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# Chapter 1: Introduction and Methodology

## 1. Introduction

Over the last few decades, the focus on the environment has increased significantly both within the public and private sphere. World political summits and agreements on environmental issues have greatly broadened the focus on the environment as well as encouraged strengthening environmental regulation by governments and responsible behavior by companies. As a result, companies are increasingly being pressured to reduce their environmental impact in the face of stricter environmental regulations. Environmental regulation has often been seen as a constraint on business, driving cost up and putting companies at a disadvantage in their internationalization.

Neo-classical literature asserts that stricter environmental regulations undoubtedly create a negative effect on business, making the polluting firms worse off by driving up costs and reducing profits. However, in the view of other theorists like Porter and Van der Linde (1995:98), “Firms can actually benefit from properly crafted environmental regulations that are more stringent or are imposed earlier than those faced by their competitors in other countries”. In their view, there is a business case for companies to lead proactive environmental strategies. In consequence, they encourage companies to see high environmental performance as a competitive opportunity and not as a source of unbearable costs or a postponable threat. Indeed, strict environmental regulations can enhance competitiveness by stimulating companies to cut unnecessary costs and find more effective ways of producing through innovation.

Recently, more companies are recognizing a responsibility for the way they conduct business and impact the environment and subsequently lead an environmental strategy. Interestingly, their motivations are not only moral, but of a business orientation. Performing beyond environmental compliance may provide some companies with advantages. According to Reinhardt (1999) “Being able to forecast upcoming regulation can be of substantial importance in order to retain market shares in times of change.” Companies seek to structurally address environmental issues by implementing strategies and managerial systems aimed at differentiating themselves from other companies. Stressing this point further, a new analysis from the Danish Ministry of Economic and

Business Affairs<sup>1</sup> categorizes green companies as being the most competitive in Denmark, in terms of job creation, income and innovation (Berlingske Tidende, 20/08/2008).

Environmental degradation caused by industrial activity is particularly immense in developing countries where environmental regulation has virtually been absent until recently. Nevertheless, developing countries, due to their untapped resources and substantial populations generally have the greatest market growth potential and therefore constitute enormous opportunities for multi-national companies which realize a substantial part of their economic activity across borders.

The economic impacts of some of these giants are far greater than the ones created by the entire economic activity of smaller developing countries and therefore are considerably important to the development of host countries. However, these companies do not only contribute positively to host countries welfare by way of economic spillovers, but also negatively through environmental degradation. In consequence, the increasing awareness of environmental issues by stakeholders and governments may push these countries to strengthen their environmental regulations and to tighten their expectations on the investments of large multinational companies into their country.

Multinational companies leading high environmental performance strategies may therefore be favored to enter these markets. In fact, these large companies who participate in foreign direct investment (FDI) ventures within developing countries may be the best vehicles of transfer for clean technology, know-how and more sustainable ways of production. On their paths towards development, developing countries may prefer courtship with companies that have sound and sustainable practices and can transfer environmental knowledge and technology, contributing to sustainable development. "MNCs can provide a significant bridge in the environmental sphere between one country and another and between one region and another" (Hadlock, 1994:181).

China is in many ways seen as a front leader of developing countries. Since its open-door policy was introduced in 1978, China has become the world's largest recipient of FDI. However, the downside of this great economic activity, namely environmental degradation, has started to become a major concern for the Chinese government (Chan, 2000). China is the worlds' biggest green house

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<sup>1</sup> Berlingske Tidende. Energibevidste virksomheder tjener flest penge. 20/08/2008

gas emitter and home to twenty of the thirty most polluted cities in the world.<sup>2</sup> The continued environmental degradation has consequently forced the Chinese government to resort to various legislative and administrative measures for rectification of this (Chan, 2000).

This increased commitment from the central government, together with the corresponding tightening of national environmental policy, has posed new operating challenges to enterprises that conduct business in China (Spitalnik, 1996) and failing to meet such challenges may jeopardize the survival of these enterprises (Chan, 2000). Developing countries on a similar development path as China might be faced with the same environmental problems, and find themselves within the need to both tighten regulations and to select more carefully the companies entering the country.

The relationship between high environmental performance (HEP) and its resulting advantages has been investigated before, however, the effects of HEP on the internationalization of companies has to our knowledge never been studied. Due to this existing gap in the literature, we find it relevant to establish whether or not pro-active environmental companies gain an advantage in their internationalization and if so, to examine how.

## **1.1 Research question**

**«(How) is pro-active environmental behavior of Multi-national companies (MNC) an advantage in the internationalization process? »**

Principal hypothesis:

In the thesis we hypothesize that MNCs with a high environmental performance gain advantages when internationalizing.

## **1.2 Motivations for writing the thesis**

Within literature relevant to this subject, advantages gained from environmental conduct have been discussed. However, these findings have not to our knowledge been combined and investigated

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<sup>2</sup> World Bank. East Asia, 10 years after the financial crisis. 5/04/2007.

empirically around the internationalization process specifically. Therefore, this thesis sets out to investigate whether companies with a HEP can gain advantages when internationalizing. We use China as a case example for two reasons. Firstly, it has a position as the world's largest FDI recipient. Secondly, it is the most polluted country in the world. We are seeking to anticipate its future reaction against environmental degradation as a means of identifying general trends for developing countries on the whole. The thesis will have a foreseeing character, which means that we will be using our findings about China to anticipate possible outcomes for FDI in other developing countries, as environmentalism spreads through the developing world.

### **1.3 Structure of the thesis**

We have structured the thesis into six chapters. The first chapter encounters the above section; the introduction and furthermore the coming sections definitions, methodology, data, and validity. These sections are meant to give the reader insight in the choice of subject, the progression of the thesis and the rationality behind it.

In the second chapter the literature review and analytical framework is presented. It forms the basis of an in-depth analysis of the advantages that companies can achieve by having HEP. The chapter serves to the reader a thorough insight into the various existing literature on the subject. By dividing the literature into four sections, we can compare the different theoretical views and thereby make the literature operational for our analysis. This literature review will create the basis for the analytical framework and generate hypotheses that we find relevant to investigate.

In chapter three the participating companies are described, with an explanation of the reasons why we have chosen them. The portrayal of the companies primarily focuses on their environmental strategies; however a limited overall description gives the reader insight into the companies' profile and their competitive situation.

The fourth chapter consists of a detailed description of China's economic attractiveness and level of pollution. The purpose of this chapter is to give the reader an accurate picture and an understanding of the evolving context that the companies operate in. Furthermore this section serves as an insight to assess how important the environmental context is and will become in the future for China.

In chapter five the analysis is conducted. Here, there will be a close integration of theory and empirical data where results of a questionnaire/survey are analyzed as well as the secondary empirical evidence. By laying weight on theoretical elements, we seek to make our findings relevant for HEP companies in general. These findings are used to sustain or dismiss the hypotheses generated in the analytical framework. The analysis is structured after the generic headings of the analytical framework.

Finally, in chapter six, we conclude on our results and answer the research question.

## **1.4 Definitions**

### **Competitive advantage:**

A competitive advantage exists when the firm is able to deliver the same benefits as competitors but at a lower cost (cost advantage), or deliver benefits that exceed those of competing products (differentiation advantage). Thus, a competitive advantage enables the firm to create superior value for its customers and superior profits for itself (Michael Porter).

### **Pro-active environmental companies:**

We define pro-active environmental companies as companies that are acting in anticipation of future environmental problems, needs, or changes. This means that they are acting in compliance but forecasting future environmental regulations or more generally operating beyond compliance of existing laws. Furthermore these companies have voluntarily committed themselves to world wide standards such as the Dow Jones Sustainability Index (DJSI), the Ethibel Sustainability Index, the Global Compact, the World Business Council for Sustainable Development (WBCSD) and the World Wide Fund (WWF) among others.

### **Resources:**

Resources are defined as the firm-specific assets useful for creating a cost or differentiation advantage that few competitors can acquire. The following are some examples of such resources: patents and trademarks, proprietary know-how, installed customer base, reputation of the firm,

brand equity. Consequently an environmental resource is a unique environmental firm-specific capability not easy to replicate and that create an advantage towards other companies.

### **Internationalization:**

We define internationalization in this thesis as FDI (Foreign direct investment) i.e. a company from one country making a physical investment into building a factory in another country<sup>3</sup>. In order to qualify as FDI the investment must afford the parent enterprise control over its foreign affiliate. It can take the form of joint venture, acquisition, or Greenfield investment. Foreign direct investment (FDI) plays an extraordinary and growing role in global business. It can provide a firm with new markets and marketing channels, cheaper production facilities, access to new technology, products, skills and financing. For a host country which receives the investment, it can provide a source of new technologies, capital, processes, products, organizational technologies and management skills, and as such can provide a strong impetus to economic development.<sup>4</sup>

## **2. Method**

The purpose of this section is to clearly explain the reader how we have conducted the research design and the data collection of this thesis, furthermore it serves as a means to establish a solid foundation for understanding the following chapters and our line of argumentation. In the research design we will explain how we will achieve our research objectives and in the data section we will justify our choice of empirical evidence and how these have been conducted.

### **2.1 Methodological approach**

In order to answer the Research Question we use primarily a deductive approach, meaning that we are generating conclusions by adhering to a theory upon which we analyze our data. However, our approach also withholds elements of induction because we have conducted the interviews, while

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<sup>3</sup> Foreign Direct Investment, United Nations Conference on Trade and Development, [www.unctad.org](http://www.unctad.org). 02.09.2008

<sup>4</sup> Going Global. Understanding foreign direct investment

simultaneously writing the theoretical part of the thesis. Therefore it has influenced our perception and point of direction and also the construction of the analytical framework.

We have developed an analytical framework that consists of three generic headings whereupon we can derive hypotheses of potential advantages for HEP in the internationalization process. We have developed the analytical framework on the basis of different theories that encounters the natural environment either as strategic resource or as a way of reducing risks. The hypotheses derived from our analytical framework will be granted or dismissed based on the analysis and the conclusions we reach and will facilitate the answer of our research question. Due to the simultaneous construction of the analytical framework and the conducting of the interviews, the analytical framework and the questionnaires have influenced one another in a feed back loop and the scope of this study has therefore also developed throughout the writing process.

In order to give the reader a broad theoretical view on environmental discussions we first present a neoclassical view on environmental conducts. This part gives the reader insights to the more skeptical literature that exists in the field and although we acknowledge this point of view, and investigate the appliance of this view to our empirical evidence, our main focus is on the reversed approach. This latter approach has become the conventional way of thinking in recent years. This part of the literature review encounter literature from the Resource Based view, Transaction cost theory, Strategic Management theory and Stakeholder theory, by using different theoretical fields instead of one; we believe we can have a more nuanced analysis of the data that we have collected. The different theoretical views will be divided into three generic headings which we find relevant to investigate. The analytical framework consists of three headings; **‘Competitive Advantages’**, **‘Efficiency advantages’** and **‘Stakeholder advantages’**.

By dividing the analytical framework into generic headings that cover different theoretical fields we can give a nuanced and full picture of the beneficial areas that companies may achieve in their internationalization process when having a high environmental performance. The generic headings have been selected on the basis of the literature covered and characterize the main arguments that we find relevant for this study. The different theoretical views are used under the headings when relevant and may in some cases be used only in one of the generic headings and some in all three.

The generic headings in the analytical framework will furthermore serve as a structuring tool of the analytical part of the thesis.

## **2.2 Limitations of the thesis**

The paper investigates whether it is an advantage for companies to have a HEP in the internationalization process and if so how it can be an advantage. When choosing one direction you naturally exclude other areas that could have had relevance to investigate further. We find that it could have been of great interest to have done an industry analysis, in order to make a comparative study. By doing such an analysis we could have compared and measured the importance of having a HEP vis-à-vis other companies selling the same products. However because we wanted to make this research paper a general study that could assess whether it is an advantage in the internationalization process to be a pro-active environmental company, we focused on different industries. Moreover, as we wanted to publicize the results found we chose not to make a comparative analysis of companies in the same industry since it could have led to confidentiality of the findings.

Having made the choice of China as a location setting we limited ourselves from looking into other location settings that could have been relevant for our study especially to further generalize the findings to all developing countries. Last but not least, we limited our scope to companies having high environmental performance (HEP).

## **2.3 Data**

We have chosen a multi-case study, where we contacted ten companies that all have a HEP and are among the environmental leaders of their industry. By doing a multiple case study our paper gains more validity and reliability than by only doing a single case study (Yin, 1989).

