CORPORATE ENVIRONMENTAL MANAGEMENT: STAKEHOLDER INFLUENCE, OWN IMPACT AND MANAGERIAL RESPONSES

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Abstract

With increasing population and economic growth and related demand for energy and natural resources as well, pollution, waste production and environmental sustainability have become issues of uttermost importance. For quite some time self-regulation, i.e. voluntary implementation of environmental managements and reporting systems and cleaner technologies, has been vigorously embraced by industry as the preferred choice. However, no clear picture of industry's responses towards pollution reduction was available two decades ago. In consequence, a longitudinal research project was initiated in the early 1990s to investigate this situation. Following a pre-test in 1994 an identical survey has been carried out each fourth year since 1995 based on a structured questionnaire distributed to a random sample of small and medium sized industrial firms in Denmark. The overall question guiding this research is: how does industry respond to the environmental challenge? The paper concludes that despite the apparent attractiveness of self-regulation in industry, voluntary options tend not to be widely adopted thus pointing to a continued strong need for an effective regulation of industry's environmental and climatically related behaviour.

1. Introduction

With increasing population and economic growth and related demand for energy and natural resources as well, pollution, waste production and environmental sustainability have become issues of uttermost importance. However, some of the earliest studies of the interaction between management and environment and climate among other things showed that public pressure, for instance in the shape of legislation, had the largest impact when companies took initiatives to decrease their environmental influence (see for instance Wheelwright, 1973; Gladwin, 1977). The inclusion of environmental aspects to the objectives and founding values of the companies, however, hardly occurred at this time. And it still seems to be a prevailing situation (Welford et al., 2007).

As a supplement to the existing national and international efforts to regulate environmental pollution, a number of powerful industrialists instead called for credence to be given to more self-regulation based on voluntary participation. That is, to take a more pro-active attitude. Furthermore, in the wake of the situation the interest among scientists grew in the connection between the companies' opportunities for reducing their harmful environmental and climatic influences (cf. Gilbert, 1993; Stead & Stead, 1992; Ulhøi, 1993; Taylor, 1994; Welford, 1995). Therefore, a new form of management emerged, whose practical side became visible in integrated environmental management systems, first as the British environmental management system standard of BS7750, then the European EMAS (see e.g. Rothery, 1993) followed by the international ISO 14001 standard (see e.g. Sheldon, 1997).

Since then, however, self-regulation, i.e. industry's voluntary implementation of environmental managements and reporting systems and cleaner technologies, has increasingly been seen as the least 'evil' solution whereas legislation and regulation normally have been reported as drivers of the development (see e.g. Madsen & Ulhøi, 2006). Therefore, the question is if this situation has changed structure over the last two decades and if drivers of management's adoption of environmental management initiatives can be identified more precisely.

In this context, natural questions that beg to be answered are therefore: What are the drivers which motivate companies to implement environmental non-harmful practices, and with what effects? These are questions which will be in focus in this paper.

The remaining part of the paper is structured as follows: The following paragraphs set out the more precise background for the research as well as the empirical and methodical basis, followed by a presentation of the findings. After this a discussion of the results are presented followed by an assessment of potential implications and concluding remarks.

2. Background

The adoption of corporate environmental management standards and/or systems and even the principles behind corporate environmental management seems recently to have proceeded at slower pace (Madsen & Ulhøi, 2006). One reason seems to be that organisations have harvested the low hanging fruits (primarily cost reductions following increases in taxes and charges) and that current market mechanisms do not seem to motivate them to take environmental initiatives beyond the ones strictly required by regulation and/or justified by immediate return on investment, such as for example improved energy and resource efficiency, waste sorting and the like. In other words, managers in companies have difficulties in seeing the potential carrot associated with attempts at realizing competitive advantage through environmental innovations.

