The greening of black gold: towards international environmental alignment in the petroleum industry
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This chapter presents the conceptual framework used to examine the relationship between environmental strategy and environmental structure and their determining factors: the International Environmental Alignment Framework. Building on the observations from the literature review, it incorporates a broad range of variables and formulates accompanying propositions. The model focuses on the firm level of analysis but integrates all three of the analytical perspectives used in the literature review. The result of this broad approach is an exploratory study of the development of international environmental alignment in the petroleum industry, its status, and the influencing factors. The theoretical background underlying the framework is the strategic alignment model; the underlying dynamics within the framework are explained by institutional theory (3.1). Subsequently, the design of the conceptual framework and its assumptions are highlighted (3.2). The chapter proceeds with the discussion of the two dependent variables of the study (3.3): environmental strategy (3.3.1) and environmental structure (3.3.2). Thereafter, the discussion proceeds with the formulation of the accompanying propositions to guide the analysis (3.3).

3.1 Strategic alignment and isomorphism

The model of strategic alignment was originally applied and used to elaborate basic questions in information technology issues (see Henderson and Venkatraman, 1993). The basic thrust of the model is that decisions need to be coordinated to achieve value (Luftman, 1996:4). As Pankratz (1991:67) states: "A highly defined business strategy, even when married to a complementary information technology strategy, can only succeed when organisation strategy and culture is supportive and financial/balance sheet strategy fits well." The concept of strategic alignment is a process of continuous adaptation and change; it involves two dimensions.

The first dimension, strategic fit, includes the need to make choices that both position the firm in an external market place (the external domain) and to determine how to structure the firm internally to execute this strategy (the internal domain). Strategic fit relates to the optimal balance or consistency between 1) business strategy; and 2) organisational infrastructure and processes (Henderson and Venkatraman, 1991, 1993). The second dimension is the functional integration between business and functional domains. According to Rondinelli, Rosen and Drori (2001:406), MNCs should continually readjust and realign the four sets of strategic components: 1) between business strategy and organisational infrastructure & processes; 2) between information strategy and information infrastructure & processes; 3) between business strategy and information strategy; and 4) between both infrastructures. Henderson and Venkatraman (1991, 1993) distinguish four alignment perspectives that discuss those cross-domain relationships, on the basis of the
drivers of business alignment and the cooperation between the elements; different drivers subsequently result in different roles of top management.

Translated to environmental management, the strategic alignment model changes into the *environmental alignment* model. Elements of functional integration in the alignment model become environmental strategy and environmental structure. Elements of strategic fit are corporate strategy and organisational structure. The change to the corporate level is explained by the focus on the multinational corporation. The four perspectives with regard to the direction of the alignment remain those of: strategy execution; technology transformation; competitive potential; and service level (see Table 3-1). Environmental alignment is seen as a continuous process, which concentrates on the dimensions of strategic fit and functional integration, but then for the environmental field. Although not mutually exclusive, three types of alignment are distinguished which relate to the level of integration: *first-order fit* is simple consistency between each activity (function) and the overall strategy. *Second-order fit* occurs when activities are reinforcing; and *third-order fit* goes beyond activity reinforcement to optimisation of effort (Porter, 1996:71).

<table>
<thead>
<tr>
<th>Table 3-1 Four environmental alignment perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alignment perspective</td>
</tr>
<tr>
<td>Driver</td>
</tr>
<tr>
<td>Role of top management</td>
</tr>
<tr>
<td>Role of env. management</td>
</tr>
<tr>
<td>Performance criteria</td>
</tr>
</tbody>
</table>

Source: Henderson and Venkatraman, 1993 (adjusted for environmental issues).

The advantage of building on this model lies in the recognition of the existence of both the internal as well as the external domain, which fits the increasing strategic importance of environmental management. The underlying dynamic of the framework is based on Porter's five forces model – power of 1) buyers and, 2) suppliers, 3) the threat of new entrants and 4) substitutes and 5) the rivalry among existing competitors), which focuses on sector dynamics (Porter, 1980; Porter and Millar, 1985).

These sector dynamics reflect the contents of institutional theory, which is regarded as a theory that explains similarity in companies' behavioural patterns; therefore, it is also the basis of explaining change and its dynamics (DiMaggio 1995; Hoffman, 1999, 1997; Greenwood and Hinings, 1996; Levy and Rothenberg, 1999; Scott, 2001). As Scott (2002) put it, internal pressures in organisations to attend the broader needs of the natural environment increased. The isomorphic pressures or mechanisms are of three different kinds (DiMaggio and Powell, 1983):

- **Coercive mechanisms** stem from political influence and the problem of legitimacy. They result from both formal and informal pressures and are often categorised as of a
3 The International Environmental Alignment Framework

regulatory nature (coercive authority) but can also be of a more subtle and implicit kind.