The companies were selected according to their presence in China and their global environmental performance measured by their adoption of international environmental standards and/or participation to environmental programs. These were the WWF (world wide fund), the WBCSD

(world business council for sustainable development), the DJSI (Dow Jones sustainability indexes), the Ethibel Sustainability Index, the Global Compact and the ISO 14001, EMS (environmental management systems), LCA (life cycle assessment). These association, index, standards and measures are furthermore explained in the appendix II of the thesis. The companies that we contacted all adhere to four or more of these standards except for one company; Ecco which is not registered or do not adhere to any of these standards because it is a family owned company. However, due to its innovative approach, the company has created sustainable leather production processes and is leading in its field; we have decided to integrate it. Therefore we consider Ecco as a company that is proactive environmentally and very relevant for our investigation.

Consequently we contacted Ecco, Lafarge, Heineken, Akzo Nobel, Novo Nordisk, Novozymes, Vestas, Procter & Gamble, Mitsubishi and Nokia. For some of the companies, contacts were made through CBS Career Fair, CEMS network and CSR seminar whereas others were contacted through emails and telephone calls. We contacted companies in different industries in order to avoid that the data collected could be used in an opportunistic or direct competitive manner. Our research is to generate general trends on whether HEP can create advantages in the internationalization process.

We furthermore contacted the Chinese government twice, in order to gain first hand information of the environmental situation in China, and their future strategy for improving the environmental state, however, our attempts turned out fruitless, so instead these data were collected from secondary material in form of articles and journals found on the internet.

From the ten companies selected, five companies agreed to participate in our thesis. These were Novo Nordisk, Novozymes, Nokia, Vestas and Ecco.

We reached NN through CBS Career Fair of January 2008 and easily got in touch with people from the CSR department that had a strong interest in our project. We established contact with NZ through the CSR seminar in January 2008. We introduced our theme of research and rapidly got into contact with the stakeholder communication manager. In the case of Vestas, we established contact through a CEMS skill seminar in the beginning of February. We used external connections to get in contact with Nokia after trying to contact Nokia Denmark by phone and email. Lastly, after

contacting Ecco Denmark, we decided to call directly Ecco's Chinese affiliate where we had an interview with Ecco's environmental manager.

Table 1: Companies contacted and standards

| Company           | Nationality | DJSI | Ethibel Index | Global Compact | WBCSD | WWF | EMS | ISO 14001 | LCA | Total |
|-------------------|-------------|------|---------------|----------------|-------|-----|-----|-----------|-----|-------|
| Novo Nordisk (NN) | Denmark     | √    | √             | √              | √     | √   |     | √         |     | 6/8   |
| Novozymes (NZ)    | Denmark     | √    | √             | √              | √     |     | √   | √         |     | 6/8   |
| Vestas            | Denmark     | √    | √             |                | √     |     |     | √         | √   | 5/8   |
| Nokia             | Finland     | √    | √             | √              | √     | √   | √   | √         | √   | 8/8   |
| Ecco              | Denmark     |      |               |                |       |     |     |           |     | 0/8   |
| Larfage           | French      | √    | √             | √              | √     | √   |     |           |     | 5/8   |
| Heineken          | Dutch       | √    | √             | √              | √     |     |     |           |     | 4/8   |
| Akzo Nobel        | Denmark     | √    | √             | √              | √     |     |     |           |     | 4/8   |
| Mitsubishi        | Japan       | √    | √             | √              | √     |     |     |           |     | 4/8   |
| Procter & Gamble  | USA         | √    | √             |                | √     | √   |     | √         | √   | 6/8   |

For each company our offset was to make two interviews, one connected with the CSR department and one with the business strategy department, in order to specifically gain knowledge about their strategies concerning environmental issues as well as their global strategy and their specific strategy when entering and operating in China. However, we only got to talk to two persons involved in the entry process to China; in the case of NN, NZ and Vestas. The interview with NN and NZ's business strategy department was combined because they formerly were one company when they entered China in 1994. The interview on strategic matters was conducted with the senior vice President - Chief Financial officer from Novo A/S that had personal experiences from the company's internationalization process into China and therefore a great knowledge about the subject. In the case of Vestas we interviewed the senior strategy manager.

Within the environmental field we interviewed Novo Nordisk's project manager of climate action and the person in charge of the stakeholder relation, Vestas' QSE manager, NZ's stakeholder manager, Nokia's Senior Manager of Environmental affairs and the Environmental Manager of Ecco. We interviewed persons within different job positions; therefore the knowledge of the interviewee varied. In the case of Vestas' QSE manager, it was required that we got back to him with the information we would use in the research before handing in the paper, this was done via email, and none of the information needed to be changed on his behalf.

When face-to-face interviews were not possible we conducted telephone interviews. This was the case with Nokia, Ecco and the two interviews with Vestas where our contact persons were located in China. In total seven interviews were made. The interviews had a semi-structured character, which means that the interviewer has a certain theoretical and empirical knowledge prior to the interview but at the same time she/he is open towards new issues and angles (Andersen, 2003). Each interview lasted between 20 minutes and 90 minutes. All interviews were camera recorded and made into mp4 files. Forms of interview summary were made on the basis of the analytical framework (appendix IV) in order to systematically compare and detect themes of importance for the analysis.

Table 2: Interview facts

| Company      | Position  | Location of interviewee | Date       | Length | Mean         |
|--------------|---|-------------------------|------------|--------|--------------|
| Novo Nordisk | Project Manager - Climate Action and stakeholder relation manager | Denmark                 | 03/04/2008 | 79 min | Face to face |
| Novozymes    | Stakeholder Communications  | Denmark                 | 11/06/2008 | 71 min | Face to face |
| Novo         | Chief Financial officer   | Denmark                 | 18/06/2008 | 82 min | Face to face |
| Vestas       | QSE Manager   | China                   | 10/06/2008 | 89 min | Phone        |
| Vestas       | Senior strategy manager   | China                   | 20/06/2008 | 20 min | Phone        |
| Nokia        | Senior Manager, Environmental Affairs                             | China                   | 13/06/2008 | 75 min | Phone        |
| Ecco         | Environmental Manager   | China                   | 07/08/2008 | 39 min | Phone        |

In the purpose of producing general statements and generate trends about the importance of HEP, the data collected needs to be comparable and measureable; therefore we found that this was best done by asking the same questionnaire for each department in each company. The information gathered from the interviews turned out to be very useful throughout the analysis and we consider it one of the strong empirical parts of the analysis because it is first hand information.

## **2.4 Conduction of the questionnaire**

The two questionnaires were constituted prior to the interviews (appendix III). The questions were selected on the background of the gathered empirical evidence. Within the CSR questionnaire five interest areas were selected; Environmental issues, Pro-active environmental behavior,

Environmental regulations, Pro-active environmental behavior and competitive advantage in China and globally, and finally the Future goals of the company. In the second last section of the questionnaire, a framework was drawn to differentiate the political from the operational advantages companies can benefit from nationally (in China) and globally. The objective of this questionnaire was to gather empirical evidence on the companies' environmental strategy and to diagnose the potential advantages and disadvantages they can gain from having a high environmental performance (HEP) strategy in their internationalization process. Furthermore we wanted to assess the importance of having a high environmental performance for the companies and how it can influence their way of entering and operating in China.

Within the business strategy questionnaire we focused upon the five following sections; Internationalization strategy and previous experiences, The impact of environmental issues on the internationalization Process, The impact of Pro-active environmental behavior in the internationalization process to China, Marketing strategy in China, and Future goals for the company, while again using the same framework as mentioned before to classify the potential advantages that the company can benefit from. The purpose of these questions was to assess the broader scope of the companies' strategies and in particular their strategies when entering and operating in China.

We decided not to make specific questions designed for the company we interviewed, but make a broad questionnaire where the different outcomes could be compared, however, when interesting subjects arose during the interviews we followed this path and had the interviewee elaborate on the subject.

## **2.5 Validity**

### **2.5.1 Validity of the empirical evidence**

When doing interviews, one must be aware of issues that might harm the validity of the analysis. Examples of such issues are: the background of the interviewee, his preconceived opinions and the stakes and interests he might have in the issues discussed. Moreover, one of the risks with semi-structured interviews is that the interviewee can easily take over the agenda and structure the

interview in his/her favor. However by adhering to specific questionnaires we limited the risks of this situation.

When empirical gathering is being conducted one must be aware of the reliability of such research. The interviews made were conducted with people of different job positions as well as with different cultural backgrounds which can influence the opinion of the interviewee and may not make it applicable to compare and analyze. Furthermore cultural differences and language barriers can also influence the outcome of the interview. The interviews were led in English with people of Danish origin as well as people from Chinese origins in the case of Nokia and Ecco.

In the conduction of the interviews we lacked two interviews, one with Ecco and one with Nokia, both interviews were in the field of the business strategy. This might damage the reliability of our analysis; however, in both cases our contact person was located in China and had some knowledge about the strategy and entry into China. We tried to compensate for the lacking data by using secondary evidence.

Furthermore the question of objectivity comes into play when working intensely with a project. There is the risk of becoming to subjective in ones analysis which might harm the validity of the findings, however by highly grounding it to theory we attempted to avoid this mistake, thus adding to our epistemological view of being objective.

One of the limitations of this thesis is the difficulty to measure quantitatively the effects of HEP for companies. We have not been able to generate data that could distinguish the effects of HEP from other aspects of the companies. This is because the companies that we have interviewed have not themselves found ways to specifically measure the value of having a HEP and to differentiate it from the rest of the value-adding of the product. Although it is argued that being pro-active is of great value and the consequences for not having such a strategy can be severe, it is so far difficult to assess precisely the value of HEP on its own. Therefore, when estimating the importance of having a HEP it is based upon a qualitative study and not on quantitative data.

### **2.5.2 Validity of the theory**

The results that we reach in a research paper should always be held against the validity of the theoretical and empirical evidence used in the paper, in order to determine the quality and usefulness of these findings.

The analytical framework structures the analysis therefore the validity of the theories also constitutes the validity of the results. The theories under the generic headings “competitive advantages” and “efficiency” are relevant and are fully applicable to the research question. However, in regards to the “stakeholder theory” only one dimension of this theory is used due to a lack of empirical evidence, and because of our focus on companies and their relationship with the Chinese government. In consequence, the political aspect of the stakeholder dimension was emphasized and other potential players were neglected.

## **2.6 Data sources**

The theoretical tools employed in the thesis derive from the course International business and economic development, Business strategy and options for governments as well as a broad range of academic journals. Most of the data employed in the analysis is of a qualitative character, both primary data in form of interviews and secondary data in the form of articles, reports and academic journals. The secondary data were mainly derived from search engines such as Business source complete and Factiva but also articles from Danish newspapers such as Børsen and Berlingske tidende were used.

## **2.7 Choice of China**

In order to generate trends about whether HEP companies gain advantages in their internationalization we chose China as a specific location in this paper for two reasons. First, it is the largest recipient of foreign direct investment in the world and it has enormous economic growth and second due to the serious environmental degradation that is caused by this economic growth. The negative externalities that China is facing have created new laws and stricter environmental legislation on companies. China, as the biggest polluter in the world, has furthermore begun to play

a leading role in the promotion of policy agendas to minimize pollution, and in the development of technologies to lessen their negative impact. We believe that China as a subject of our analysis can give important insights to how other developing countries will behave in the future when it comes to environmental rules and legislation and attitude towards pro-active environmental companies. The five HEP companies that we have interviewed are all present in China and by analyzing their entry and operations in China we develop specific knowledge of the importance of their environmental conduct and whether it can lead to advantages vis-à-vis other companies in the internationalization.

## **2.8 Theoretical background**

The theoretical part of the thesis covers many different fields because the combination of the business strategy field and the environmental field is complex and cannot be covered by using one single theoretical view. Therefore the thesis has an integrative character and is cross- disciplinary in the sense that environmental performance is combined with business strategy, internationalization and competitiveness. The theoretical part is by no means exhaustive, and more theoretical views could have been included, however in order to keep focus we have limited ourselves from looking into more theoretical areas. Some theoretical views have a normative character which might influence the analysis. The danger of normative views can be that it does not give an accurate picture of reality that businesses find themselves in, but create a static picture of how things ought to be.

In our theoretical considerations we have taken a positivistic view where we adhere to an observable social reality, we believe that our end product of our research can generate guidelines that can be of use for pro-active companies in general and for companies that have not yet engaged in such a behavior. However, we realize the limitations of the positivistic view in this study when combining business strategy and environment. This field is not an exact science but a field that leaves room for interpretation; therefore we have added the view of interpretivism where we recognize that knowledge is a matter of perception, meaning that the world is seen through different lenses all depending on the individual and the perception of the subject (Saunders, 2007). We recognize that when taking one epistemological approach you disclaim others so by adhering to a different scientific approach the outcomes of our investigations might be somewhat different. We

acknowledge that we are not creating eternal truths but merely able to give insights in the specific field of our choice.