SMEs with less environmental visibility, often lack direct consumer influence for environmental improvement and overall they conceive their environmental impact as minimal (see e.g. Biondi et al., 2002; Madsen and Ulhøi, 2001; Gadenne, 2009). Or as mentioned by Friedman and Miles (2002: 324): 'one problem is that many SMEs consider their environmental impact to be minor or even insignificant'. However, the accumulated impact from SMEs in the industrialized part of the world has been found to contribute to more than two thirds of global pollution (Hillary, 2000) and they comprise approximately 90% of all private sector company's in most industrialised nations (Schaper, 2002; SBS, 2004). Therefore, they are actually responsible for quite a large part of business activities and thus may cause more environmental impact than larger companies. As surveys and research in the field has demonstrated one reason seems to be that many SMEs tend to handle environmental related activities unsystematically and on a personal ad hoc basis (Murillo & Lozano, 2006).

Unfortunately, until recently much of empirical studies in the field of corporate environmental management tend to focus on medium-sized to large firms. The question therefore is whether insights from these studies are directly transferrable to SMEs or whether the contexts, opportunities or obstacles are fundamentally different to invalidate such a transfer? Since an immediate transfer may not be possible or valid, the academic footprint in terms of publications and activities, therefore reflect the size of the ecological footprint created by small business, in its entirety.

Almost two decades ago little information was available concerning adopting an implementation of corporate environmental management in the Danish business community which mainly consists of SME's. This called for collection of valid information. As a result Danish industrial companies have been monitored on a regular basis since the early 1990's through an ongoing research project

primarily based on frequent questionnaire based surveys (see e.g. Madsen & Ulhøi, 2006; Ulhøi & Madsen, 2005; Madsen & Ulhøi, 2001; Madsen et al., 1997; Madsen & Ulhøi, 1996a). A major focus has been to achieve an insight into the stakeholder influence perceived by management of the companies as well as the perceived impact from the companies' own business activities when taking initiatives in order to reduce companies' impact on the natural environment.

The theoretical frame of the stakeholder perspective is sketched in the following section.

3. Theoretical framework

In dealing with the influence from stakeholders on companies decision process related to environmental issues it should be recognise that the number of stakeholders directly or indirectly affected by the environmental consequences of a company's business activities is often much larger than expected. Thus, potentially relevant stakeholders not only include the owner, employees and the authorities, but also local and international environmental groups, local neighbours worried by, for example, noise or dust, and local, national or international groups engaged in natural preservation or reconstruction. In view of this, therefore, it seems only natural that environmentally concerned companies would want to establish a closer relationship with their stakeholders. Integrating stakeholder and environmental concern may be one way of achieving a more sustainable environmental development (see e.g. Madsen & Ulhøi, 2001). However, limited resources could force companies – and especially SMEs - to focus mainly on the most important stakeholder.

Over the past few decades, there has actually been an increasing focus on stakeholder management in relation to business activities in general (see, for example, Freeman, 1984). Recently, it has also been realized that stakeholders are important players in companies handling of environmental issues (see e.g. Fineman & Clarke, 1996, or Henriques & Sadorsky, 1999 for early publications and González-Benito, 2011 or Garcés-Ayerbe, 2012 for more recent publications). This should be of interest to business managers, since regulation still seem to be the main factor influencing companies to introduce less environmentally harmful activities (see, for example, Madsen & Ulhøi, 1996a, 1996b; Ulhøi et al., 1996). Given the increasing general interest into environmental issues it is expected that different groups of stakeholders will exert an increasing influence on companies' environmental behaviour and attitudes in the future. Managing dynamic and complex stakeholder relationships in the area of environmental issues may soon become a normal management task in many companies, as it already has been practiced for some time in environmentally pioneering and experienced companies (see, for example, Novo Nordisk, 1997).

The relationship between a company and its stakeholders is first and foremost based on the recognition that there are various groups of stakeholders. Since companies are strongly integrated into its immediate surroundings through a dynamic and complex web of stakeholder groups (Clarke & Roome, 1999), this recognition implies that companies have to take account of the influence of the various groups, including the opportunities and threats implied in exerting this influence. Each of these stakeholder groups has a specific set of concerns, priorities, expectations and strengths, and thus different possibilities for influencing the environmental situation of the company. Therefore, companies' evaluation of what constitutes appropriate effort is also likely to differ. Rather than passively viewing stakeholder influence as yet another burden or constraint on corporate management, it may be more fruitful to undertake a proactive, dialogue-based stand, which in turn may lead to possibilities for mutual learning processes. However, it is worth noting that previous field studies seems to suggest that the theoretical argued grouping of stakeholders into primary and secondary ones (Clarkson, 1995) may be questioned when it comes to environmental management (Madsen & Ulhøi, 2001).

