The greening of black gold: towards international environmental alignment in the petroleum industry
van de Wateringen, S.L.
Summary

During the 1990s, environmental issues gained strategic significance at an unprecedented pace. Companies moved from technical, operational measures to product and process improvements and more holistic management approaches, impacting both internal organisational structure as well as external strategic positioning. In the petroleum industry, the status of environmental issues changed likewise: they became strategic. As a consequence, academic attention for the subject increased. A review of the academic literature in the field of environmental management, strategic management and organisation studies identified the multinational-specific, internal process of corporate greening as an underexposed field. Therefore, this dissertation has examined the embedding of environmental management in the overall management of multinational corporations by examining on the one hand, the relationship between environmental strategy and environmental structure (the term adopted in this study to indicate organisation elements such as environmental management systems, environmental standards and auditing procedures), and on the other hand, the linkages of these elements to internal and external factors.

To this end, the study adjusted the strategic alignment model which was originally used to discuss questions in information technology issues; it assumes that decisions need to be coordinated to achieve value. Changing its prescriptive aim to a descriptive, analytic one, it is introduced here as the 'International Environmental Alignment' Framework. This framework copied the distinction between an internal, functional domain and an external, strategic domain and kept the three different orders of alignment (simple consistency, mutual reinforcement and optimisation of effort) as well as their underlying drivers; in addition, it added several new variables such as reputation and commitment, and a focus on multinational corporations. As such, the nature of the study is both descriptive and explorative: descriptive in its examination of the behaviour of companies over a fairly long period of time (1990-2002), and explorative by its examination of a range of propositions in relation to the framework.

The study focuses on a specific sector of industry because of the demonstrated importance of sector studies for the field of environmental management. The petroleum sector was selected because of its particularly large economic and political impact as well as for the diversity and size of its potential environmental impact and the public debate about the conduct of the industry. Two distinct empirical formats were applied: 1). A sector study building on a sample of the world’s largest petroleum firms from Fortune’s Global Top 250; and 2). A multiple case study format including four European companies (Shell, BP, TotalFinaElf, Statoil) and their predecessors before the mergers at the end of the 1990s (Amoco, Arco, Elf Aquitaine and TOTAL). The case studies built on a series of interviews and an additional survey for Shell and Statoil.

Environmental strategy was examined by means of documentation on codes of conduct, environmental policies and environmental, social and health and/or sustainability reports. The results showed that the majority of the companies include environmental issues in their policies and codes of conduct, although the codes of conduct hardly pay any attention to the monitoring of environmental issues. In a sector characterised by a high ro-
reporting rate, regional distinctions stand out for the timing of the first issue of the reports. Early reporters are mostly US companies, late reporters are mostly European while Asian companies are the non-reporting ones in the sample. State ownership seems to explain the early reporting of some European companies. In addition, the occurrence of 'critical events' (incidents, conferences, or other occasions attracting wide attention and triggering industry evolution and institutional change) can be linked to some of the initial disclosures. Over the period 1990-2002, the style of the reports changed explicitly: from health, social and environmental (HSE) reports to 'double' ('planet and people', focusing on environmental and social issues) and 'triple' ('profit, planet, people', focusing on environmental, social and economic issues) reports, both referring to sustainable development. From the first to the latest issues of these reports, the number of pages doubled. While clear patterns in the contents of the reports did not stand out on the basis of the large sample, insights from the case studies showed a different emphasis in the strategic profiling set by these companies: this ranged from a long-term survival conviction (Shell); a single issue approach (BP); a product focus (ARCO); a regulation prevention emphasis (Amoco); a size effect (TotalFinaElf); and an extended technological orientation (Statoil).

Environmental structure was examined considering a range of organisation elements: environmental management systems, standards, monitoring and verification procedures, and environmental performance reporting. The results show that, by the end of the period, the majority of the companies explicitly refer to the existence of an environmental management system. Over the years, the format of the systems changed from single to multi-formatted systems, which indicates a decentralisation pattern, though the Latin American companies do not follow this trend. Less than half of the companies refer to monitoring of the system. Regional patterns are that US companies include more references to this aspect than others, while Latin American companies only refer to monitoring in the latest versions. The sector has a high score for verification of the report and the elements included in the verification have expanded over the years. With regard to environmental performance, more and more data are included in the reports. However, the issue of their exact scope remains, and there is great diversity in the data. An additional observation derived from the case studies is that the developments within the companies with regard to environmental structure are also diverse. Examples are the way environmental issues are integrated into the system, and thus the development of the environmental management system itself, and the issues on which companies decided to position themselves.

Subsequently, the findings on environmental strategy and structure were linked to the developments in overall strategy, reputation and organisation structure. Within overall strategy, specific attention was given to degree of internationalisation, vertical integration and diversification. For organisation structure, attention was focused on degree of centralisation and three different forms of structure of ownership (cooperative arrangements, mergers, and state versus private ownership).