## **2.9 Strength and Weaknesses of the research paper**

One of the strengths of having a limited number of companies participating in this research is that it gives us the opportunity to acquire primary empirical evidence that is of great importance for our research and could not have been obtained from secondary evidence. By keeping the number limited we are able to make an in-depth investigation of their entry and operational strategies in China and to compare the benefits of having HEP when internationalizing. However, one can argue that it can be a weakness only having a limited number of companies in such a research, by having a greater amount of companies the validity of our findings might have been extended however this is a fine balance that one must consider.

There have been many contradicting arguments whether it is an advantage or disadvantage for companies to act beyond compliance. In this research our aim is to investigate the advantages that companies can gain in the internationalization process by having HEP. Therefore we base our research on companies that have HEP in order to investigate their experiences. By only analyzing HEP companies we can compare our findings for the individual company and make general statements on the basis of this. However, the weakness can be that the findings may not be applicable to companies without HEP. One of the implications of conducting a research merely with HEP companies, is that we cannot compare our findings with the internationalization experiences of companies without HEP. A comparative study of HEP and non- HEP companies could have assessed whether HEP companies acquire greater advantages than the ones not having such a strategy when internationalizing.

We chose China as a case example in order to determine whether it can be an advantage in general for companies to have HEP in the internationalization process. China was chosen on the background of being the largest FDI recipient as well as having severe environmental degradation. However generalizing the findings of the China case, to other developing countries might be questionable, because of the special political, social and economic structure of China. China enjoys high market attractiveness, due to its considerable size and its numerous population that have an

increasing purchasing power. It therefore does not have to attract companies, but can be selective in the choice of companies entering China. This situation might be very different for less developed countries that are struggling to attract FDI.

China, although it is still categorized as a developing country, it is one of the most sophisticated ones in the world and may not be comparable to other developing countries, therefore our findings in China, for the five companies, might not be equivalent to other emerging markets. The political structure of China and the deficiency of democracy prevent us from making generalities to other countries. China might not only take environmental issues, into consideration in its decision making to let companies enter its country, political reasons might be involved too. On the other hand, the authoritarian regime can make it easier to put regulations into place and enforce them. Even though the implementation of environmental regulations is the main problem in China right now, we can suppose that when it will truly become a national priority, the enforcement of these laws will be radical. Therefore the findings of the analysis in China and whether it can be applicable to other developing countries has to be carefully considered.

## **Chapter 2: Literature review and Analytical Framework**

### **1. Literature Review**

In this chapter we review the existing literature on competitiveness, efficiency, stakeholder, and the environmental strategies of companies and try to link it to the Internationalization process. In order to do so, we take a look at the existing literature and assess what could be the potential benefit of pro-active environmental strategies in the internationalization of companies.

The theoretical literature encountered on the environment is irregular in time. Whereas a lot of literature could be found on this topic at the beginning of the 1990s, there is a serious lack of literature on the subject during the second part of the 1990s and the first year of the 21<sup>st</sup> century. However, since 2003 there is a resurgence of the environmental literature.

Neo-classical economists argue that stringent environmental regulation reduces economic growth and creates disadvantages to companies in their internationalization process. On their view, the only role of a firm is to make profit. However, in a period of growing environmental concern we can question this school of thought. A lot of companies are nowadays implementing environmental strategies along with their general business strategy. We can question why they would lead such strategies if it was that harmful business wise. Thus, after introducing the neo-classical view we will reverse the argumentation and take a positive stand point toward the benefits that a HEP can bring to a company.

The theoretical part will therefore consist of four different sections. The first one will review the neo-classical literature and its view on environmental strategies. The second, third and fourth section will investigate what can constitute the drivers of pro-active environmental behavior in the internationalization process. The theoretical fields consist of the Resource based view, Managerial strategy theory, Transaction cost theory and Stakeholder theory. In order to make the literature operational we have divided these different theoretical perspectives into three generic headings: Competitive Advantages, Efficiency advantages, and Stakeholder advantages. This categorization will likewise structure the analytical part of our thesis.

The second section will assess the effect of environmental strategies in terms of **competitive advantages**. Many of the theorists argue that being pro-active environmentally can lead to competitive advantages for Multinational Companies (MNC) vis-à-vis other companies that do not have such a strategy. These advantages can take the form of innovation offspring, first-mover advantages; increase of the quality of the products, and greater reputation. Furthermore having a pro-active environmental strategy can raise entering barriers for other firms without the same high standards thus making it harder for competitors to enter new markets.

The third section argues that **Efficiency advantages** can stem from MNCs that have a pro-active environmental strategy. This section focuses on the internal perspective of the firm. The environmental strategy is seen as a mean to create internal opportunities. This can lead to a reduction of transaction costs and factor costs generally accomplished through innovation and resource productivity. It can also present economies of scale. Finally, a company's environmental strategy can mitigate the firm's risks by trying to avoid costly and reputation destructive accidents.

Finally, we will analyze what can be the advantages stemming from stakeholders of HEP companies. The **stakeholder theorists** mainly argue that MNCs can gain reputational advantages from stakeholders due to their HEP strategy. These can either be explicitly or implicitly. Implicitly the advantages can stem from shareholders and explicitly the advantages can arise from stakeholders such as host governments, government officials and NGOs. Such reputational advantages can improve the bargaining power of firms toward local governments; help to get favored treatments from local government and to influence local regulations.

### **1.1 The Neo-classical view**

Environmental concerns have become an important issue for many companies today. When behaving ethically correct and creating stakeholder value, environmental strategies have become a central element in many companies' corporate social responsibility program; however, neo-classical theorist argue that environmental concerns are not applicable to business and economic thinking since it is rather a constraint that increase costs (Goldstein, 2002).

Neo-classical economists are very resistant to the idea that there may be necessary limits to economic growth. Instead they argue that economic growth can foster sustainable growth. They argue that the fastest road to environmental improvement is along the path of economic growth where higher incomes leads to increased demand for goods and services that are less material intensive as well as demand for improved environmental quality that leads to the adoption of environmental protection measures. The richer economies get, the more aware they become on environmental issues which leads to an enhancing of the quality of the environment. Some Neo-classical thinkers argue that environmental regulation will reduce economic growth and thereby also reduce environmental quality (Panoyatou, 2003).

Palmer et al. (1995) argue that companies are profit-maximizers and as long as they can cut cost by abating pollution they will choose to do so, however when the costs of abating pollution exceeds the profit the company will instead choose to pay a fine for its pollution. Even though some of the Neo-classical agree that it is important to consider the environment they argue that in most cases it will never be a win-win situation, instead there will always be an intrinsic trade-off between economic and environmental gains (Goldstein, 2002). Walley and Whitehead (1994) argue that win-win situations are very rare and are often overshadowed by the total cost of a company's environmental program. They believe that the enormous expenditures that companies face will never generate a positive financial return. Instead they argue that companies should seek to minimize the destruction of shareholder value that is likely to be caused by environmental costs rather than attempt to create value through environmental enhancements (Walley and Whitehead, 1994). Furthermore they state that the win-win rhetoric imposed by Gore and Porter that denies the necessity of trade-offs and encourages companies to pursue prosperity through green initiatives, is not only misleading but also dangerous. They argue that environmental issues requires long-term commitment and cooperation, by focusing entirely on the win-win situation, corporations and policymakers are setting themselves up for failure with shareholders and the public at large (Walley and Whitehead, 1994).

The Neo-classical wisdom states that a country that enacts strict environmental regulations will place its firm at a competitive disadvantage (Simpson and Bradford, 1994). Walley and Whitehead state that while it may be possible to respond creatively to each new environmental regulation or enforcement, the burden on corporations is tremendous "In fact, environmental costs of most companies are skyrocketing, with little economic payback in sight." (Walley and Whitehead, 1994:

46).The progressively tighter standards within current regulations will push corporate environmental spending higher on environmental measures reducing their competitiveness towards other international companies not obliged to apply such standards (Walley and Whitehead, 1994).

Palmer et al. (1995) raises heavy critique towards Porters and Van der Linde's hypothesis that increasing environmental regulation might enhance competitiveness by fostering innovation. Instead they argue that an increase in the stringency of environmental regulations unambiguously makes the polluting firm worse off. They argue that investments in a new and more efficient abatement technology will often be very costly and in many cases the benefits of the investment will not outweigh the costs. Many firms will instead have their profits reduced and some will go into bankruptcy due to the tighter regulation imposed on them (Palmer et al, 1995). Bradford and Simpson also question the benefits of environmental regulations, they argue that firms become more competitive as their marginal costs are lowered. The effects of more stringent environmental regulation on competitiveness may, then, be ambiguous.

Walley and Whitehead argue that beyond the first stage, where companies relatively easily can optimize their production and reduce energy and waste, environmental strategies will become extremely costly for companies. They argue that companies should not carry out large environmental programs but instead look at the trade-offs between business and environmental concerns and thereafter choose specific areas to engage in, that can have the greatest impact. They argue that concentrating on enhancing the efficiency and effectiveness of environmental spending will, in the long run, be more effective and realistic than the current win-win rhetoric.

The Neo-classical wisdom is skeptical regarding Porter, Van der Linde and Al Gore assumption that environmental strategies will not only stop environmental degradation but also generate economic growth through innovation. Acknowledging this theoretical literature, we have however, decided to take the contrasting position, following Porter and others line of thinking. Indeed, considering the current environmental state and the pro-activeness of some world leading companies in the ecological field we have decided to investigate "how is pro-active environmental behavior of MNCs an advantage in the internationalization process" starting from a positive hypothesis. In this study we hypothesize that a pro-active environmental behavior will create competitive, efficiency and stakeholders advantages.

## **1.2 Competitive Advantages**

In this section we will look at the literature defending the hypothesis that pro-active environmental strategies increase competitive advantages of companies in their internationalization.

### **1.2.1 HEP boosts innovation of companies increasing their competitiveness in the internationalization process.**

Porter and Van Der Linde (1995) argue that business performance and environmental issues are not necessarily exclusive. Instead they defend the argument that stricter regulation on the environment can lead to innovation offspring and competitive advantages over companies in countries that are not operating under the same strict regulation. They, however, recognize that in the first place environmental regulation will inevitably raise costs of firms which have already made their cost-minimizing choices, and will tend to reduce the market share of domestic companies on global markets.

The cost of compliance with new environmental regulation is one of the major point of criticism of their study, however as stressed by the authors, estimates of regulatory compliance costs prior to enactment of a new rule typically exceed the actual costs because these estimates are often self-reported by industries who oppose the rule, which creates a tendency to inflation; and also because these industries assume no innovation. Porter and Van der Linde believe that international competitiveness is a dynamic paradigm based on innovation and that it can lead to superior productivity, either in terms of lower costs than rivals or the ability to offer products with superior value that justify a premium price. Therefore, they state, that companies should start to recognize the environment as a competitive opportunity and not see it as an unbearable cost or postponable threat: “Competitive advantage, then, rests neither on static efficiency nor on optimizing within fixed constraints, but on the capacity for innovation and improvement that shift the constraints”.

Thus, they argue that properly designed environmental standards can trigger innovation that may partially or more than fully offset the costs of complying with them: “ Such ‘innovation offset’, as we call them, can not only lower the net cost of meeting environmental regulations, but can even

lead to absolute advantages over firms in foreign countries not subject to similar regulations". In effect, a number of studies have failed to find that stringent environmental regulation hurts industrial competitiveness. Meyer (1992, 1993) tested and refuted the hypothesis that US. States with stringent environmental policies experience weak economic growth.

Porter and Van der Linde explain that because the environment has not been a principle area of corporate or technological emphasis, knowledge about environmental impacts are still rudimentary in many firms and industries, which is causing great uncertainty about innovation benefits, as mentioned in the section regarding the neoclassical view. However, Porter and Van der Linde are convinced that strict environmental regulations can, by stimulating innovation, enhance competitiveness if they adhere to three substantial steps. Environmental laws and regulations need to phrase environmental rules as goals that can be met in flexible ways, encourage innovation to reach and exceed goals; and administer the system in a coordinated way. Environmental regulation should focus on outcomes, not technologies and should encourage product and process changes to better utilize resources. Moreover, where possible, regulation should include the use of market incentives, including pollution taxes, deposit-refund schemes and tradable permits. Finally, they state that for environmental regulation to be relevant, the coordination between the different stakeholders (regulators, industries, international counterparts) should be strengthened so that industry accepts them and begins innovating to address them rapidly, instead of spending years attempting to delay or relax them.

Reinhardt (1999) explicates that the implementation of environmental policies can lead to a competitive edge through a slightly different approach. He explains the voluntary provision of public goods by private firms with the assumption of imperfect competition. According to him, externalities coexist with market failures such as oligopoly competition and asymmetric information a firm may therefore be able to increase its expected value through the voluntary provision of environmental public goods. That's what proves the participation of a number of European and North American companies pursuing beyond compliance environmental policies, providing public goods to a greater degree than required by law (Schmidheiny, 1992; Smart, 1992). He explains that such policies increase the expected value of the firm by increasing expected revenues and/or lowering expected costs. The policies can be aimed at reducing the prices or quantities of inputs that the firm must purchase and on the revenue side, the company may be interested in reducing the

probability or the magnitude of revenue losses (due to boycotts, or, more likely to consumer tastes), or it may be interested in capturing a price premium for its output. Therefore, firms in imperfectly competitive markets can increase both their provision of environmental public goods and their returns to shareholders by exploiting cost asymmetries among themselves and their rivals.