In spite of the acknowledgement of the advantages in stakeholder management a representative from industry urged for more regulation and legislation at a climate conference at Aarhus University in 2009 in preparation for the Copenhagen Summit in December 2009 (COP 15) but with the following addition: "as long as it do not affect the competitive equilibrium". However the critical question is if future changes actually have to affect the competitive equilibrium and should come from other stakeholders than regulators and legislators. In this way companies may be motivated if not forced to begin climbing the 5-point ladder mentioned by Nidumolu et al. (2009) where they start seeing compliance with norms and regulations as opportunities resulting in a focus on influencing the value chain (as happened in quality control in the 1980s) and more eco-efficient products and services and further on to the development of new business models and creation of next-practice platforms.

Another issue which may influence environmental initiatives in business companies is the awareness among managers of environmental consequences due to the production of their company. Gadenne et al. (2008) has researched this aspect from a personal environmental attitude perspective by adopting an approach reported by Scharper (2002). However, since awareness of environmental issues may be a result of stakeholder pressure or activities an alternative is to look at managers' awareness of environmental consequences caused by their companies activities into a study of the relationship between corporate environmental initiatives and stakeholder influence in order to take account of a potential interaction.

This lead to the propositions that perceived stakeholder influence is assumed to have a positive impact on corporate environmental initiatives and so have managers' awareness. Furthermore, an interaction between perceived stakeholder influence and awareness may be possible. These propositions will be analysed through a study of the situation in Danish industrial SMEs. After a general analysis of the relationships a more detailed analysis of the perceived influence from individual stakeholders and areas of awareness as well as where initiatives have been taken will be given and subsequently discussed in light of similar research reported in the literature.

4. Method

As mentioned above the survey instrument applied is a pre-tested and structured questionnaire. Besides a pilot survey in early 1994, which led to minor adjustments of the survey instrument five full-scale surveys have been carried out each fourth year since 1995, the last one in 2011. In all surveys samples of companies in Denmark with 10 employees or more were drawn randomly from an electronic database. The main focus is on industrial companies. But the 1995 survey constitutes an exception since it included all types of companies. Therefore, the information collected in 1995 will not be considered in the following analyses. The initial sample in each survey consisted of some 500 companies, which represented around 10% of the companies in the population.

A first contact to the sampled companies was made by a telephonic pre-notification procedure with the purpose of identifying the managers in the companies responsible for environmental matters and achieving their commitment to participating in the survey. The response rate was around 60% in all surveys. This must be considered quite a satisfactory result regarding validity of the analyses.

For each topic included in the research a scale of items was constructed based on input from various related published research in relevant journals and books. A related response scale allowed responses to be given on a five-point ordinal scale so that questions could be answered by expressing either the degree of agreement/disagreement or level of perceived impact or influence. It should be noted that instead of measuring awareness by the managers' personal attitude towards environmental issues an alternative has been applied in this paper represented by the managers' perception of the environmental impact from the production (own impact).

To analyse the data, a number of statistical techniques have been applied. For the purpose of this paper, techniques like regression analysis using OLS, factor analysis using principal component analysis and varimax rotation as well as profile analysis, which is a special version of a multivariate analysis of variance, has been applied (see e.g. Hair et al., 2005). By applying these techniques it is possible to identify relationships between variables included in the survey, structures in the responses and differences in responses to the same topic in two or more surveys. All tests are based on a 5% level of significance.

5. Results

5.1 The general trend

The overall development in perceived stakeholder influence and own impact as well as initiatives taken from 1999 to 2011 is shown in figure 1.

*** INSERT FIGURE 1 ABOUT HERE ***

As can be seen the development in all three categories follow an almost identical pattern since a decline can be observed from 1999 to 2003 followed by an increase from 2003 to 2007. The level in 2011 is generally at the same level as in 2007.