• **Mimetic behaviour** results from standard responses to uncertainty: “When goals are ambiguous, organisations may model themselves on other organisations” (DiMaggio and Powell, 1983:151). The modelled organisation, which is often perceived as more legitimate or successful, serves as a convenient source of practices that the borrowing organisation may use, though modelling can also be more unintentional or indirect.

• **Normative pressures** are primarily due to professionalisation, which is the process of defining the conditions and methods of work for a certain occupation and the establishment of a cognitive base and legitimisation for occupational autonomy. Two aspects of professionalisation are important sources of isomorphism, according to DiMaggio and Powell (1983:152): the first is the embedding of formal education and of legitimation in a cognitive base produced by university specialists; the second is the existence and growth of professional networks that rapidly diffuse new models. Filtering of personnel, anticipatory socialisation and on-the-job socialisation are important mechanisms supporting normative isomorphism.

Empirical studies in the environmental field show a sequence in the balance of the pressures on the firm: an “inherent differential, temporal characteristic with coercion driving isomorphism and mimetic and normative pressures playing a secondary role” (Milstein, Hart and York, 2002). This strength of the coercive forces is explained by their direct impact on organisational legitimacy, which determines organisational survival (Milstein, Hart and Illich, 2002). In Hoffman’s 1999 view, the internal structure of the firm and its environmental practices are a reflection of the prevailing institutions of the organisational field, with the firm acting with self-interest to affect the development of these institutions. Building on Scott (1991), Hoffman states that “a firm’s action is seen not as a choice among an unlimited array of possibilities determined by purely internal arrangements, but rather as a choice among a narrowly defined set of legitimate options determined by the group of actors composing the firm’s organisational fields” (Hoffman, 1999:351).

Levy and Rothenberg (1999) view institutionalisation as a process. Their premise is that strategy is the result of expectations and assumptions which are shaped by the external institutional environment and internal corporate history, structure and experiences. These internal aspects result in a “unique lens” for each company, which explains heterogeneous corporate perceptions and responses, notwithstanding institutional influences pressing for isomorphism. Multiple, overlapping institutional fields and multiple, competing discursive forms (such as the debate about costs and value of environmental management) would strengthen this dynamic; they can even be found in a single organisational field. Empirical work on climate change strategies sustains this combination of internal company unique pressures and external institutional pressures as an explanation of company behaviour (Levy and Kolk 2002; see also Kolk and Levy, 2004, 2001).

3.2 Exploratory framework for environmental alignment

Adopting the combination of both internal and external factors to explain company behaviour, this study applies an exploratory framework. As Porter (1991:98) explains, a framework encompasses many variables and seeks to capture much of the complexity of a topic: “The theory embodied in frameworks is contained in the choice of the included variables, the way variables are organised, the interactions among the variables and the way
in which alternative patterns of variables and company choices affect outcomes"; "All the interaction among the variables cannot be rigorously drawn. The frameworks, however, seek to help the analyst to better think through the problem by understanding the firm and its environment and defining and selecting among the strategic alternatives available, no matter what the industry and starting position." The exploratory conceptual framework applied in this study, to examine environmental alignment, is shown in Figure 3-1. Focusing on the firm level of analysis, the International Environmental Alignment Framework suggests relationships between: 1) corporate strategy and environmental strategy; 2) organisation structure and environmental structure; and 3) environmental strategy and environmental structure.

**Figure 3-1 International Environmental Alignment Framework**

Employee commitment and reputation have been added as variables because of their confirmed importance for corporate environmental management. In addition, the influence of the regulatory context and sector dynamics are indicated by means of the surrounding circle of the framework. Further, two technical distinctions are made within the model. The first distinction concerns the external focus of strategy and reputation versus the internal focus of the structure variables. The second distinction concerns the focus within the corporation on the corporate, organisational level versus the operational level and the individual employees.

The adjustment of the model changes the prescriptive aim of raising performance (as included in the original alignment model) to a reflective exercise: Which combinations of strategic and structural factors for the environmental function are found and how can they be explained? A further departure from the original model is the exclusion of performance as part of the loop. This choice is a result of the unavailability of consistent environmental performance data (due to a lack of reliable measurement instruments) (see Chapter 2, section 2.4.2. Previous criticisms of the original model (for an overview, see, e.g., Avison, Jones, Powell and Wilson, 2004), such as a lack of attention for dynamic change and context dependency, have been ventured to address them, for example by the focus on a specific sector and a specific period of time. Obviously, one of the adaptations is the

\[29\] As Porter states, a framework can be challenged for its complexity, which makes its difficult to falsify arguments. However, Porter contrasts frameworks with models; the latter has the disadvantage of omitting variables which makes falsification problematic as well (Porter, 1991:98).
change of the original focus of the model on business strategy to the current focus on corporate strategy.