According to Porter, Van der Linde and Reinhardt, environmental regulation is leading companies to innovate and reduce the production costs. They stress that the cost of innovation can be outweighed by a smaller use of raw materials, energy efficiency and waste reduction. However, the necessity to outweigh the costs of innovating more environmentally friendly products may also drive companies to enter new countries and gain new markets. By organizing the MNC's activities in a hierarchical manner in developing countries cost savings in terms of production and labor cost can be attained.

### **1.2.2 The optimal organization of environmental resources provides companies with an advantage in the internationalization.**

The Resource based theory builds upon the notion that firms are fundamentally heterogeneous in terms of their resources and internal capabilities. The organizations competencies and resources can if they are distinct and superior relative to those of their rivals become the basis for a competitive advantage if they are matched appropriately to business environmental opportunities (Peteraf: 1993). Thus, resources are the basic units of analysis and include physical and financial assets as well as employees' skills and organizational social processes (Hart, 1995). Such resources must be difficult to replicate because they are either tacit or socially complex (Teece, 1987; Winter, 1987). Tacit resources are skill based and people intensive and are often perceived as invisible assets based upon learning-by-doing that are accumulated through experience and refined by practice (Itami, 1987; Polanyi, 1962). Environmental resources in that sense stem from the employees themselves, therefore the transfer of technology, within the firm or in the market, can be explained by the attributes of knowledge that constitute the ownership advantage of the firm (Kogut and Zander, 2003). In an economy screening firms for their environmental profile and record, the possession of environmental competencies may provide firms with a competitive edge since these competencies are often tacit, highly informal and embedded in corporate culture (Hansen, 2003).

The importance and necessity to consider the natural environment as a resource that can bring a competitive advantage is also developed by Hart (1995). He articulates the relationships among firm resources, the natural environment, capabilities and competitive advantage. The Resource-based theory takes the perspective that valuable, costly-to copy firm resources and capabilities provide the key sources of sustainable competitive advantage. He defends that by incorporating the natural environment into the resource-based view through three interrelated strategies, companies can sustain a competitive advantage (Hart, 1995).

However, if we see pollution as the manifestation of economic waste that involve unnecessary, inefficient or incomplete utilization of resources, or resources not used to generate their highest value (Porter and Van der Linde, 1995); then an ultimate use of resource is necessary. Environmental improvements in terms of resource productivity, or the efficiency and effectiveness with which companies and their customers use resources are required. Companies can enjoy substantial innovation offsets by improving resource productivity throughout the value chain.

An optimal organization of resources can provide a competitive advantage despite the enactment of environmental regulations. This latter, can further be increased and benefited from in the internationalization process through replication. As stressed by Dunning (2000: 39): “ While internationalization theory is geared to identify the optimum mode for organizing existing assets and capabilities the internationalization process of the resource based theory is focused on ways in which new assets and capabilities are generated and of how the competitive advantage arising from these may be sustained”.

### **1.2.3 Environmental strategies as a potential driver to a better quality product, 1st mover advantages and barriers to competitors in the internationalization process.**

World demand is moving rapidly in the direction of valuing low-pollution and energy-efficiency products, not to mention more resource-efficient products with higher resale or scrap value<sup>5</sup>. In that sense, innovation to comply with environmental regulation often improves product performance or quality. According to Porter and Van der Linde (1995), the innovation made to comply with

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<sup>5</sup> The price at which a fixed asset is expected to be sold at the end of its useful life. Market or sale price of the material content of a scrap. (Business dictionary)

environmental regulation often improves product performance or quality. Innovation offsets can generate process offsets and product offsets. Product offsets can create better-performing or higher-quality products, and safer products with lower product costs but also products with higher resale or scrap value (because of ease of recycling or disassembly) or lower costs of product disposal for users (Porter and Van der Linde, 1995). Many companies are using innovation to command price premiums for 'green' products and open up new market segments.

Moreover, as stressed by Prakash (2000) companies that embark on HEP when entering developing countries pre-empt or shape environmental regulations. This behavior can give them the possibility to reap potential benefits such as first mover advantages, and if they are technologically advanced they can raise the cost of entry for their rivals thus creating barriers to competitors. Prakash bases this statement on the assumption that higher standards will lead to stringent regulations.

Hart (1995) also argues that if firms make an early move or a large scale move, it is sometimes possible to pre-empt competitors by setting new standards or gaining preferred access to critical raw materials, location, production capacity or customers. For example, Germany enacted recycling standards earlier than in most other countries, which gave German firms an early-mover advantage in developing less packaging-intensive products, which have been warmly received in the marketplace. In the United States, the development by Cummins Engine of low-emissions diesel engines for trucks, busses and other applications in response to U.S. environmental regulations allowed the firm to gain international market-share (Porter and Van der Linde, 1995). Clearly, this argument only works to the extent that national environmental standards anticipate and are consistent with the international trends in environmental protection.

Indeed, as mentioned by Reinhardt (1999), there exist cost advantages from one firm over another producing the same good since the market is imperfect. Therefore cost asymmetries in public good provision can arise from the same roots as private cost asymmetries: proprietary technology, economies of scale, location advantages, access to superior natural resource stocks. These can allow a company to reduce its pollution more cheaply than other firms. In this case, executive might wish to bring about a situation in which all of the industry's firms have to produce the public good so that costs increase for all of them. Lobbying the government authorities to enhance the level of

regulation can increase the barriers of entry for other potential firms thus providing the company with a competitive advantage in its internationalization compared to other companies.

The production of more sustainable products might enhance the quality of the product and constitute a unique product which is difficult to replicate. The internationalization may enhance the competitiveness of the product by creating 1<sup>st</sup> mover advantages. Furthermore it can create barriers to competitors if the company succeeds in influencing local regulators to improve local environmental standards, and thereby raising the bar within that industry.

#### **1.2.4 The environmental reputation leads to an advantage in the internationalization.**

As mentioned by Hansen (2003) in a global economy increasingly screening firms for their environmental profile and record, the possession of environmental competencies may provide firms with a competitive edge. As summarized by Prakash (2001) “Indicators of "green credence," such as certification or good reputation, which result from proactive environmental strategies, can be an important source of competitive advantage when the business environment is complex. A credible standard reduces transaction costs, provides access to markets, improves environmental performance and reduces costs, lowers insurance costs, improves access to credit, creates tolerance from environmental agencies, and equips firms to implement future laws and participate in law-making processes.”

Moreover, proactive environmental strategies have the potential to benefit companies financially, which in turn can result in increased attention from the financial investment community (Martin, 2005). Growing numbers of shareholders are using environmental considerations to measure financial success, rewarding firms on the stock market that can prove they are improving their environmental performance (Rosen, 2001).

Finally, as stated by Reinhardt (1999), environmental expenditure in differentiated labor markets might reduce overall costs by recruiting and retaining particularly highly skilled employees who themselves have strong environmental convictions. If environmental performance enables a firm to attract superior talent or increases employee’s job satisfaction and commitment to the firm, this could lead to higher productivity in the long run.

With an increasing global focus on environmental issues, having a good reputation might provide a competitive advantage to companies in their internationalization. An environmental reputation can grant a company the financial resource, the work force and the status that it requires to successfully internationalize. Emerging countries lacking environmental regulation and technology can be more willing to let these companies enter and operate locally thereby creating spillovers to local companies.

### **1.3 Efficiency advantages**

In this section we will look at the literature defending the assumption that pro-active environmental strategies increase efficiency by reducing costs.

According to Hart, Ahuja and Romm (1994) through pollution prevention, companies can realize significant savings, resulting in a cost advantage relative to competitors. Pollution prevention may save not only the cost of installing and operating end-of-pipe pollution control devices, but it also may increase productivity and efficiency (Smart, 1992; Schmidtheiny, 1992). Less waste means better utilization of inputs, resulting in lower costs for raw materials and waste disposal (Young, 1991). Pollution prevention may also reduce times by simplifying or removing unnecessary steps in production operations (Hamer and Champy, 1993; Stalk and Hout, 1990).

Evidence suggests that in the early stages of pollution prevention, there is a great deal of 'low hanging fruit'- easy and inexpensive behavioral and material changes that result in large emission reductions relative to costs (Hart and Ahuja, 1994 Rooney, 1993). As the firm's environmental performance improves, however, further reductions in emissions become progressively more difficult, often requiring significant changes in processes or even entirely new production technology (Frosch and Gallopoulos, 1989).

#### **1.3.1 HEP reduces transaction costs and coordination costs in the internationalization.**

The transaction cost perspective and the Internalization perspective explains the reasons why TNCs engage in direct investment instead of arms-length transactions (Buckley and Casson, 1976;

Hennart, 1991; Cantwell, 1991). The internalization of companies is a response of market failures. Indeed, in contradiction with the neo-classical economists, this perspective recognizes some failure in the free-market. The internalization perspective explains why firms prefer to organize production internationally instead of simply relying on arms-length transaction by stating that endemic informational and transactional market failures make hierarchical integration either more profitable or the only option for exploiting those advantages (Hansen, 2003). As mentioned by Dunning (1993: 5): “the more culture markets and sectors business spans, the greater the potential for market failures and thus transaction costs. Mastering transaction costs associated with cross border activities thus becomes the key to economic success”. This internalization often takes place abroad to safeguard supplies, ensure quality, guarantee markets, protect property rights, and allow price discrimination.

According to Hansen (2003), the environmental aspects of the decision as to undertake foreign direct investment or not may be affected by transaction cost factors in at least two ways. First, transaction costs may explain whether and when firms facing high environmental compliance cost opt for relocation of production through FDI to so called ‘pollution heavens’ (Leonard, 1988). However, the relatively small gains of relocation compared to the potentially very large transaction cost of investing in the pollution haven in terms of unpredictability and backlash in home countries might disprove such strategy (Klavens et al., 1995; Hansen, 1998). Second, transaction cost factors may explain investment behavior by firms possessing environmental “ownership advantages” or else.

In many cases, firms by engaging in international production will be able to effectively exploit their ownership-specific advantages in producing environmental goods and services i.e. eco-label products, organically produced food, recycling friendly packaging materials, pollution abatement technologies or cleaner technologies. They will for example be able through FDI to overcome the tariffs, technical barriers to trade and or public procurement policies. Furthermore differences in standards can prevent firms from capturing economies of scale and different enforcements processes create potential costs, delays and uncertainties that are a major barrier to entry. The regulatory and political barriers to trade provide a strong incentive for firms to undertake direct investment aimed at circumventing those barriers. A second reason is that developing countries in many cases offer little or no patent protection leaving companies’ products vulnerable for copying.

A third argument is that environmental know-how and know-why often is tacit and embedded in larger organizations and therefore is difficult to codify and exploit through arm-length transactions. Finally, internalizing standards and controls may prevent the entire operation from being put in jeopardy by arbitrary regulatory intervention. Consequently, environmental factors may strengthen the incentive to internalize production across borders (Hansen, 2003).

However, cross-border environmental monitoring and controls are expensive and inflexible (Hadlock, 1994). The cost of sustaining high standards around the globe and running a world-wide environmental management system may motivate divestment and externalization. Nevertheless, the increasing network collaboration of companies through technical collaboration, the formation of professional networks and environmental industry associations, may help an industry to achieve significant progress at relatively modest costs. By issuing common environmental standards and criteria or setting benchmarks for environmental performance, the transaction costs of identifying appropriate standards and behavior are significantly reduced (Hansen, 2003).

The internationalization of HEP MNCs through FDI can lead them to benefit from reduced environmental transaction costs and coordination costs although monitoring and control withhold some costs. Their HEP can provide them with advantages compared to other companies in the internationalization process complying and adapting to local regulations.

### **1.3.2 HEP companies reduce factor costs and gain economies of scale in their internationalization**

Environmental performance and business performance is not necessarily exclusive (Porter and Van Der Linde, 1995). Properly designed environmental standards can trigger innovation that may partially or more than fully offset the cost of complying with them. Porter and Van der Linde consider that stricter regulation imposed by governments can lead to innovation offsets and competitive advantage for companies operating under strict regulation.