Analysed by a profile analysis it can be concluded that the decline from 1999 to 2003 is not significant. But the increase from 2003 to 2007 is significant. Therefore, the level in 2011 is also significantly higher than the level in 2003.

It is interesting to observe that the perceived influence from stakeholders is considered higher in 1999 compared to the perceived own impact whereas a reverse situation is found in 2007 and 2011 after a somewhat equal level in 2003. But what may be more remarkable is that in all four surveys the level of initiatives taken is higher than both perceived stakeholder influence and own impact.

However, since the information in figure 1 is measured on an index scale ranging from 0 to 10, a general level alternating around 4 cannot be described as convincing in any of the categories.

In order to analyse if initiatives taken can be explained by perceived stakeholder influence and own impact, a regression analysis will be carried out. Since managers' perception of their companies' own impact may be influence by stakeholders it is considered relevant to include an interaction between stakeholder influences and own impact as well. The result is presented in table 1.

*** INSERT TABLE 1 ABOUT HERE ***

As can be seen in table 1 the interaction is highly insignificant and can be excluded from the model. But also the perceived own impact is almost insignificant. Excluding the interaction and re-estimating the reduced model both perceived stakeholder influence and own impact are now highly significant in explaining the development in initiatives taken. Furthermore, an increase in the adjusted coefficient of determination can be observed. The result indicate that around 43% of an increase in initiatives taken can be explained by stakeholder influence and around 27% by the managers' perception of their companies' own impact. However, even if the two explanatory variables may be considered essential in describing the development in taking environmental initiatives in the companies' they may only be considered as proxy's for other underlying factors.

Having described the general development the focus will now be on a more detailed analysis of the three individual categories included in the research.

6.2 Perceived stakeholder influence

The stakeholders included in the surveys and their perceived influence is presented in table 2.

*** INSERT TABLE 2 AROUND HERE ***

An initial factor analysis indicates that the stakeholders can be factorized into 3-4 factors depending on the survey. The first factor includes local, national, and international regulation as well as owner/shareholders and employees. As can be seen in table 2 these stakeholders are perceived to be among the most influential ones with a level around 3.5. In the last survey from 2011 the various kinds of regulation loads on a separate factor whereas owner/shareholder and employees load on their own factor. That is, an internal/external dimension of regulation can be assumed.

The remaining stakeholders in table 2 generally load on two separate factors which can be characterized as marked-based stakeholders and stakeholders with an indirect influence. The first factor includes customers, competitor, and suppliers and the second one the various interest organizations or associations. As can be seen in table 2 the perceived influence from these two groups of stakeholders are generally considered to be at a somewhat lower level compared to the stakeholders mentioned above. The only exception is customers where the perceived influence is at the same levels as mentioned above. Two comments are relevant here. The first one concerns financial institutions. In the first surveys they normally loaded on the factor with stakeholders perceived to have an indirect influence. But in the last survey from 2011 they are now included in the factor with marked-based stakeholders. This could indicate a shift in the attitude towards environmental issues from this stakeholder. The second comment concerns the present of secondary loadings in the factor analysis. This may indicate that the influence from some stakeholders could be direct as well as indirect. One example is employees which may influence issues related to the working environment directly or through their union.

The general development in the perceived influence from the various stakeholders seems to follow the overall development presented in figure 1. That is, a decrease from 1999 to 2003 followed by an increase in 2007 and an almost identical level in 2011. Among the most influential stakeholders international regulation and employees seem to deviate from the general development. International regulation seems to exert a steady increasing influence whereas the influence from employees has a more decreasing general structure.

Among the least influential stakeholders the situation is somewhat identical with the general structure described in figure 1. But again a number of opposite tendencies can be identified. The most notable general increases in perceived influence in this group can be referred to stakeholders like business networks, competitors, and environmental organizations. On the other hand a development mainly characterized as decreasing seems to be characteristic when looking at unions and to some extent also at press and media.

6.3 Perceived own impact

Shifting the focus to managers' perception of the environmental impact due to their own companies' business activities the results are found in table 3.

