict or modify a central dictum of how technology is applied for environmental improvement: the dictum that, until now, most efforts of companies to improve the environmental performance of their processes and/or products have focused on incremental improvements of existing working methods, products and services. Such incremental improvements provide significant progress in the early stages by capitalising on 'low-hanging fruit' (the easy improvements). After that first period, incremental changes become less profitable both ecologically and economically. Then more far-reaching environmental improvements begin to deliver, or might seem to offer, a higher reduction in environmental impact at relatively lower costs. Overall the chapters covering technology and innovation help to understand the interrelation between various factors involved in the choice, introduction and development of environmentally friendly technologies.

1.3 Context, environmental attitudes and change

The case studies presented in this book are about firms, organisations, or assemblies of public and private partners. In each case, by accident or on purpose, these actors were taking more progressive environmental action than required by regulation or established practice to achieve environmental improvements. In addition to the distinctions made above the case studies can be considered in three ways: the context, environmental attitudes and the type of change.

On ‘context’, our view is that going beyond current practice is relative. The contextual elements of importance are the local (or national) contexts of the organisation and the relations between sectors. Concerning each of these, the cases presented in this book show that individual organisations or groups of organisations can go beyond the established practices and the minimum requirements.

The environmental management literature emphasises either normative or regulatory frameworks for analysing environmental management. A common theme in the case studies is an emphasis on *actions and attitudes of management* (or other decision makers). In the contributions, two different types of attitudes within organisational management are well represented: the pro-active and the reactive. The pro-active approach is exemplified by cases that show that organisations try to move forward by developing new concepts and visions and the ensuing strategies that support these. The second approach consists of a group of cases where managers and other decision makers approach the context in which they operate incrementally but with an open mind for opportunities. What is striking is that the new practices or actual decisions taken go beyond the strict regulatory requirements that are set. Whilst this is the case, the degree to which the actions undertaken go beyond that minimum covers a range of actions that belies the simplicity of the proactive/reactive schema. These two labels can only be understood with regard to specific strategic or operational actions in the local context.

The issue of type of change connects to a dominant debate in the greening of industry whether either incremental, eco-efficiency, changes or only structural, radical change can deliver sustainable development. Some of the ‘success’ cases in this book reflect incremental progress based on the eco-efficiency paradigm in which existing societal sectors, institutions and stakeholders maintain established political and market power. Some of the ‘failure’ cases reflect the difficulty in changing the powerful *status quo* in economy and society. But a number of cases also reflect opportunities for crafting successful collaborative strategies between traditional adversarial actors as industry and environmental groups that emerge due to ‘windows of

opportunity’ such as for example increasing belief in the severity of the climate change problem.

1.4 Overview of the book

As the case studies are an outcome of research done for a variety of purposes and sponsors, the structure given above has not always been implemented with the same rigour. In order to provide a reader's guide through the book the chapters may be read along several dimensions. The chapters however differ with regard to the detail and evidence that is brought together in it. In Table 1 below, the distinctive elements of the different chapters are displayed. For context both the sector and region in which cases operate are characterised. Attitudes are distinguished between those of a proactive and reactive nature. Lastly the type of changed is classified to be either of an incremental or radical nature.

Table 1 Overview of Chapters

	Organisation	Activity	Technology
Context	Ch 2: Pulp and Paper, Canada Ch 3: Printing, The Netherlands Ch 4: Steel, Korea Ch 5: Banking, The Netherlands	Ch 5: Banking, USA Ch 6: White goods, World Ch 7: Mobility, Switzerland Ch 8: Tourism, Europe	Ch 9: Oil, UK Ch 10: Industry, Sub-Saharan Africa Ch 11: Chemicals, World Ch 12: Plastics, Italy
Attitudes	Proactive: Ch 2 Reactive: Ch 3, 4, 5	Proactive: Ch 5, 6, 7, 8	Proactive: Ch 9, 11 Reactive: Ch 10, 12
Change	Incremental: Ch 3, 4, 5 Structural: Ch 2	Structural: Ch 5, 6, 7, 8	Incremental: Ch 10, 12 Structural: Ch 9, 11

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