Environmental regulation can serve at least six purposes. First, regulation signals companies about likely resources inefficiencies and potential technological improvements. Companies are still inexperienced in measuring their discharges, understanding the full costs of incomplete utilization

of resources and toxicity, and conceiving new approaches to minimize discharges or eliminate hazardous substances. Second, regulations focused on information gathering can achieve major benefits by raising corporate awareness. Such information gathering often leads to environmental improvements without mandating pollution reductions, sometimes even at lower costs. Third, regulation reduces the uncertainty that investments to address the environment will be valuable. Fourth, regulation creates pressure that motivates innovation and progress. Fifth, regulation levels the transitional playing field. During the transition period to innovation-based solutions, regulation ensures that one company cannot opportunistically gain position by avoiding environmental investments. Regulations provide a buffer until new technologies become proven and learning effects reduce their costs. Sixth, regulation is needed in the case of incomplete offsets. Porter and Van der Linde admit that innovation cannot always completely offset the cost of compliance, especially in the short term before learning can reduce the cost of innovation-based solutions. While the cost of compliance may rise with stringency, then, the potential for innovation offsets may rise even faster. Thus, the net cost of compliance can fall with the level of stringency and may even turn into a net benefit (Porter and Van der Linde, 1995)

Innovation offsets can be broadly divided into product offsets and process offsets. Process offsets occur when environmental regulation not only leads to reduced pollution, but also results in higher resource productivity such as higher process yields, less downtime through more careful monitoring and maintenance, materials saving (due to substitution, reuse or recycling of production inputs), lower energy consumption during the production process, reduced material storage and handling costs, conversion of waste into valuable forms, reduced waste disposal costs (Porter and Van der Linde, 1995). Environmental regulations may also reduce product costs by showing how to eliminate costly materials, reduce unnecessary packaging or simplify designs. Hitachi responded to a 1991 Japanese recycling law by redesigning products to reduce disassembly time. In the process, the number of parts in a washing machine fell 16 percent and the number of parts on a vacuum cleaner fell 30 percent. A solid body of case study evidence demonstrates that innovation offsets to environmental regulation are common. Even with a generally hostile regulatory climate, which is not designed to encourage such innovation, these offsets can sometimes exceed the cost of compliance.

Environmental regulations push companies to change their production schemes. Although these regulations result in additional expenditure at the beginning, it is defended that it results in higher production efficiency thereby outweighing the costs of the initial investment. Expanding the environmental company's new production scheme to other markets with a high potential domestic demand, can benefit its profitability by reducing innovation costs via economies of scale.

### **1.3.3 Companies' environmental strategies and risk mitigation in the internationalization.**

Proactive environmental strategies can create value by reducing risks. An effective environmental management system with an emphasis on preventive measures can help the organization avoid or minimize spills and releases, while also reducing costs for response and cleanup. (Martin, 2005)

Reinhardt argues that environmental problems can be seen as examples of unregulated externalities or effects that are not reflected in market prices. Because we live in a world with imperfect knowledge and asymmetric power a firm may be able to increase its expected value through the voluntary provision of environmental public goods. Reinhardt states that many companies in the Western hemisphere today are pursuing a beyond-compliance of environmental policies because such policies can increase the expected value of the firm but also because they are appropriate to manage business risk (Reinhardt, 1999). Environmental concern can affect business risk in a number of ways. Risks of liability or damaged reputation, such as those arising from an environmental accident or other dramatic insult, can have significant repercussion. Indeed, accidents, regulations, and resource scarcity can dramatically raise the costs of inputs. As stated by Hadlock (1994: 56) "when MNC allocate resources to the environmental management of foreign operations, the fear of incidents and of large liabilities can be the dominant motivation in determining those allocations".

Some environmental risk management is properly seen as an economic rational response to an external cost shock where the cost shock happens to involve costs that are not only uncertain but may be incurred in the future. Indeed, companies that would have forecasted changes in regulations and do the necessary changes before the actual regulation would render them obligatory, will benefit at that time from an increase of their value compared to its other counterparts suddenly

obliged to make the required transformation. Being able to forecast upcoming regulation can be of substantial importance in order to retain market shares in times of change (Reinhardt, 1999).

Indirect costs may be of a comparable magnitude or level of concern, since negative environmental publicity affects corporate image, customer and shareholder confidence, and ultimately the prices of shares and value to investors (Hadlock, 1994). Hadlock argues that two factors have in the past decade been highly influential in the environmental thinking of multinational corporations: Fear of major incidents and liabilities, and steadily growing regulatory pressures on their home country operations. In effect, to the possibility expressed above about the option for MNC to go to pollution haven when the environmental regulation get too strict at home, Hadlock answers that global awareness on environmental issues has made it less feasible to export problem product lines to less restrictive or less environmentally conscious countries.

Finally, reputational considerations may draw in the direction of full ownership to avoid conflict with local partner company in the case of joint venture (Hansen, 2003). Some OECD-based MNCs in Eastern Europe have experienced conflicts with local partners in regard to prioritizing environmental investment (Hansen, 1998) and similar evidence exists from Asian developing countries (Ruud, 1999). Such conflicts explain why MNCs in environmentally-sensitive industries such as the chemical industry today prefer full ownership control in developing countries.

Pro-active environmental companies want to benefit from their high environmental reputation and therefore avoid environmental catastrophe as much as possible, in this perspective they cannot rely on arms-length production, thereby they internalize production to strongly minimize the risks.

## **1.4 Stakeholder advantages**

In this section we will look at the literature defending the assumption that pro-active environmental strategies provide stakeholder advantages.

The stakeholder theory deals with the nature of the relationships between organizations and their respective stakeholders and the processes and outcomes of these relationships for organizations and

their stakeholders (Jones and Wicks, 1999). The manager is typically placed at the center of the contractual relationship between a business organization and its stakeholders (Hill and Jones, 1992). Stakeholder theorists differ considerably on whether they take a broad or narrow view of a firm's stakeholder universe. The inclusive definition is typically prescriptive, adopting a public relations or moral focus. For example, stakeholders have often been considered to include any groups or individuals who can significantly affect or be affected by an organization's activities (Evan and Freeman, 1988; Freeman, 1984; Donaldson and Preston, 1995; Greenley and Foxall, 1997; in Driscoll and Starik, 2004). The inclusive view has also been broadened to include non-humans such as the natural environment. Mitchell et al. (1997:868) refute this view stating that even if an entity possess power to impose its will upon a firm, it cannot be considered as a stakeholder if it is not "*aware* of its power and willing to exercise it on the firm". Nonetheless, Driscoll and Starik (2004), argue that the natural environment should be seen as the primordial and primary stakeholder of all firms.

Corporate environmentalism is the process by which firm address environmental issues and develop environmental management strategies. According to Banerjee (2001) corporate environmentalism is more based on stakeholders that can have a direct impact on the firm profitability or growth (customers and regulators) than on the established legitimacy of green stakeholders (environmental organization). He states that corporate environmentalism ultimately follows the economic bottom line. Environmental initiatives are evaluated by their benefit to the firm which in most cases means reduction in waste, cost savings, and improvements in product and process quality. Therefore he qualifies environmental strategy to remain internally focused and evaluated by its financial benefit to the firm rather than an external strategic focus on sustainable development.

The challenge to business is to recognize that relationships with the many stakeholders with whom they interact, employees, shareholders, investors, consumers, public authorities and non-governmental organizations (NGOs), can influence their long-term strategy. Managed effectively, positive stakeholder relationships can minimize risks linked to uncertainty, contributing to the prime responsibility of a company, which is to generate profit. The impact of stakeholder relationships on business costs can be huge, as experienced by Shell on the proposed disposal of the Brent Spar oil platform and NIREX's proposal to build a rock characterization facility at Sellafield and shows how important good consultation is (Collins and Usher, 2004).

Beyond compliance policies cannot only be interpreted through the efficiency-based theory, and neither by the external 'structures' alone, the internal factors of a firm need also to be taken into account (Prakash, 2001). Environmental pro-activeness of companies can be discussed without an end, nevertheless it appears to respond to a whole i.e.; it's necessity to make profit, to protect itself against virulent stakeholders; to gain good reputation and to accept the fact that the firm should also play a social role in the society. We will however choose here to take a firm related point of view and therefore focus on the advantages that an environmental strategy can provide to a firm through external stakeholders.

#### **1.4.1 HEP increases bargaining power of firms toward local governments in the internationalization process.**

The institutional perspective, and the so-called 'new' institutionalism in particular (Powell and DiMaggio, 1991), argues for a deeper understanding of the interaction between institutions and organizations. Indeed, a relation of power can be established in between the two depending on who hold the resources. Blodgett (1991) suggests that the bargaining power and skills of an organization's management may mediate the control implications of resource dependence. Bargaining power may also be used as a strategic response to institutional pressure. A company may be able to negotiate favorable terms with regulators by offering other valued social benefits, such as environmental skills. Alternatively, it may have assets at its command, such as technical expertise, which it is prepared to devote to environmental improvement in return for securing favorable treatment in other areas such as choice of location, infrastructure provision, or investment incentives (Child and Tsai, 2005).

Pro-active environmental companies are equipped with environmental resources generally missing in developing countries, therefore their entrance into these countries can be eased and to a certain extent rewarded. These companies endowed with environmental technology and know how can benefit from a higher bargaining power when entering foreign countries thus providing them an ease in getting the required paper to start a business, tax incentives and others. This possibility of advantage compared to regular firms might create an incentive for these HEP companies to internationalize.

#### **1.4.2 HEP helps companies to get favored treatments from local government in their internationalization.**

Hadlock argues that multinational companies are strongly affected by stakeholders especially the focus from the public opinion and shareholder interest are of great importance. A corporate image is important both directly because it affects the price of stock, and indirectly, to the extent that public attitudes may influence the company's business position (Hadlock, 1994). For example, in an economy increasingly screening firms for their environmental profile and record, the possession of environmental competencies provide firms with a competitive edge (Hansen, 2003). According to Clark (1993), environmental competencies have provided some firms with a competitive edge over other investors in regard to government contracts, concessions and procurement.

The possibility for MNCs to get favored treatment such as government contracts, concessions and procurement into a country due to their high environmental strategies may attract them to enter such countries, and therefore to internationalize since it could provide them with an advantage toward its competitors.

#### **1.4.3 HEP companies influence local regulations in the internationalization process**

Multinational corporations can serve as transmitters of information and environmental technology from developed countries to developing countries. Developing countries often face ineffective regulatory structures due to a lack of trained personnel, control technologies and capital resources therefore they often borrow environmental regulations from developed countries which they have the greatest degree of commerce with as well as technological and educational interchange. Hadlock believes that the MNC can provide a significant bridge in the environmental sphere between one country and another and between one region and another because they are looked at as resources in environmental matters (Hadlock, 1994). Due to the ineffective regulatory structures mentioned above, inspections by government representatives of a MNCs' operating facility in a developing country are often rare, however when they occur they often turn into a training and information gathering since government officials have no previous knowledge about the new technology. Such a relationship can be mutually beneficial because it facilitates the development of

better educated regulatory organizations as well as goodwill from the government officials towards the company that in turn also have the opportunity to influence environmental regulation. The foreign subsidiaries may also have valuable leverage to exert on the development of rational environmental regulations within the country (Hadlock, 1994).

In emerging economies, where environmental protection is still nascent, governments are known to utilize the environmental protection codes of large, reputable corporations as examples on which to base their regulations (Tsai and Child, 1997). For example, governments and environmental professionals have long recognized DuPont as a leader, not only in industrial and occupational safety but also in greening. The company has often found itself in a position to establish industrial standards for others to follow, including its competitors.

Game theory reminds us that two parties in a continuing relationship will usually in the long-term secure their objectives better through co-operation than by attempting to maximize short-term gains at the expense of the other party. Thus the aspirations of environmental policy may be more effectively met through cooperation between regulatory agencies and companies, especially when the latter are, as a result, willing to contribute their technological expertise to the attainment of environmental goals (Axelrod, 1984 in Tsai and Child, 2005).

In their study, Child and Tsai (2005) found out that MNCs were instrumental in assisting regulatory agencies with policy and regulation research while at the same time, actively negotiating on the terms of compliance citing examples from industrialized countries. MNCs were extremely cautious in protecting and limiting their environmental legal obligation and shying away from proposing terms which may result in undesirable environmental consequences. In terms of the framework employed, the MNCs studied were all 'environmentally responsible'.

MNCs are becoming increasingly important players in emerging economies. This is indicated by their increasing flow of foreign direct investment in emerging economies (UNCTAD, 2003). With their wealth of technical knowledge and resources, MNCs are seen to have a greater ability to influence environmental issues than either local companies or non-MNCs (Dunning, 1993). Such a possibility could further push MNCs to settle in developing countries and reap the benefit of their potential influence on local regulators.