*** INSERT TABLE 3 AROUND HERE ***

Again a general development similar to the one described in figure 1 seems to be prevailing. The major exception is logistic where the development mainly can be described as increasing. To a minor extent this can also be said about the remaining areas. That is, when considering the four surveys included in this paper, it does not seem as if the perception of the influences in any of the areas related to the companies' own impact exhibit a direct general decreasing tendency. However, since the average perceived influence is alternating around 2.5 managers' do not seem to believe that the impact related to their own business activities is something that matters.

When analysing the responses by means of a factor analysis a quite interesting and saying patter can be observed. The result points to a two factor solution where the first factor describes activities related to the production process and the second one includes use, re-use/recycling or discharging of the products. That is, a split into a production and a product dimension or and internal versus an external dimension.

6.4 Environmental initiatives

Finally, turning to the initiatives related to environmental issues taken in the companies. An overview of the situation is found in table 4.

*** INSERT TABLE 4 ABOUT HERE ***

Except for improvements of the working environment, waste sorting at the source and reduction of energy the level of the initiatives is between 1.5 and 2.5. That is, only few initiatives seem to have reached a stage where they actually have been initiated. However, based on the observations in the last survey from 2011 initiatives within reuse of left over and reduction of solid waste seem to be on its way.

In the areas mentioned where initiatives actually have been initiated the development can be described as increasing or stable. In the remaining areas the development shows various tendencies.

Therefore, even if the development not is unambiguous it seems reasonable to conclude that companies have launched more environmentally related initiatives in certain areas over the period covered by the surveys, or have started considering it. In other areas, the development points to a situation where more businesses have changed their understanding from seeing environmentally related initiatives as not being relevant, to that of just not doing it, which after all indicates a growing recognition.

A factor analysis of the information points to a four factor solution. The first one is related to the working environment in general and includes reductions in noise, airborne emissions, and replacement of environmental damaging materials. The second one is related to the production process and includes reduction in energy consumption and solid waste, waste sorting at the source and reuse of left over from the production as well as the total logistic related to the production. The third factor concerns reductions in fluid materials related to the production process like consumption of water, effluent and fluid waste. The final factor focuses on taking back left over materials or worn out products from the customers. It can be noted that factor two and especially factor three primarily includes initiatives which can be characterized by cost savings.

6. Discussion

A cautious interpretation of the perceived influence of the various stakeholders is that regulators in general (and local and national regulators particularly) still exerts the major influence when

companies consider environmental initiatives. However, other stakeholders such as owners/shareholders and to a lesser degree employees and customers also play an important role. On the other hand competitive factors in general do not seem to influence the corporate greening process at present nor do stakeholders, such as financial institutions, seem to be influential despite the potential risk to their interests of poor environmental performance especially in industrial companies.

The high level of perceived influence from employees may be explained by the existence of a compulsory statutory health and safety scheme in the Danish labour market. This in turn suggests that the perception of environmental issues is more often based on internal aspects in the firm than on external environmental aspects. Confirmation has been provided by multivariate analyses of the survey information concerning perceived stakeholder influence in relation to the content of environmental initiatives where a strong internal dimension in the responses has been identified (Madsen et al., 1997). However, it should be noted that improvements in the working environment often have a derived positive impact on the natural environment. Furthermore, the authorities in charge of issues related to the working environment have changed their contact to the companies from a control-based approach to a more dialogue-based one. That is, acting as consultants and coaches more than controllers. This change is an advantage to especially SMEs with limited resources and competencies in dealing with environmental issues.

The relatively high influence of international authorities follows from Denmark's membership of the European Union and its role in the harmonisation on environmental matters as well as the increasing political awareness of the need for environmental initiatives by bodies such as WTO and the UN.

The classification of perceived stakeholder influence into the four groups identified in this study seems generally to fit with results reported elsewhere. Especially the legislative group and the internal group has been reported quite a few times before from different countries (see e.g. Fineman & Clarke, 1996; Henriques & Sadorsky, 1999; Buysse & Verbeke, 2002; Kassinis & Vafeas, 2006

Stakeholders may often have different preferences and needs. But there are particular differences in their incentive to investigate firms' activities. Investors, for example, need information about the firm and its activities, since it may affect their financial interests, and they will often have more sophisticated means to do this than other stakeholders (Steadman et al., 1996). The findings of the present survey, however, do not suggest that companies are aware of this and that investors seem to demand such information.