3.3 The variables of strategic environmental management

The basic premise of this study is that environmental management has a strategic aspect to it: an impact on market chances and competitiveness. Building on this premise, it is assumed that the relation between economic and environmental issues can be complementary and form win-win situations, although they do not necessarily have to do so. In this section, the components of strategic environmental management are further discussed. On the basis of the literature review in the previous chapter, environmental strategy and environmental structure are introduced as the dependent variables of this study.

3.3.1 Introducing environmental strategy

The first variable of strategic environmental management, environmental strategy, is reflected on from a ‘plan’ perspective covering a longer period of time: “Some sort of general or specific consciously intended course of action, a guideline to deal with a situation” (Mintzberg, 1998a:13). As discussed in the literature review, environmental management strategy has been modelled by several authors resulting in over 50 models, typologies, and non-linear models, all with a range of limitations (Kolk and Mauser, 2002; Mauser, 2001). The aim of this study is to combine the most important aspects of these observations during the examination of the environmental strategies of the companies involved. This means that the study wants to avoid the disadvantages of the continuum model that firms can be placed in one category only, when in fact firms consist of several parts that may be categorised differently, and that defining criteria for each part of the model are needed. Furthermore, the aim of the characterisation is to be descriptive and analytic instead of prescriptive, so that linear progression through the stages of the model is not an assumption.

It must first be acknowledged that strategy can be initiated at, at least, four distinct levels in the firm: the corporate, business unit, functional and operational level. The subsidiary forms a fifth intermediate possibility in this range of options. Secondly, in addition to these four levels, issue-specific strategies can be developed, e.g. for climate change and biodiversity. Thirdly, the main motivation for firms to engage in environmental management is regulation (related to home country origin); although other external and internal pressures on corporate environmental strategy can also be perceived. A fourth acknowledgement concerns a size effect pointed out by sector studies on environmental strategy. The size effect would be independent of country of origin; the largest firms tend to take a defensive position (responding to as well as anticipating regulation) and the smallest firms tend to take an escapist position (responsive but not anticipating) (Brockhoff, Chakrabarti and Kirkgeorg, 1999). Reflecting on the aforementioned acknowledgements and the results of the literature review, this study chose to focus primarily on the corporate level of decision making. This is not only the highest level of decision making, it is also the level of the company where overview is expected to be able to perform a broad study. Further, the study focuses on the largest companies in the world, though contrast within that group is present as well.
3.3.2 Introducing environmental structure

To effectively support and implement its strategy and to fill the gap between plan and action, a firm needs an organisational structure. The second variable, environmental structure, addresses the organisational structure required for support and implementation of the environmental strategy. Examples are the set-up of an environmental department with a budget; the appointment of environmental managers to facilities and plant levels; formal and informal compliance mechanisms; a structure of responsibilities and tasks assigned to particular divisions and levels; auditing procedures; and, the certification of management systems.

Filling the gap between plan and action, the creation of environmental infrastructure was stimulated by the climb of environmental issues up the corporate ladder: the change of their status from being mere technical matters to strategic issues. According to Fryxell and Vryza (1999:40), this development of the mandate of the corporate environmental department is related to the functional integration of environmental issues at the corporate level; the mandate evolved from being a ‘corporate policeman’ (ensuring compliance with regulation) to that of ‘change agent’ (creating awareness and changing behaviour). According to Hoffman (2001:165) such an internal change agent has five tasks: 1) interpret changes in environmental regulations and external demands; 2) set internal direction and responses; 3) facilitate change and integration; 4) measure performance; and 5) communicate internally and externally. Furthermore, the change would be accompanied by decentralisation: “Environmentalism will continue to diffuse throughout the organisation... as this diffusion process continues there will be less need for an exclusive corporate environmental department and more reliance on an environmental structure that integrates the skills of all operating and support departments” (Hoffman, 2000:165).

The organisational reality, however, is not yet in tune with this scenario: structural and cultural barriers hinder the integration of environmental issues in decision-making processes (Hoffman, 2000:167). Examples are: the organisational isolation of the environmental department, which leads to communication breakdown; the ranking of environmental costs as a liability and not as an asset; limitations to the free flow of information; barriers in the form of unclear or unfamiliar language (such as non business related phrases and acronyms); a pure orientation on economic objectives; and, external constituencies of various departments (Hoffman, 2000:167). In conclusion, this leads to a categorisation of environmental structure under four headings: 1) authority and formal responsibility; 2) reporting relationships about performance of environmental management duties; 3) contents of responsibility at a certain administrative level; and 4) management of responsibility at a certain administrative level (partly derived from Hibbitt and Kamp-Roelands, 2001). Extending those aspects to an international perspective, Table 3-2 presents an overview of the internal arrangements of environmental structure for MNCs (Hansen, 1998).