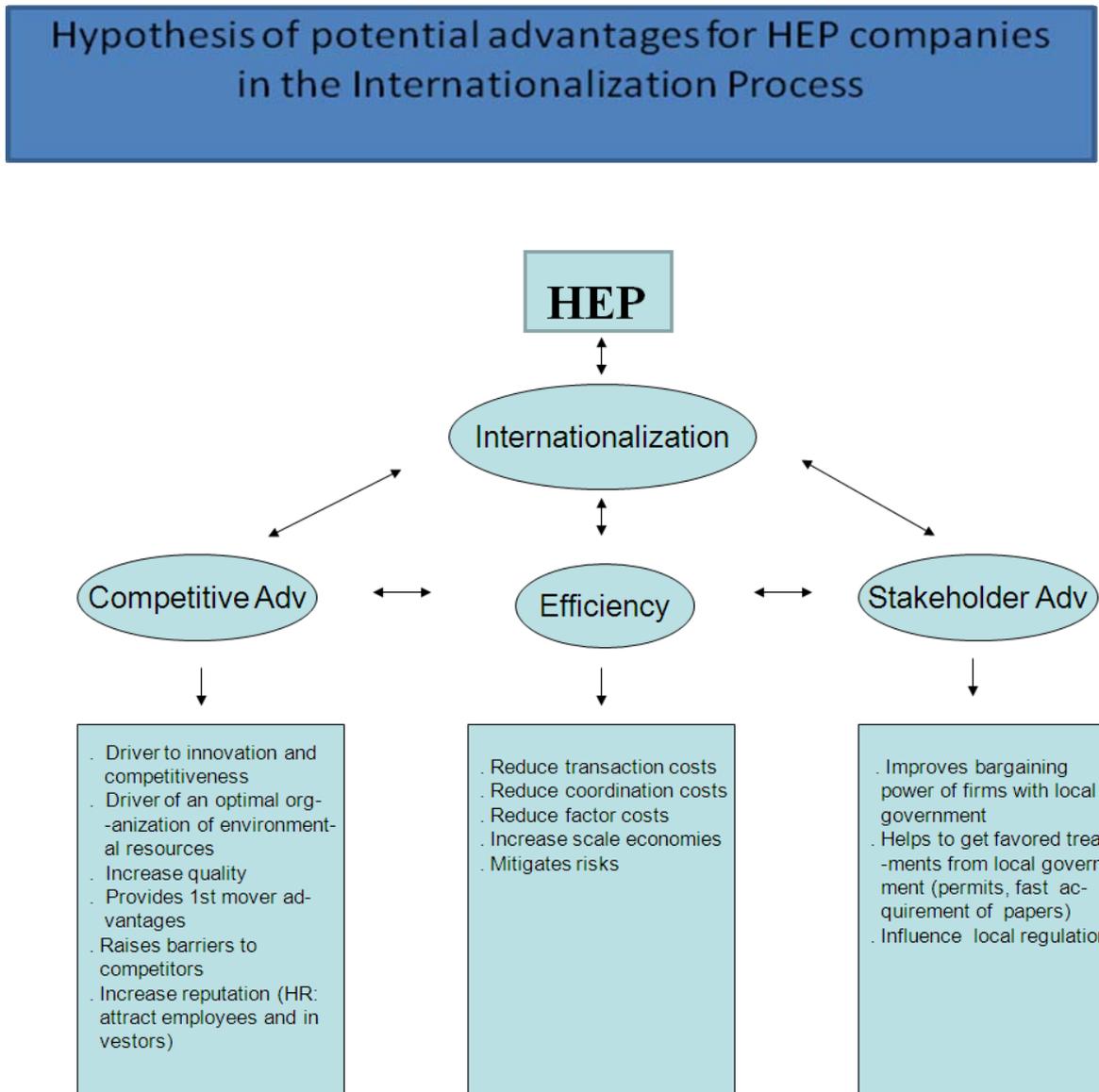
The Neo-classical view has its validity, however regarding the worldwide growing environmental concern, there is strong evidence that the advantages of a fundamental rethinking of the relationship between business and the environment will be a major force in business decisions in the coming years and that it will affect MNCs as a whole, thus leading to further changes in environmental thinking in the countries in which they operate (Hadlock, 1994).

## **2. Analytical Framework**

The analytical framework is constituted on the background of the literature review. It is structured after the three generic headings; competitive advantages, efficiency and stakeholder advantages. These three areas are investigated and related to the effects they have on the internationalization process.

The first part of the analysis will assess the effect of environmental strategies on the internationalization in terms of **Competitiveness, Efficiency and Stakeholder advantages**. Many of the theorists argue that being pro-active environmentally can lead to competitive advantages, greater efficiency and stakeholder advantages for Multinational Companies (MNC). We have formulated hypothesis on this background that we will test on our empirical evidence. In the analysis the hypotheses will be discussed, verified or falsified.

Table 3: Analytical framework



In light of the above theoretical discussion on the potential advantages HEP companies can benefit from and what can constitute the drivers of pro-active environmental behavior in the internationalization process the following hypotheses have been formulated:

### Overall Hypotheses.

- Pro-active environmental behavior of companies is an advantage in the internationalization process.
- Pro-active environmental behavior of companies creates different types of advantages in the internationalization process.

In order to answer these hypotheses, we will discuss is pro-active environmental behavior of MNCs an advantage in their internationalization process and evaluate how it can constitute an advantage. We will determine what kind of benefits they can gain in terms of competitive advantages, efficiency and stakeholder advantages.

We will discuss the hypotheses 1 to 5 in the first section of the analysis to assess whether companies can benefit from **competitive advantages** in their internationalization.

**Hypothesis on Competitive Advantages.** HEP provide companies with competitive advantages in the internationalization process

Hypothesis 1. HEP boosts innovation of companies increasing their competitiveness in the internationalization process.

Hypothesis 2. The optimal organization of environmental resources provide companies with an advantage in their internationalization

Hypothesis 3. HEP increases the quality of the product creating an advantage in the internationalization

Hypothesis 4. Companies with a pro-active environmental strategy gain 1<sup>st</sup> mover advantages and create entry barriers to competitors in the internationalization process.

Hypothesis 5. Due to the increase of environmental awareness, good environmental competencies build a stronger reputation and constitute an advantage in the internationalization process.

We will discuss the hypotheses 6 to 8 in the second section of the analysis to assess whether companies can benefit from **efficiency advantages** in their internationalization.

**Hypothesis on Efficiency.** HEP increase efficiency of companies and therefore facilitate the internationalization of these companies.

Hypothesis 6. HEP reduces transaction and coordination costs in the internationalization.

Hypothesis 7. HEP companies reduce factor costs and gain economies of scale in their internationalization.

Hypothesis 8. Companies' environmental strategies help to mitigate risks in the internationalization

We will discuss the hypotheses 9 to 12 in the third section of the analysis to verify or dismiss whether companies can benefit from **stakeholders advantages** in their internationalization.

In the part on Stakeholder advantages the following hypotheses have been formulated.

**Hypothesis on Stakeholder advantages.** HEP provide companies with stakeholder advantages in the internationalization process

Hypothesis 9. HEP increases bargaining power of firms toward local governments in the internationalization process.

Hypothesis 10. HEP helps companies to get favored treatments from local governments in their internationalization.

Hypothesis 11. Pro-active environmental companies enhance local environmental awareness and influence local regulations which lead to an advantage in the internationalization.

## **Chapter 3: Pro-active environmental companies**

In this chapter we will present the participating companies of this study? Who they are, what they do and more importantly what is their environmental behavior? The companies have been carefully selected to match the profile of “pro-active environmental companies” or “HEP companies”. In fact, these companies have to be voluntary part of at least four of the eight environmental standards, associations, indexes and measures we have selected<sup>6</sup>. These standards are the Dow Jones Sustainability Index and the Ethibel Sustainability Index which provide a comprehensive perspective on the financial performance of the world's leading companies in terms of sustainability. Furthermore the Global Compact, the World Business Council for Sustainable Development and the World Wide Fund which companies can be signatories of on voluntary bases, to balance economic and environmental interests. At last, it is the application of a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency like the Environmental Management System, (EMS) the ISO 14 001 and the Life-Cycle-assessment (LCA).

### **1. Who are the pro-active environmental companies participating in this study?**

#### **1.1 Novo Nordisk (NN)**

Novo Nordisk is the world leader in diabetes care; it has 50% of the world market. With headquarters in Denmark, Novo Nordisk has international production facilities in 6 countries, employs approximately 26,000 employees in 79 countries, and markets its products in 180 countries. NN and Novozymes (NZ) entered China in 1994 as one company in Tianjin Economic and development area (TEDA). It invested through Greenfield investments owing 90 percent of the shares. The 10 other percent were at first owned by the Danish investment fund for development; the IFU.

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<sup>6</sup> Appendix I.

In the next twenty years, according to the International Diabetes Federation, diabetes worldwide is expected to increase from currently about 200 million to 380 million in 2025. Approximately 80% of the explosive growth in diabetes is expected to occur in the developing world. NN's strategic objective is to maintain leadership in the area of diabetes care.

NN has a sustainable way of doing business and strictly follows a Triple Bottom Line approach. To preserve the planet while improving the quality of life for its current and future inhabitants NN seeks to be economically and socially viable and environmentally sound. Consequently, it intends to consider each of these elements when making business decisions.

NN manufactures and markets pharmaceutical products and services that make a significant difference to patients, the medical profession and society. However, NN also aim at creating awareness among populations towards Diabetes. It organizes training in hospitals in cooperation with governments as well as different social events such as cross-country to educate population on how to avoid getting Diabetes.

NN counts among the HEP companies in the world. It is part of the Dow Jones Sustainability Index, and the Ethibel Pioneer Index 2007<sup>7</sup>. Furthermore, in 2006 NN signed an agreement with WWF to become a member of the Climate Savers Programme and thereby committed itself to reducing the total CO<sub>2</sub> emissions from their production sites in 2014 to 10% below the level of 2004; and in 2007 signed "Caring for Climate: The Business Leadership Platform" under the UN Global Compact and the "Bali Communiqué on Climate Change". It also works in partnership on some projects with the World Business Council for Sustainable Development (WBCSD) to reduce environmental impact. Finally, NN supports and reports in accordance with the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines<sup>8</sup> and implements the ISO 14 001.

In the absence of emission reduction programs like the WWF climate save programme, NN's emissions would increase by approximately 67% during 2006 and 2014. The reductions will be

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<sup>7</sup> Ethibel Excellence Index Constituents.13/11/2007

<sup>8</sup> The GRI is a multi-stakeholder governed institution collaborating to provide the global standards in sustainability reporting. <http://www.globalreporting.org/AboutGRI/WhoWeAre/>. 24/09/2008

achieved through a mix of energy efficiency and renewable energy projects carried out at NN operations globally.

NN also implements as an integral part of their strategic approach, certified environmental management systems according to the ISO 14001 standard in their worldwide production sites. Environmental aspects and impacts of operational importance such as resource consumption, waste, other emissions and legal compliance are managed as part of the ongoing ISO 14001 activities in Product Supply. The Eco Intensity Ratio (EIR) measures the resource consumption of water and electricity per produced or released unit, to ensure ongoing improved performance. EIR targets for water and energy are defined on an annual and long-term basis. The long-term EIR target for 2006–2010 is a 2% reduction in water and energy consumption relative to production on average per year<sup>9</sup>.

## **1.2 Novozymes (NZ)**

Novozymes demerged from Novo Nordisk in 2000 and is now the biotech-based world leader in enzymes and microorganisms. NZ uses nature's own technologies (microorganism) in its products to improve industrial performance in all areas (from textile to food). With over 700 products used in 130 countries, NZ' bio-innovations improve industrial performance and safeguard the world's resources by offering sustainable solutions to the marketplace. NZ employs globally 4,500 persons which half are Denmark-based. It first invested in China in the 1990's with Novo Nordisk in Tianjin Economic and development area through a joint-venture with an enzyme Chinese company called Hongda, where NZ, held 65% of the shares.

NZ sells environmentally-friendly products since it uses nature's own technologies in its products. However, according to its Triple Bottom Line approach, NZ also puts emphasis on the quality of its products while saving on water, energy, raw materials and waste. NZ visions a future where biological solutions create the necessary balance between better business, cleaner environment and better lives. Enzymes help protect the environment by replacing traditional synthetic chemicals and minimizing the use of water, raw materials and energy.

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<sup>9</sup> Novo Nordisk's website. 19/06/2008

NZ counts among the HEP companies in the world. It is part of the Down Jones Sustainability Index, and the Ethibel Pioneer Index 2007<sup>10</sup>. Furthermore, NZ subscribed to the International Chamber of Commerce's Charter for Sustainable Development and supports the United Nations Convention on Biological Diversity.

It also works in partnership on some projects with the World Business Council for Sustainable Development (WBCSD) to reduce environmental impact and subscribed to the United Nations Global Compact. Finally, NZ implements the ISO 14 001<sup>11</sup>.