Furthermore, it must be kept in mind that managers play a crucial role as strategic mediators of stakeholder influence. Managers who have particular views and/or expectations of the power and relevance of various stakeholders may be predisposed to favour certain categories over others. Another problem is the distinction between primary and secondary stakeholders. Such a distinction, might, for example, lead some managers to only pay attention to primary stakeholders. This is not supported by the findings of this research, however. Actually several examples have been seen in recent years where secondary stakeholders, such as environmental pressure groups, can pose very serious threats to the firm and its future development (cf. the Shell Brent Spar example).

But as the regression analysis revealed, stakeholder influence in general plays an influential role when companies' consider to take environmental related initiatives.

Even if the interaction in the regression analysis was insignificant managers' rather re-active perception of stakeholder influence in general may explain the low perception of the environmental impact of their own business activities. It is tempting to conclude that compliance with regulations seems to be sufficient in order to avoid further environmental consequences of the business activities. This is somewhat in contradiction to managers' awareness of environmental issues reported by

Gadenne et al. (2009). That is, even if managers' are aware of cost-reducing initiatives they do not seem to have a perception of the strategic potentials.

Since the perception of the companies' own impact in general has the lowest influence when environmental initiatives are taken increasing this awareness may be a valuable way to improve the situation. But the question is if it can be done without increased stakeholder influence.

The surveys have documented that the voluntary implementation of the guidelines, built upon among others by the environmental management systems, does not occur to a very broad extent (see for example Madsen & Ulhøi, 2001). Thus, the principle of volunteering does not appear to be able to spur on a sufficient number of businesses to introduce environmental initiatives that go further than is demanded in legislation. At the same time, a tendency of stagnation in the environmental debate has been observed, yet in recent times it has intensified with a focus on the climatic conditions. However, this recent development does not seem to have brought more initiatives with it (McKinsey, 2008).

It appears that the majority of initiatives launched can be attributed to areas in which businesses immediately obtain a cost-reduction effect. This situation can be seen in the light of the rising costs concerning energy and water consumption and deposition of waste introduced by national as well as regional and local authorities. But as stated by Porter & van der Linde (1995), such a situation has an impact on the competitive balance as well as the environmental strain of the business on the physical surroundings. On the other hand, it also indicates that businesses are avoiding taking greater and more costly initiatives that can only pay for themselves over a good many years.

However, the environmental related initiatives that the companies have launched or contemplated serve two purposes. It is partly a case of making a change in the reduction of the impact on the physical environment, and partly a case of cost-reduction. The fact that these two purposes can be considered at the same time typically has a motivational effect on the companies as well as a positive derived effect on the surrounding environment.

When the reasons for a declining trend in initiatives launched during the observed period are assessed, it is natural to focus on the fact that businesses tend to become more focused on the bottom line, not least during conjunctural decline. In addition to the environmental conditions, thought must also be given to the trade climate. Therefore, when a shift is detected in this development in 2007, it is natural to point to the positive economic climate of the previous period and the fact that Denmark at that time just had accepted the role of hosting the UN climate conference in 2009 (COP15), which created a renewed debate of environmental and climate issues..

But it is also worth noting that increases in initiatives first and foremost occurred within the areas that quickly saw completed initiatives pay for themselves (i.e. the era of the 'low hanging fruit'). Many businesses have therefore already reaped the immediate benefits of introducing environmental enterprises. The next steps of the introduction of environmental management systems will typically entail a delay in getting the initiatives launched to pay for themselves, as they will demand the introduction of more complex technologies and thus greater investments. That is, companies' are mainly re-active in their attitude towards environmental issues.

Although there are certain differences in the research focus and manner of gathering information, the results concerning initiatives obtained in the Danish surveys can, with some degree of caution, be compared with corresponding research results previously published. Thus, in Dahlmann et al. (2008) and Minciullo (2012) it is also reported that compliance with regulations and economic concerns are the major focus of environmental initiatives.