Concerning the linkage with the strategic aspects, the degree of internationalisation stood out as a strong influence on environmental strategy. However, this relationship was also influenced by the size of the company and the institutional context of both home and host country. Subsequently, with regard to reputation, the declining reputation of the sector coincided with the increase in public disclosure in the period. The case studies, as expected, confirmed the importance of this factor for the environmental strategy; in addition, the size and visibility of the company played a role in strengthening this effect. As well as the effect of reputation in general, the importance of critical events was confirmed. Fur-
thermore, it was also observed that critical events had an indirect effect on companies in the sector not directly related to the event. This may be explained by the high degree of cooperation in the sector.

It is these cooperative arrangements that were examined as the first aspect of structure of ownership (one of the two variables of organisational structure) on their relationship with environmental structure. The results presented conflicting evidence. On the one hand, the effects of mutual learning and information exchange stood out as factors which would stimulate the development of the environmental structure. On the other hand, the potential delay resulting from cooperation and the different priorities of companies were mentioned as factors which would hinder this development. The interview results underlined the difficulty of negotiations about finding common ground in environmental standards in cooperative arrangements with other companies. The second aspect of structure of ownership, the occurrence of mergers, represented the most important organisational change for the sector in the 1990s. Only the Latin American companies did not participate in this trend. With regard to the relationship of mergers with environmental structure, it was concluded that the effect depends on the dominance, and thus the specific environmental profile, of a partner in the process, and the changes in the visibility and size of the company resulting from the merger. The third aspect of structure of ownership was state versus private ownership. In relation to environmental structure, the data confirmed that the effect of state ownership is mostly related to the institutional background of the companies. This also sheds light on the observation of early reporting by some European state-owned companies.

A last result on the relationship between the structure variables relates to degree of centralisation. The analysis for this variable showed a trend in which European companies mostly decentralised and US companies became more centralised. Cautious evidence for a positive correlation between the degree of centralisation overall, and the centralisation in environmental structure, was found in the developments for the US companies and the Latin American companies. However, the European case studies showed that their management systems were primarily developed in the second half of the 1990s; their initial start up could not be explained by organisational structure. However, the case studies did demonstrate a connection between the development of the management systems and the characteristics of the organisational structure; a high degree of centralisation facilitated the implementation process.

In the period 1990-2002, the relationship between environmental strategy and environmental structure strengthened. The study showed the importance of some of the variables in the International Environmental Alignment Framework. With regard to the relationship between environmental strategy and environmental structure, straightforward information was not found on a correlation between the development of the environmental strategy and the degree of centralisation in the environmental structure. Cautious evidence was found with regard to the kind of commitment and the background of employees: older employees showed commitment in relation to the future survival of their company, employees who had just joined the company showed commitment based on their personal values. In addition, the case studies showed that all of the companies have moved in the direction of a positioning which is characterised by a high degree of policy commitment and active implementation. However, for all companies, many examples were found in which the degree of implementation was an issue of debate; as such, the order of alignment between strategy and structure should always be reconsidered for specific situations.
Overall, the International Environmental Alignment Framework confirms the importance of reputation, critical events and the institutional context. In addition, it develops exploratory insights with regard to the impact of vertical integration, degree of internationalisation, degree of centralisation, cooperative arrangements, mergers, state ownership and commitment. Size of the corporation appeared as an additional factor of importance. The concept of international environmental alignment thus refers to a certain balance between environmental strategy and structure. However, it does not guarantee a certain quality, it only characterises whether a certain strategic mission or commitment is supported by elements in the structure. The first order of alignment refers to a state in which strategy and structure are consistent with each other. In the second order of alignment, both the strategic and structural elements are connected in such as fashion that they are mutually reinforcing. This study showed that reputation, commitment, size, and visibility stand out as essential ingredients for attaining this second order of alignment. Among the underlying drivers of the different orders of alignment, corporate strategy was found to be the driver for the first order of alignment. Environmental strategy stood out as an additional driver for the second order of alignment. This extension in the number of underlying drivers is an extension of the original model. Another observation relates to the third order of alignment, in which the balance between environmental strategy and environmental structure is characterised as optimisation of effort. The question is how exactly this should be defined, and whether the petroleum industry can ever reach such a balance, considering the non-renewable nature of its resources.

The relevance of the study is of both a theoretical and practical nature. The examination of the petroleum industry over a quite long period of time sheds light on sector developments in environmental management, reputation, and aspects of strategy and structure. An existing theory is applied to a new field to examine the relationship between environmental strategy and environmental structure, thus helping to extend insights. In a practical sense, the results may show managers and policymakers what opportunities are available to influence a company's order of alignment as a result of insights into the dynamics of that process. In addition, the thesis contributes to greater transparency in general concerning the state of this industry which has received so much attention over the years.

The limitations of this broad study are as many as the opportunities for further research. Some of the most important limitations relate to the decision to concentrate on the corporate level and the difficulty to operationalise some of the variables. The resulting insights can be further examined by means of a focus on: a specific relationship within the model; other sets of companies; lower levels of decision-making within the company; a focus on companies from a specific institutional setting; or an examination of 'typical cases' which have deviating scores on specific aspects and can thus either confirm or reject the average pattern. Especially interesting would be further research into the status of international environmental alignment within smaller and nationally-owned companies. Interest in those actors is growing not only due to the ever-increasing need for cooperative arrangements in the sector because of the maturing of the fields but also because of the impact of working in joint ventures on environmental standards.