There is solid documentation that NZ's enzymes have a positive influence on the environment. At a rough estimate, the world saves 100 kg of CO<sub>2</sub> emissions every time NZ's customers use 1 kg of Novozymes' enzymes. This means that NZ products have reduced CO<sub>2</sub> emissions by about 20 million tons in 2007 alone – mainly because using enzymes saves energy compared with traditional processes. In comparison, Denmark must reduce its CO<sub>2</sub> emissions by approximately 13 million tons per year during 2008-2012, according to the Kyoto Protocol obligations<sup>12</sup>.

### **1.3 Vestas**

The Danish company, Vestas is number 1 in Modern Energy. It has installed wind turbines in 63 countries, operates in 24 countries and employs 42 different nationalities. It is a global company of more than 14,000 employees. With a 23 per cent market share, one in three of the world's wind turbines – or 35,000 in totals – has been installed by Vestas. It is the world's leading supplier of wind power solutions i.e. renewable, stable and clean source of energy. Recently it expanded consistently and therefore invested heavily in China during the last 3 years through full-ownership in the region of Tianjin economic and development area.

Vestas counts among the ten greenest companies in the world. It operates in the renewable energy industry, providing a clean, predictable and competitive source of energy. Wind-turbines give the advantage of building high electrical supply capacity quickly, and give many the security of energy independence. It produces an environmental product but also do it in an environmentally friendly

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<sup>10</sup> Ethibel Excellence Index Constituents.13/11/2007

<sup>11</sup> Novozymes' 20/06/2008

<sup>12</sup> Novozymes's annual report 2007.

way. It is part of the Dow Jones Sustainability Index, and the Ethibel Pioneer Index 2007<sup>13</sup>. Furthermore, it works in partnership on some projects with the World Business Council for Sustainable Development (WBCSD) to reduce environmental impact. Finally, Vestas implement the ISO 14 001 and the Life Cycle Assessment.

Manufacturing raw materials for the wind turbine and production of the turbine have a negative impact on the environment. As in any other form of industrial production, Vestas' business involves an environmental impact such as the emission of CO<sub>2</sub> in connection with production, transport, installation, maintenance and dismantling. The combined emission of CO<sub>2</sub> was 5-8 grams per kWh electricity supplied to the transmission network, underlining the environmental benefits of wind power over e.g. coal power, which emits more than 100 times as much CO<sub>2</sub> per kWh.

Vestas constantly strives to minimize the consumption of materials for manufacturing wind turbines and to develop turbines that produce energy more efficiently. Therefore they conduct life cycle assessments for all turbine types to minimize the use of raw material, water and energy in the manufacturing process and the de-commissioning of the wind turbine and tend to create wind turbines that have the largest percentage of recyclable elements (80 per cent for a V90-3.0 MW onshore turbine on an 80-metre tower). V90-3.0 MW turbine can be recycled, primarily through the collection and remelting of metals. Wind turbine parts that cannot be recycled in certain countries include fibreglass, electronic components and plastic parts.

During its expected 20-year design lifetime, a V90-3.0 MW onshore wind turbine will save the environment from approx 129,000 tonnes of CO<sub>2</sub> compared with electricity generated by a modern coal-fired power plant. This corresponds to the annual average volume of CO<sub>2</sub> emitted by 10,500 persons in the industrialized world. That means that a V90-3.0 MW offshore wind turbine in a good location will produce 284,600 MWh (Megawatt hour) over the period of 20 years. With an average, annual energy consumption of 3,360 kWh (Kilowatt hour)<sup>14</sup> for an average Danish household, it corresponds to 284,600 MWh of the annual electrical consumption for 84,000 households. The same turbine type generates 35 times as much energy in its lifetime as is consumed for the production, transport, installation, operation and dismantling of the turbine, which is energy-neutral after seven months.

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<sup>13</sup> Ethibel Excellence Index Constituents.13/11/2007

<sup>14</sup>Vestas' website. Energy Statistics [Energistatistik 2004], published by the Danish Energy Authority [Energistyrelsen]

Vestas implements its policy on the environment and occupational health & safety by maintaining a certifiable management system according to ISO 14 001 and OHSAS 18 001, integrating consideration for the environment and occupational health & safety in the development of products and processes, communicating knowledge about the environment, occupational health & safety and improvement of health to the employees and other stakeholders, measuring and documenting Vestas' impacts on employees and surroundings, preparing an annual external environmental statement, ensuring that Vestas' activities comply with national legislation and respect the Danish level wherever possible as the Vestas standard<sup>15</sup>.

## 1.4 Nokia

Nokia is the World's number 1 manufacturer of mobile devices, with estimated 38% share of global device market in 2007. Nokia's head office is in Finland but R&D, production, sales and marketing activities are all around the world. Nokia have sales in more than 150 countries and it employs 112,262 employees. It is the world's 5th most valued brand<sup>16</sup>, the number 1 brand in Asia<sup>17</sup> and the #1 brand in Europe<sup>18</sup>. Finally it is the world's widest supply chain for mobile phones<sup>19</sup>. Nokia entered China more than 20 years ago through joint-ventures where it owned 60% of the shares.

Nokia adheres to the eight environmental standards that we have selected. Its target is to be a leader in environmental performance therefore it is constantly working to minimize its global environmental impact by improving the environmental sustainability of all its products. It is part of the DJSI and the Ethibel Sustainability Index, it uses Life Cycle Assessment (LCA), Environmental Management Systems (EMS) and the ISO 14001 standard to control and manage the environmental aspects of its production and large offices. All Nokia production sites have ISO 14001 certified EMS, and EMS is one of Nokia's supplier requirements.

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<sup>15</sup> Vestas' website 20/06/2008

<sup>16</sup> Nokia's website. Interbrand, 2007. 20/06/2008

<sup>17</sup> Nokia's website. Synovate 2006 and 2007. 20/06/2008

<sup>18</sup> Nokia's website. European Brand Institute, September 2007. 20/06/2008

<sup>19</sup> Nokia's website. AMR Research, 2007

Since 2001 Nokia has provided eco declarations<sup>20</sup> of all its products. It joined the WWF's Climate Savers program in 2007 and signed an international communiqué, along with over 150 other global organizations, ahead of the December 2007 United Nations Climate Change Conference in Bali which urged world leaders to develop policies and measures for the business sector to contribute to building a low carbon economy and tackle climate change. Finally, in 2007 it initiated work with suppliers to set energy efficiency targets that go beyond current environmental supplier requirements.

From 2003 to 2006 the energy saving projects in Nokia's facilities in Europe, the Americas, and China reduced the company's overall global energy consumption by 3.5 percent. By joining the WWF Climate Savers Program, Nokia is raising the bar and is targeting a new series of energy savings including halving the stand-by energy used by its mobile phone chargers, using green electricity to power 50 percent of its facilities by 2010 and reducing the overall energy needs of its sites by 6 percent by 2012<sup>21</sup>.

Its environmental activities are based on lifecycle thinking. It uses approved, tested and sustainable materials and substances in its products, it constantly improves the energy efficiency of its devices, applications and enhancements including chargers, develops smaller and smarter packaging for its products, and involves consumers via eco software and services and recycling.

The Nokia 3110 Evolve for example is a mobile device where technology meets ecology. 50 percent of its bio-covers come from renewable sources. It is presented in small packaging made of 60 percent recycled content and it comes with Nokia's most energy efficient charger the AC-8. The Nokia 3110 Evolve has 15 to 20 percent lower energy consumption during its lifecycle than comparable products.

Although Nokia's industry is not a major energy user – telecommunications accounts for less than 1% of the world's CO<sub>2</sub> -it aims to use energy as efficiently as possible. In 2003-06 Nokia improved the energy efficiency of its facilities around the world, reducing the amount of energy used by 3.5

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<sup>20</sup> The Eco Declaration provides basic information on the environmental attributes of the product covering material use, energy efficiency, packaging, disassembly and recycling

<sup>21</sup> The World Wild Fund Organization website. 21/06/2008

percent. By 2012, its target is to save a further 6 percent and to get 50 percent of its electricity from renewable sources such as wind and solar power.<sup>22</sup>

## **1.5 Ecco**

Ecco is a Danish family company born in 1963 in the town of Bredebro in southwestern Denmark. Ecco is a shoe manufacturer that has become a global company with approximately 13,000 employees. Its aim is to become the most wanted brand within innovation and comfort footwear and to be a leading company in the area of environment, health and safety. To promote sustainable development Ecco is investing in employees, in its core competencies of product development and production technology. Ecco started investing in China in 2005 through full ownership in the Tong'an Chengan Industrial Zone. It opened a shoe factory and has recently opened a tannery in Xiamen in September 2008<sup>23</sup>.

Since Ecco is a family company it cannot be part of the DJSI neither the Ethibel Sustainability Index. Further, Ecco is not part of any of the mentioned above association or standards. However, we have chosen Ecco in our studies because Ecco has succeeded in creating a tannery that significantly minimizes pollution.

Indeed, Ecco succeeded in entering China thanks to its high environmental standards whereas usually, tanneries are forbidden in China, because of their extreme pollution. Consequently, we believe Ecco is a good contribution to this study.

Ecco's production technology, as represented for example by its state-of-the-art machinery for direct injection of soles, is a good example that innovative technology extends the limits to what quality craftsmanship can create. The Group has the whole value chain at its disposal in terms of tanneries, shoe factories, sales subsidiaries and shops. In this way it controls the whole process from rawhides to finished shoes. It seeks to achieve an environmentally suitable development and production of its products. It uses a minimum of harmful chemical substances and absolutely no forbidden substances. All raw materials and components must fulfill the international recognized

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<sup>22</sup> Nokia's website 20/06/2008

<sup>23</sup> Ecco's website. 20/06/2008

SG list<sup>24</sup> for leather products published by German test institutes. The Ecco Group has chosen to extend the list so as to include harmful chemical substances, which it finds critical.

Ecco intends to make continued and dedicated efforts to ensuring optimum environmental performance and therefore new projects are constantly investigated to reduce their environmental impact. One of the current projects in its tanneries focuses on replacing diesel with bio fuel extracted from fleshy waste material. The fleshy tissue - which represents approximately 20% by weight of the raw hide – actually has a coveted energy potential in terms of bio fuel. This is utilized in the tannery's boilers when heating water. In this way diesel is replaced by bio fuel as energy source. This initiative is a good example of how to cooperate in a closed loop system in house at a tannery. A concrete way of conducting the Ecco Group Policy of Environment, Health and Safety in reality is to be focusing on the four R's: Reduce, Re-use, Repair and Re-cycle.

We conclude this chapter with two tables, summarizing the previously given information on the participating companies that will be of relevance in the analysis. The table four gives an overview of the entry of these firms to China in terms of year, location and type of investment. The table five summarizes the adhesion of the participating companies to the different standards, measures, indexes etc.

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<sup>24</sup> SG is an abbreviation of the German term Schadstoffgeprüft (tested for harmful substances). The SG list contains threshold values for harmful substances in leather products the use of which should continuously be minimized.

Table 4: Summarization table of companies' entry to china

| Company      | Year (entrance) | Location of Production site                  | Type of investment                       |
|--------------|-----------------|--|--|
| Novo-nordisk | 2002            | TEDA (Tianjin Economic and development area) | Full ownership (10% to the IFU at first) |
| Novo-zymes   | 1994            | TEDA-Manufacturing (enzymes)                 | JV(Hongda)-NZ 65%                        |
| Vestas       | 2006            | TEDA-blade plant                             | Full ownership                           |
| Nokia        | 1986            | 4 manufacturing pole                         | JV - Nokia 60%                           |
| Ecco         | 2005            | TCIZ (Tong'an Chengan Industrial Zone)       | Full ownership                           |

Table 5: Summarization table of companies' environmental findings

| Company      | Nationality | DJSI | Ethibel | Global Compact | WBCSD | WWF | EMS | ISO 14001 | LCA | Total |
|--------------|-------------|------|---------|----------------|-------|-----|-----|-----------|-----|-------|
| Novo Nordisk | Denmark     | √    | √       | √              | √     | √   |     | √         |     | 6/8   |
| Novozymes    | Denmark     | √    | √       | √              | √     |     | √   | √         |     | 6/8   |
| Vestas       | Denmark     | √    | √       |                | √     |     |     | √         | √   | 5/8   |
| Nokia        | Finland     | √    | √       | √              | √     | √   | √   | √         | √   | 8/8   |
| Ecco         | Denmark     |      |         |                |       |     |     |           |     | 0/8   |

These MNCs are called “pro-active environmental companies” or “HEP companies” in this study since they voluntarily adhere to at least four of the eight above environmental standards. NN and NZ apply to six of them, Vestas to five, Nokia to all of them and Ecco to none due to the reasons mentioned above. The description of the participating MNC’s will be of great relevance in the coming chapters and particularly in the analysis, to understand, discuss and generalize our findings.