7. Implications

On face value, an integrated environmental management system approach appears to be an important step in the right direction. However, the potential danger lies in the possibility that the stakeholders of the environment may be less capable (in terms of power and resources) of safeguarding their position as 'equal' dialogue partners and/or being 'seduced' by the other party's communicative skills. In light of the fact that green industrialists have their own outlets (journals, publishers, conferences and networks) and that they often have easy access to political and economic support Jamison (2000), they have become increasingly effective in influencing this dialogue.

Moreover, there are reasons to believe that the systems approach is far from enough to solve the environmental problems caused by industry and consumption. Systems are primarily about processes and measurements of physical flows (i.e. quantitative issues), whereas sustainability is also about qualitative issues such as for example human values, social and economic justices, inter-generationality, etc. It seems that if we should go beyond simple compliance and cost savings we are in need of a shift of paradigm that would bring about acceptance by the industry of its ethical and social responsibilities.

It is, however, unlikely that the business community will accept this wider agenda without significant pressure from stakeholders. Currently, stakeholder pressure is generally very low and business managers' do not seem to realise the competitive advantage which may appear in the not too close future. Therefore, it seems that we are in need of a more radical approach, and things can only be altered by way of a shift in culture, and through a re-examination of the dominant ideology surrounding environmental management strategies. Focusing on the system-based initiatives is not enough, seeing as such approaches tend to be detached from any re-evaluation of underlying values, hidden agendas, and from any attempts to get to the root of the problem.

8. Conclusion

The general development during the period surveyed indicates that even if some stakeholder pressure is recognized by business managers' and relevant initiatives taken, the level is however not particularly high. The conclusion seems to be that the awareness of the managers and thus the path taken by companies in implementing corporate environmental management has not really changed much since the pioneer companies of the mid-1990s. One obvious excuse might be that the industry is not likely to invest more than the market is willing to pay. The eco-modern approach still has to demonstrate that it includes a real consideration of the principles of sustainable development.

Environmental management practices provide useful principles which all firms can implement with benefits, and which have proven to be an efficient way of harvesting the low hanging fruits. However, since marked forces do not seem to be efficient drivers for an increasingly responsible and pro-active approach to the environment a call for different and radical approaches to doing business is required. For this to happen, there seem to be a continuous need for legislation at the local, national as well as international level.

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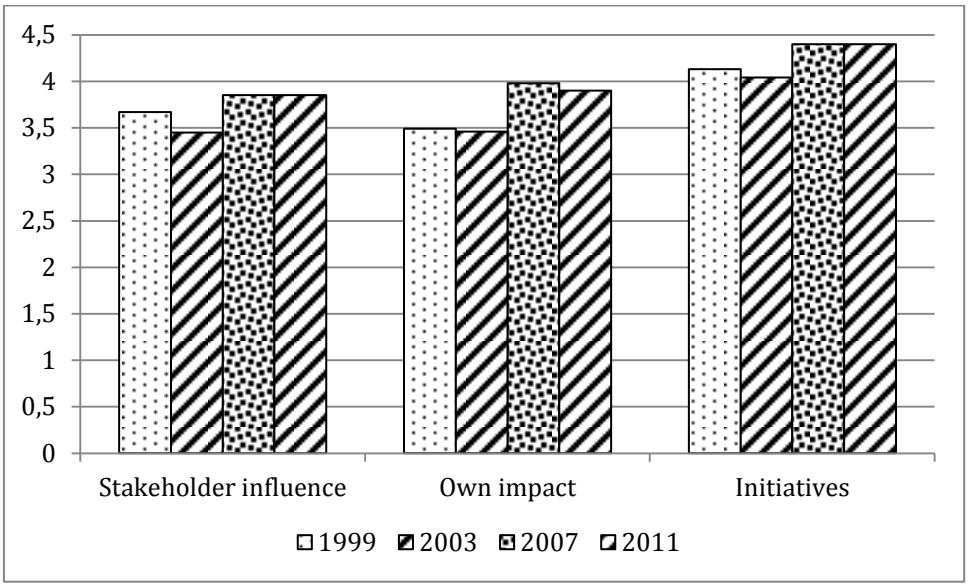