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30 To overcome these barriers in organisations, Hoffman presents a ‘roadmap’ of the phases of organisational change management. The path of change management consists of four phases (1. Diagnosis; 2. Unfreezing; 3. Movement; and 4) Refreezing), which can be subdivided into a series of eight steps (Hoffman, 2000:167-174).
### Table 3-2 A typology of cross border environmental management

<table>
<thead>
<tr>
<th></th>
<th>Decentralised EM</th>
<th>International Compliance Mgt</th>
<th>Transnational EM</th>
<th>Multinational EM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EM focus</strong></td>
<td>Local adaptation</td>
<td>Host country legislation</td>
<td>Home country legislation/ company standards</td>
<td>International standards/company standards</td>
</tr>
<tr>
<td><strong>Typical policy statement</strong></td>
<td>None</td>
<td><em>meet and comply with all standards nationally and internationally</em></td>
<td><em>employ the same standards and criteria world-wide</em></td>
<td><em>strive to become global environmental leaders</em>; acknowledges responsibilities for global environment</td>
</tr>
<tr>
<td><strong>International policy priorities</strong></td>
<td>None</td>
<td>None</td>
<td>Pollution prevention, waste minimisation, energy conservation, safety zones in LDCs, toxic education programmes</td>
<td>Green R &amp; D, climate change policies, biodiversity programs, dialogue with external stakeholders</td>
</tr>
<tr>
<td><strong>Cross border environmental controls</strong></td>
<td>None</td>
<td>Procedure to ensure compliance with regulations at home and abroad, pre up start assessments, auditing, monitoring procedures</td>
<td>Procedures to ensure vertical integration, auditing reporting, green accounting, training programmes</td>
<td>Procedures and activities to ensure horizontal integration Information exchange; life-cycle analysis; third party auditing</td>
</tr>
<tr>
<td><strong>Sectors</strong></td>
<td>Industries with minor environmental risk</td>
<td>Chemical (pre-Bhopal); diversified companies</td>
<td>Chemical (post-Bhopal)</td>
<td>Pharmaceuticals or oil industry</td>
</tr>
</tbody>
</table>


Besides its focus on policy priorities and the level of integration of environmental management, centrality of the organisational structure is the focus of the categorisation. In relation to the transnational character of the operations of the multinational, this results in four approaches. The results confirm the importance of sector of industry: the oil industry is classified under 'Multinational EM'.

UNCTAD (1999) also relates the organisation of environmental management to the degree of centralisation. In the decentralised organisation, parent firms leave environmental decisions to be addressed at the level of their foreign affiliates. The commitment of the affiliates is then defined by the requirements of the national law of the host country. In the absence of such national regulation, the affiliate is free to decide to choose a least-cost strategy or to take up a more proactive stance. In the centralised organisation, the course is set by the parent firm. According to UNCTAD (1999:292), this can be reflected in several approaches. Examples are: the application of universal environmental standards for the MNC as a whole or for its production chain; and a framework established by the parent firm to optimise environmental performance. The choice of either of these approaches depends on a complex mix of considerations, such as the size of environmental impact, implications for affiliates, threats of liability, uncertainty with respect to host government policy and the nature of costs. Furthermore, the connection and overlap between the concepts of strategy and structure is illustrated; their distinction needs to be taken care of in the operationalisation.
3.4 Propositions for environmental alignment

The International Environmental Alignment Framework focuses on the linkages between strategy and structure in the perspective of environmental issues. This section introduces the chosen variables, puts them in the perspective of the international petroleum sector, and formulates propositions for the linkages identified in the model. The expected direction of the relationship is subsequently presented in accompanying tables. The section starts with the propositions for the strategy-link, continues with the structure-link, and ends with a proposition about environmental alignment in the most specific combination: the relation between environmental strategy and environmental structure.

3.4.1 Linkages with environmental strategy

The literature review in Chapter 2 showed that the variable 'strategy' can be categorised as corporate strategy, highlighting vertical integration, internationalisation and diversification, as well as business level strategy. With a focus on the petroleum sector, these elements are discussed in turn. In addition, the variable 'reputation' is discussed at the end of the section.