Figure 1. *The general trend in the development of perceived stakeholder influence and own impact as well as environmental initiatives taken (measured on an index scale ranging from 0 to 10).*

Table 1. *Regression analysis of the effect from perceived stakeholder influence and own impact on environmental related initiatives taken by companies based on the 2011 survey. In brackets below the estimated parameters the level of significance for the t-tests is specified.*

	Full model	Reduced model
Constant	1.616 (0.004)	1.727 (0.000)
Perceived stakeholder influence	0.460 (0.001)	0.429 (0.00)
Perceived own impact	0.304 (0.046)	0.270 (0.000)
Interaction between stakeholder influence and own impact	-0.009 (0.808)	-
Adjusted R^2	0.244	0.246

Table 2. *Average responses*[*)] *to the perception of stakeholder influence when considering environmental initiatives in Danish industrial companies.*

Stakeholder	1999	2003	2007	2011
Owner/Shareholders	3.53	3.36	3.50	3.61
Employees	3.40	3.21	3.28	3.16
National regulation	3.44	3.41	3.65	3.52
International regulation	2.81	2.89	3.10	3.15
Local regulation	3.55	3.48	3.65	3.59
Customers	3.08	2.94	3.15	3.30
Distributors	1.79	1.67	1.95	1.94
Suppliers	2.09	2.00	2.12	2.22
Competitors	2.28	2.09	2.34	2.36
Unions	1.95	1.67	1.86	1.76
Environmental Organizations	2.19	2.14	2.30	2.34
Financial Institutions	1.75	1.68	1.92	1.88
R&D Institutions	1.87	1.79	1.80	1.85
Press and Media	2.00	1.99	2.07	1.94
Consumer Organizations	1.99	1.87	1.96	1.94
Employer Associations	2.36	2.26	2.46	2.32
Business networks	2.01	2.10	2.15	2.21

*) Response options were: 1: no influence; 2: little influence; 3: some influence; 4: high influence; 5: very high influence.

Table 3. *Average responses*[*)] *to managers' perception of the influence from their own business activities when considering environmental initiatives in Danish industrial companies.*

Impact area	1999	2003	2007	2011
Extraction of raw materials	2.25	2.31	2.39	2.36
Suppliers production processes	2.66	2.70	2.85	2.78
Own production processes	2.38	2.36	2.60	2.57
Logistic	2.74	2.72	2.94	2.99
Use of products	2.07	2.03	2.30	2.26
Discharge of products	2.31	2.34	2.30	2.41
Recycling of products	2.41	2.30	2.61	2.58

*) Response options were: 1: no influence; 2: little influence; 3: some influence; 4: high influence; 5: very high influence.

Table 4. *Average responses*[*)] *to managers' perception of the influence from their own business activities when considering environmental initiatives in Danish industrial companies.*

Initiative	1999	2003	2007	2011
Reduction of solid waste	2,75	2,90	2,93	3,05
Protection of the soil	1,41	1,41	1,51	1,42
Reduction of fluid waste	2,18	2,24	2,32	2,22
Reduction of water	2,80	2,57	2,53	2,63
Reduction of effluents	2,36	2,19	2,03	2,23
Reduction of energy	3,18	3,21	3,22	3,48
Reduction of air born	2,32	2,32	2,63	2,31
Reduction of noise	2,90	2,96	2,97	2,83
Reduction of raw mat.	2,35	2,43	2,56	2,47
Reduction of auxiliary materials	2,50	2,48	2,50	2,56
Replacement of environmental damaging materials	2,58	2,81	3,02	2,87
Improvement of the working environment	3,75	3,69	3,75	3,74
Waste sorting at the source	3,04	3,31	3,35	3,49
Reuse of left over	2,81	2,64	2,95	3,08
Take back left over from customers	1,62	1,61	1,90	1,74
Take back worn out from customers	1,67	1,61	1,95	1,78
R&D	2,40	2,41	2,40	2,59
Logistic	2,32	2,24	2,31	2,51

*) Response options were: 1: not relevant; 2: no; 3: considering; 4: to a little extent; 5: to a large extent.