**Vertical integration and environmental strategy**

Starting with the first element of corporate strategy, the petroleum sector is known for its high vertical integration. In the 1970s, vertical integration insulated the companies from the volatility and uncertainty of intermediate markets. This permitted management to plan the flow of oil and refined products: from wellhead to final customer. From the early 1980s onwards, a process of vertical de-integration resulted in organisational decentralisation within the sector. This was stimulated by: the development of efficient markets for oil and gas products; the increased volatility within these markets; the fall of the transaction costs of intermediate markets; and, the rise of the costs for internal transfer. Operational autonomy was given to upstream and downstream divisions, and a fundamental change in the status of downstream operations resulted from the de-integration process; refining and marketing became a profit centre instead of owning its existence to the function of outlet for production. Requirements to purchase oil from within the group were freed, and internal transactions were placed on an arm's-length basis; upstream operations were encouraged to sell to customers that offered the best prices, while downstream operations were encouraged to buy oil from the lowest cost sources (Grant and Cibin, 1996).

In the 1990s, the relatively high degree of vertical integration made the petroleum companies very visible to the end-customer; therefore, this is an important element of their environmental strategy. Customers can relatively easily 'punish' the company by boycotting products of a certain global brand name if there is a problematic event, such as a leaking tanker or environmental disaster in an environmentally-sensitive area. Caution, however, is needed with regard to the implication of figures of vertical integration related to the different business units within the oil and gas industry. Hallwood (1990:29) indicates that oil companies "display similar features of vertical structure which may be characterised as vertical integration through the stages of production forward from crude oil production into refining and retail marketing." For exploration, development and production, however, the companies need to buy services from other companies and the companies are vertically disintegrated. Subsequently, Hallwood points out that the measurement of vertical integration requires good data, which are not readily available. Cross-industry
results show a strong convergence in degree of vertical integration among firms in the same industry and from the same country or region; this supports the idea that sector and national characteristics create important institutional contingencies for firms wishing to develop their position in markets, technologies and supply chains (Van Tulder, Van den Bergh and Muller, 2001b:29).

Companies with a high level of vertical integration are assumed to have strong co-ordination and control mechanisms leading to an easy integration of issues into the organisation. On the other hand, a high level of vertical integration can lead to a less flexible organisation with a top-down command of control leading to a more conservative environmental strategy. In the case of the petroleum industry with its relatively high degree of vertical integration and long history of existence, the last aspect is assumed to be stronger, and therefore the following proposition is formulated:

**P1:** The level of vertical integration corresponds negatively to the elaboration of the corporate environmental strategy.

Building on the strategy part in Winn and Angell’s categorisation of environmental strategy (Winn and Angell, 2000, further explained in Chapter 4), this relationship is illustrated by the shading in Table 3-3.

**Table 3-3 Environmental strategy and corporate strategy**

<table>
<thead>
<tr>
<th>Env. Strategy</th>
<th>Vertical integration</th>
<th>Internationalisation</th>
<th>Diversification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidant</td>
<td>0..................100%</td>
<td>0..................100%</td>
<td>Low................High</td>
</tr>
<tr>
<td>Unrealised</td>
<td>0..................100%</td>
<td>0..................100%</td>
<td>Low................High</td>
</tr>
<tr>
<td>Compliant</td>
<td>0..................100%</td>
<td>0..................100%</td>
<td>Low................High</td>
</tr>
<tr>
<td>Active</td>
<td>0..................100%</td>
<td>0..................100%</td>
<td>Low................High</td>
</tr>
</tbody>
</table>

**Internationalisation and environmental strategy**

With regard to the second element of corporate strategy, internationalisation, one would assume the petroleum industry to be highly internationalised because its markets are separated from the base of their natural resources and the companies have a high degree of vertical integration. In addition, the industry is one of the most capital-intensive industries, which creates big entry and exit barriers in combination with the relatively high concentration ratio. But as Ruigrok and Van Tulder (1995) show, the picture is more complicated; they distinguish five different profiles of oil companies:

5. The largest players with high levels of vertical integration and a very international and potentially global outlook;
6. The majors with high levels of vertical integration, but focused on the US and European markets and a less international outlook;
7. Independent oil companies that specialise and focus on a single world region in marketing and sometimes even production;
8. Continental European nationally owned companies that focus on a single world region in marketing and sometimes production;
9. State oil companies in developing countries, the least internationalised and generally short of capital. Renewed research would need to determine whether these groups still exist after the last waves of mergers and acquisitions. However, as petroleum companies are generally working in a large number of countries, they are confronted with an increasing number of different regulations and types of social pressure. The expectation is that internationalised companies have an environmental strategy which is in a more proactive stage than that of companies with a less internationalised practice. In their need to comply with different regulatory environments companies will take the strategy that suits most environments; this will minimise their coordination problems. This results in the following proposition, which has been suggested in a cross-sectoral study by Kolk, Van Tuinder, and Van de Wateringen (2000):

P2: The level of internationalisation corresponds positively with the elaboration of the corporate environmental strategy.

This relationship is illustrated by the shading in Table 3-3.

**Diversification and environmental strategy**

Turning to the third element of corporate strategy, previous research on the petroleum sector shows that the pattern of diversification has changed with the passing of time. In 1970, the companies were almost wholly specialised in oil, gas and petrochemicals. By 1982, alternative energy sources (coal, solar power, nuclear energy, oil recovery from tar sands and oilshales) and minerals (non-ferrous, phosphates, sulphur, cement, industrial minerals) had been added to the pattern. According to Grant and Cibin (1996), several other diversifications were primarily a consequence of the desire to exploit internally-developed technologies and management capabilities, e.g. BP and Amoco's animal feed business, and Shell's detergent business. From 1982 onwards, oil prices went down sharply and all majors (except Shell) announced major restructuring. Reformulating their business strategies and widespread divestment of non-core businesses followed. Furthermore, all of the companies narrowed their geographical spread in order to improve their profitability. The new approach became to actively manage the assets, and, by 1990, diversifications of the earlier period had almost entirely been divested, returning back to the core oil, gas and petrochemical businesses: "By 1991, the predominant organisational form was a corporate headquarters with three principal operating divisions: upstream, downstream, and chemicals" (1996:180). Grant and Cibin add, however, that there was significant variation in their sample.

Diversified companies are assumed to follow environmental strategies that correlate with the nature of the impact of their products and activities. In the overall picture, this means that the more diversified a company is, the more complicated its environmental strategy will be to enable it to comply with all kinds of regulation. Depending on the nature of the regulation, the overall strategy is expected to be less proactive. On the other hand, one can also reason that diversification into an intensely regulated product chain, such as chemicals, will trigger a more proactive overall stance. In this scenario, the company is expected to reap the benefits of the experience for this specific product and copy them to other product divisions. Therefore, the following proposition is formulated:
**P3:** The level of diversification corresponds positively with the elaboration of the corporate environmental strategy, but only when companies have also diversified into highly regulated product divisions.

This relationship is illustrated by the shading in Table 3-3.

**Reputation and environmental strategy**

The importance of reputation to corporate environmental management has been confirmed by the literature. As the literature review showed, reputation is a multidimensional construct: it is the sum of images and perceptions held by different stakeholder groups. The importance of reputation for the petroleum sector is related to: the reputation commons effect (King, Lenox and Barnett, 2002), the critical event effect (Hannigan, 1995; Hoffman and Ocasio, 2001; Zyglidopoulos, 2001) and the reputation mechanism (Van Tulder and Van der Zwart, 2003). The pressure from public interest groups appears to act as a coercive force impelling firms to initiate structural responses to issues (Greening and Gray, 1994). Reputation management can take an internal, employee approach as well as an external, customer orientation; both can be a reaction to specific incidents and critical events, but can also result from standard procedures.

In the petroleum sector, a clear example of a triggering event is the controversy in 1995 around the dumping of the platform Brent Spar, which seems to have stimulated Royal Dutch Shell to change its environmental strategy. In general, the direct contact with end-customers through filling stations (i.e. the high level of vertical integration) leads to more exposure: reputation is encapsulated in the brand name recognition. In relation to the potential of a common reputation effect, the overall effect of changes in a specific company’s reputation might be stronger than in other industries. However, in the case of a stable, good reputation, companies’ attention to the environment may also slowly diminish over time. In this study, it is examined to which extent reputation changes are a trigger of management action. In the model, it has been categorised under ‘linkage with strategy’ because that element will be affected first (see Figure 3-1 at page 42). To examine the relation between reputation changes and environmental management more closely, the following proposition has been formulated:

**P4:** A company’s involvement in environmental management corresponds to its experience of negative reputation change.

### 3.4.2 Linkages with environmental structure

Focusing on the variables of a structural nature, two elements were identified as of main importance: degree of centralisation and structure of ownership. One further independent variable, commitment, is included at the end of this section as well.

**Degree of centralisation and environmental structure**

Considering the complex nature of the variable ‘organisational structure’, Bartlett and Ghoshal (1998, 1989) noted that no single coordination mechanism can deal with the complex coordination needs that arise in worldwide companies. Daft (1998), on the other hand, comprehends the complexity in a list of eight structural dimensions. Of those dimensions, centralisation of decision making is a formal mechanism and the most consistently practised form of coordination: “In every company, top management reserves the
right to decide on major capital investments and personnel appointments. ... desire for
direct control over licences, joint venture agreements or other arrangements involving the
transfer or assignment of corporate patents or other core technological resources”
(Bartlett and Ghoshal, 1998:197). Therefore, degree of centralisation is the first variable
discussed as part of organisational structure. With degree of centralisation referring to the
hierarchical level with the authority to make a decision, a high degree of centralisation
means that almost all of the authority to make decisions is retained by top management.
Decentralisation involves “both selective delegation of authority, as well as concentration
of authority through the imposition of policies and selective but adequate controls”; it goes
beyond “simply pushing authority down to subordinates” (Dessler, 1980:137).

With regard to environmental structure, the literature does not indicate a clear rela-
tionship between general centralisation, environmental centralisation and environmental
performance (Mauser, 2001:58). However, environmental management models assume
increasing decentralisation in the course of organisational greening while empirical results
show a contrasting process of environmental centralisation during organisational greening
(Mauser, 2001:58). Therefore, Mauser argues that centralisation is favourable to keep en-
vironmental issues on the [top management] agenda; this would ease practical implementa-
tion (Mauser, 2001:58). Martinez and Jarillo (1991) indirectly support this choice by
their conclusion that more centralisation is needed to attain a higher level of integration. In
this way, the literature assumes a positive relationship between the level of centralisation
in organisational structure and environmental structure. Mauser’s results contradicted this
assumption but this may be related to a sector effect, as her study focused on the dairy
sector. Therefore, it is argued that a centralised MNC with highly dependent subsidiaries
will have a centralised organisation of environmental management. In that organisation, a
strong role is occupied by corporate headquarters and relatively little space is given to
own initiative by business units and facilities. Standards will be uniform and the environ-
mental management system will be standardised by a company standard or a worldwide
external standard like ISO.

P5: The degree of centralisation in organisational structure is positively related to the de-
gree of centralisation in environmental structure.

This relationship is illustrated by the shading in Table 3-4.

<table>
<thead>
<tr>
<th>Table 3-4 Environmental structure and organisational structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisational structure</td>
</tr>
<tr>
<td>(degree of centralisation)</td>
</tr>
<tr>
<td>Low ... High</td>
</tr>
<tr>
<td>Env. structure</td>
</tr>
<tr>
<td>(degree of centralisation)</td>
</tr>
<tr>
<td>Low ... High</td>
</tr>
</tbody>
</table>
Structure of ownership and environmental structure

The second variable discussed as a part of organisational structure is 'structure of ownership'. It is taken as a characteristic of structural design because its effect is studied; however, the choice for a certain form lies outside the scope of the study. Three different kinds of ownership are distinguished: 1. Cooperative arrangements in consortia and joint ventures; 2. Mergers; and 3. State or public ownership. With regard to the first issue, the companies in this particular industry often cooperate in projects in all kinds of formats, especially in the exploration and production phase. That way, the cost of capital, political risk, and technology are shared; which is also a reason for state ownership. Grayson (1981) explains that, for the US, anti-trust laws have hindered the formation of joint ventures, while the legal context in Europe has encouraged this. The smaller size of European state-owned companies also stimulated the sharing of capital and technology; and cooperation protected from additional competition. This way, the European national companies moved toward the goal of becoming multinationals themselves. The result of the high level of cooperation is that companies are simultaneously partner and competitor, big brother in specific projects and little brother in others, assuming the 'driver' role in one process and the 'passenger' role in another (Lerpold, 2000). Elaborating on this aspect, Hastings wrote that the dynamics of cooperative arrangements can help to establish a protocol (Hastings, 1999). Hastings did not establish a direction, but one can hypothesise that MNCs' reciprocal influence leads to synergy, and therefore stimulates environmental management in those arrangements. Therefore, the proposition takes a positive approach:

P6a: Working in cooperative arrangements stimulates a company to take a more advanced approach in its environmental structure.

With regard to the second aspect of structure of ownership, the industry experienced a wave of large mergers at the end of the 1990s. For the effect of mergers on environmental structure, several aspects should be taken into account. First, there is the strength of the merging partners and the balance between them; second, there is the size of the company resulting after the merger (considering Fortune 250 companies); third, there is the speed at which the merged company takes off after its completion. The resulting increase of complexity of the company can be expected to delay the processes within the company at first; on the other hand, the larger size may stimulate a call for prioritisation of environmental issues as well, because the company will become even more visible to the public. Imbalance between the strengths of the merging partners may increase the pace of the decision-making process on this account, simply because one partner will decide which course will be taken. The previous discussion on the effect of mergers leads to the following proposition:

P6b: After an initial delaying effect on environmental structure, mergers then stimulate the development of the environmental structure of the company.

Further, with regard to this last aspect, a tendency of privatisation can be noted for the 'Western' world; in developing countries, the petroleum industry is often nationally-owned. Elaborating on the relation of this aspect to environmental structure, the proposition is connected to the regulatory background of the company. A state company from a developed country is assumed to take another approach to environmental issues. There-
fore, the proposition concentrates on the effect of state ownership, within the institutional setting of a country:

*P6c: State ownership as such does not influence environmental structure; its effect is related to the institutional setting within the country.*

### 3.4.3 The relationship between environmental strategy and structure

The aim of the study is to examine the integration of environmental issues in the organisation of the MNC. The expectation about the relationship between environmental strategy and environmental structure is that the level of centralisation of the environmental structure is positively related to the stage of the environmental strategy. Centralisation will increase, the more the company has a more proactive strategy: top management will need its authority in the start-up of environmental management, amongst other things, because of the cost-benefit discussion attached to it. After due course, however, a company with a proactive strategy will start to decentralise the environmental structure. Corporate 'guidance' is no longer needed as environmental issues become incorporated into daily practices. As Hoffman (2000:165) puts it: "Environmental managers are destined eventually to work themselves out of a job" [if the aim is to reach integration]. The assumption of this study is that the exact moment of 'in due course' has probably not been reached in most corporations, and that it will take at least a decade and possibly the occurrence of regulatory or other catalysts events arrive at that situation. The following propositions are formulated:

*P7a: The level of centralisation of the environmental structure is positively related to the stage of the environmental strategy,*

*P7b: The higher the order of alignment, the weaker the relationship described in proposition P7a.*

These relationships are illustrated by the shading in Table 3-5.

**Table 3-5 Environmental strategy and environmental structure**

<table>
<thead>
<tr>
<th>Environmental strategy</th>
<th>Avoidant</th>
<th>Unrealised</th>
<th>Compliant</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Env. structure</strong></td>
<td><strong>Low</strong></td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>(<strong>degree of</strong></td>
<td><strong>Medium</strong></td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>centralisation)</strong></td>
<td><strong>High</strong></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*Note: 1. Initially (P7a); 2. With increase of alignment (P7b).*

The next proposition relates to the level of alignment between the different elements and to the integration of environmental issues in the corporation. The assumption is that balance in the level of centralisation in general structure and environmental structure is needed to reach integration of environmental issues as in the three orders of alignment, as defined by Porter (1996). This does not mean that there is a need for either high or low centralisation but only that congruity is a condition to integrate environmental issues to the
level aimed at (as formulated in the environmental strategy). This leads to the following proposition:

P8: Congruity in the level of centrality of organisational structure and environmental structure results in a higher level of environmental alignment.

Finally, the last proposition is related to the variable ‘commitment’. Several studies indicated the importance of top management commitment for the implementation of environmental management (for an overview, see Mauser, 20012). According to Keogh and Polonsky (1998), the term ‘environmental commitment’ denotes both a process and a result through which organisational members display environmental concern. According to Schultz (2001), environmental concern can be categorised in three correlated factors: egotistic, altruistic, and biospheric environmental concern, which are based on value orientation and the interconnectedness perceived between individuals, other people and nature. Keogh and Polonsky (1998:40) translated Meyer and Allen’s (1991) work on organisational commitment into three dimensions of environmental commitment in decreasing order of commitment. The conceptual framework assumes commitment to be a synergetic force for the relation between environmental strategy and structure, as employees start their work from this personal value orientation. The variable only plays a minor role in the framework; this is not because of its lesser importance, but because of the different unit of analysis. Therefore, it is categorised as the last variable in the framework; this study will look for further evidence on the effect of commitment on environmental management. In addition, the nature of the commitment is highlighted. The proposition is therefore:

P9: The level of commitment is positively related to the alignment of environmental management.

3.5 Implications for the study

This chapter has introduced the theoretical background of the study, the exploratory framework, and its accompanying propositions. Building on an adjusted strategic alignment model (the environmental alignment model), institutional pressures as well as the direction and order of the alignment will guide the analysis. An overview of the predicted relationships is presented in Figure 3-2. The propositions that have been formulated will be empirically examined in the following empirical parts of the research; the next and last chapter of this first part explains the research method of the study and the operationalisation of the variables involved. Part II focuses on the different elements of the research model and their implications for the propositions for a broad sample of companies in the petroleum sector. Subsequently, part III, aims for more in-depth insights by means of the case studies. Ultimately, the results from the different levels of analysis will be combined to create an overall picture of environmental alignment in the period 1990-2002, focusing on divergent and convergent behaviour of petroleum MNCs.
Figure 3-2 Overview of predicted relationships

The Greening of Black Gold