## Chapter 4: China

In this chapter we will analyze the environmental state of the country of China. We will first take a look at this country in general terms and then more specifically study its state of pollution and enactment of environmental regulation. China being our case study, this chapter aims at understanding the current environmental conditions of China, what the government is doing to improve the situation and what the consequences are for the foreign companies entering and operating in China. This chapter helps to better understand why China would favor HEP companies in its country.

### **1. China's growth and strategic location (PEST)**

The People's Republic of China is a communist led country that has moved from a planned economy to a market economy in 1978. Since then China has been considered as an "emerging superpower" being the world's fourth largest economy and second largest in purchasing power parity. The PRC replaced the Republic of China as the sole representative of China in the United Nations as one of the five permanent members of the United Nations Security Council in 1971. It also became a member of the WTO in 2001.

China plays a major role in international trade. The country is the world's largest consumer of steel and concrete, using, respectively, a third and over a half of the world's supply of each. China is also the biggest consumer of copper in the world<sup>25</sup>. Counting all products, China is the third largest importer and the second largest exporter in the world<sup>26</sup>.

By the end of 2006, China had restructured three of its four largest banks and listed them publicly. As a consequence, China's largest bank, the Industrial and Commercial Bank of China (ICBC), raised 21.6 billion of US\$ in the world's largest initial public offering (IPO) in history in October 2006. As of 2008, ICBC is now the world's largest bank in market value.

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<sup>25</sup> www. blomberg.com.Latin America. China to invest in \$550Mln Venture for Chile Copper

<sup>26</sup> Chinadaily.com. WTO: China overtakes US as second biggest exporter. 12/04/2007

Chinese economic development is among the fastest in the world and has been growing at an average annual GDP rate of 9.4% for the past twenty-five years. In 2007, its GDP growth was of 11, 4%<sup>27</sup>. It is ranked as the second easiest location for doing Business after Singapore in East-Asia and Pacific.

China is the largest country in East Asia and the third or fourth largest country in the world. With a population of over 1.3 billion, it is the most populous country in the world representing a substantial market opportunities. Today, only ten percent of the Chinese population is below the poverty line. 90.9% of the population is relatively literate, compared to 20% in 1950. The life expectancy in China is the third highest in East Asia, after Japan and South Korea.

Sizeable reserves of ferrous and ferro-alloy minerals support a major iron and steel industry. China is a world leader in the production of some minerals, including phosphate, tungsten, molybdenum and titanium. China is also rich in coal and hydroelectric energy resources, and is the world's largest producer of coal, although much of it is of poor quality.

China has the world's second largest research and development budget, and is expected to invest over 136 billion US\$ this year after growing more than 20% in the past year. The Chinese government continues to place heavy emphasis on research and development by creating greater public awareness of innovation, and reforming financial and tax systems to promote growth in cutting-edge industries. In January 2006 President Hu Jintao called upon China to make the transition from a manufacturing-based economy to an innovation-based one, and this year's National People's Congress has approved large increases in research funding. China is actively developing its software, semiconductor and energy industries, including renewable energies such as hydro, wind and solar power. In an effort to reduce pollution from coal-burning power plants, China has been pioneering the deployment of pebble bed nuclear reactors, which run cooler and safer, and have potential applications for the hydrogen economy<sup>28</sup>. However, China is now faced with a number of other economic problems, including an aging population, an increasing rural-urban income gap, and rapid environmental degradation. We will in this chapter focus on China's environmental conditions.

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<sup>27</sup> Economist Intelligence Unit, Country Data, 26/05/2008.

<sup>28</sup> SCMP. China leading world in next generation of nuclear plants. 5/10/2004

## **2. China's pollution and regulation**

### **2.1 Pollution**

China has seen rapid economic development as well as severe environmental degradation over the past two decades. Its unprecedented growth rate has been reached at the expense of its environmental preservation.

Since economic reforms began in the late 1970's, China's push to become a major industrial power has put a tremendous strain on its environment. Pollution-related problems, from acid rain to contaminated rivers, are now commonplace in China. Arid and semi-arid areas and mountainous land account for 52% and 65% percent, respectively, of China's land area (the Qinghai-Tibetan Plateau, the Loess Plateau and the Karst areas). As a result, the area suffering water and soil erosion totals 37% of national land. Desertification affects some 1 million square kilometers (SEPA, 2004). The quality and ecological functionality of forests are decreasing. The area available for harvest is also being reduced.

It is estimated that China's wastewater discharge is of 40 billion tons annually, which is far beyond the water's carrying capacity. In 2003, 90% of rivers flowing through or by cities were seriously polluted. The survey of 200 lakes in eastern and southern China indicates that 80% of the lakes are at different stages of eutrophication.

Among 340 cities under monitoring in 2003, the air quality was classified as good (42%), slightly polluted (31%), and seriously polluted (27%) (SEPA, 2004). Around 30% of national land suffers acid rain, which will further worsened by increased sulphur dioxide emissions. China's urbanization level is growing at the annual rate of more than 1% and will be close to 60% percent by 2020. The total amount of pollutant discharge in urban areas will increase accordingly-domestic wastewater and solid waste generation will be 1.3 and 2 times larger, respectively, than they were in 2000. With the rapid increase in the number of motor vehicles, exhaust emissions in cities will double in 2010 from the levels of 2000<sup>29</sup>.

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<sup>29</sup> Wang Yi. 2006. 'China's environmental and developmental issues in transition', *Social Research*, vol 73: No 1: Spring 2006, 277-291.

On a severely polluted day in many Chinese cities, it is difficult to see beyond a few hundred meters. In northern China, drought has left more than two million people without enough drinking water, partly because much of the area's remaining water supply is contaminated by pollutants. Air and water pollution in China have reached alarming levels in recent years. Despite having some of the world's largest water reserves, two-thirds of Chinese cities have less water than they need because of overuse and pollution.

China became an oil importing country in 1994, and currently ranks second in the world in terms of oil consumption. It is consuming a 12 percent of the global oil demand, trailing the U.S, which accounts for 24 percent. But when China's per capita oil consumption reaches the U.S. level, the country will require a volume of oil equivalent to the current global consumption (The financial News, 6/05/2008).

At last, in 2006, China's CO<sub>2</sub> emissions surpassed those of the United States by 8%. This includes CO<sub>2</sub> emissions from industrial processes (cement production). China therefore topped the list of CO<sub>2</sub> emitting countries for the first time; whereas in 2005, CO<sub>2</sub> emissions of China were still 2% below those of the USA<sup>30</sup>. According to an article of the Science Daily of March 2008, the growth of Carbon dioxide emissions in China is alarming and might cast doubt on the previous estimate used by the Intergovernmental Panel on Climate Change to forecast climate change.

If efforts to curb global warming do not succeed, scientists project appalling effects on China. It could face a 37 percent decrease in wheat, rice and corn yields in the second half of the century due to higher temperatures. The Yangtze and Yellow rivers could first overflow as a result of the glaciers that feed them melting, and then those rivers could dry up with serious drinking water implications. Shanghai could be submerged by 2050 as a result of sea level rise unless action is taken. Consequently it is of a huge economic interest for China to improve energy efficiency, reduce its dependence on fossil fuels and come to grips with air quality (AFP, 24/05/2008). If China doesn't conserve energy and resources, business and the economy will not be sustainable.

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<sup>30</sup> Netherlands environmental agency assessment agency. China now no. 1 in CO<sub>2</sub> emissions; USA in second position

## **2.2 Regulations and Objectives**

### **2.2.1 Internationally**

In the past, developing countries dragged their feet on this issue, arguing that climate change is a legacy of the West's industrialization, and that they must focus on economic development above all else. But at the Bali climate talks, in December 2007, that really substantially turned around largely because the effects of climate change are already being felt in the developing world in the form of droughts, storms and melting glaciers (Newsweek International, 5/05/2008).

As stressed by Yvo de Boer, the UN's top official on climate, there has been major changes in Chinese environmental policies in recent years driven by the impacts of climate change.

China as a developing nation has taken on commitments to curb global warming; it has targeted to reduce energy consumption per unit GDP by 20 percent from 2006 to 2010. China will also seek to raise its percentage of renewable energy sources by 2020 (AFP, 24/04/2008).

In the near-term China plans to develop 120 000 MWh's of renewable energy by the year 2020; this would account for 12% of China's total installed energy producing capacity. China's growth target for renewable energy production will require an investment of approximately 800 billion yuan (US\$ 100 billion) by 2020. China has set a renewable energy target of 10% of electric power capacity by 2010 (expected 60 GWh); 5% of primary energy by 2010 and 10% of primary energy by 2020. In the long term China has set an objective of having 30% or more of its total energy requirements satisfied by renewable sources by 2050 (M2 'PressWire', 12/03/2008)

Finally, China is willing to go further on cutting greenhouse gas emissions (The Statesman, 7/05/2008).

### **2.2.2 Nationally**

Faced with serious environmental problems, China's top officials now realize that economic development cannot be achieved at the expense of resource conservation and pollution control. As a consequence, environmental protection has become a greater priority in national policy making.

In 1975, the State Council began issuing environmental protection laws. Half of these statues dealt with protecting nature and combating pollution. By the 1980s, substantive steps had been taken to coordinate the environmental policies of national, provincial, and local agencies. At the same time, the states government began to acknowledge the importance of *chixu fazhan* (“sustainable development”) in international environmentalism-that is, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Since the early 1990’s, funding for environmental protection in China has increased significantly. China has augmented its expenditures for treatment of waste water as well as gas and solid waste from 4.5 billion yuan in 1990 to 9.9 billion in 1995. During the 9th Five Year Plan the state appropriated 360 billion yuan (US\$ 45 billion) primarily for pollution control and prevention<sup>31</sup>. Under the 10<sup>th</sup> five year plan (2001-2005) investment on environmental protection reached 700 billion yuan (US\$ 88 billion). Finally, during the period of the 11th Five Year Plan (2006-2010), China's total investment in environment protection will reach 1.4 trillion yuan, accounting for 1.5% of GDP in the period. Among the total, investment in urban environment infrastructure will be about 660 billion yuan, investment in treatment of industrial pollution of 210 billion yuan, investment in new environment protection projects of 350 billion yuan and investment in ecological environment protection of 115 billion yuan.

Hu Jintao, president of the People’s Republic of China, recently gave signs that he understood how degraded China’s environment had become, and that further damage could hobble the economy and trigger social unrest. Consequently, in March 2008, he elevated the State Environmental Protection Administration to the status of a full ministry (Channel NewsAsia, 4/03/2008) and unveiled ambitious policies. Plans to promote energy efficiency based on sustainability and recycling, and plans to put in place advanced environment inspections programs to enact a climate-change policy (Newsweek, 5/05/2008).

China will introduce several major measures for energy conservation and emission reduction in 2008: Firstly, China will step up the target assessment of energy conservation and emission reduction. Secondly, China will further carry out industrial restructuring. The country will check the growth of industries with high energy consumption through tightening credit control, introducing

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<sup>31</sup> Xiaofan, Li .2006. ‘Environmental concerns in China : problems, policies, and global implications’, Social Science Review, Pi Gamma Mu Inc, 43-57

land gate, conducting assessments on energy conservation and environmental protection, and raising the threshold. Third, China will increase the intensity of eliminating outdated production capacities. Fourth, China will give prominence to promoting energy conservation and emission reduction in key enterprises and major projects. Last year, the state made a national bond investment of 5.43 billion yuan and put in special funds of 23.5 billion yuan as a support to energy conservation and emission reduction, and inputs of this kind will continue to increase this year. Fifth, China will promote the development of a circular economy. The Circular Economy approach to resource-use efficiency integrates cleaner production and industrial ecology in a broader system encompassing industrial firms, networks or chains of firms, eco-industrial parks, and regional infrastructure to support resource optimization<sup>32</sup>. Sixth, China will improve and perfect its various economic policies that help boost energy conservation and emission reduction. Seventh, China will intensify inspection over law enforcement.<sup>33</sup>

China will focus on the construction of an advanced environment inspection and pre-warning system and a complete environment law enforcement supervision system, and it will cover basically all the fields of environment inspection; environment supervision, nuclear and radiation, environment research, environment information and statistics and environment education. In addition, it sets 13 key tasks which include consummating environment inspection institution's standardization level, constructing key pollutants' automatic monitoring system, improving the management capacity of nature reserves and speeding up environment information and statistics construction. The plan should dramatically improve China's environment supervision capacity and empower the country's realization of the goal of its emission control (China CSR, 16/04/2008).

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<sup>32</sup> Indigo development. China's circular initiative. July 2005. At the individual firm level, managers must seek much higher efficiency through the three Rs of CP, reduce consumption of resources and emission of pollutants and waste, reuse resources, and recycle by-products. The second level is to reuse and recycle resources within industrial parks and clustered or chained industries, so that resources will circulate fully in the local production system. The third level is to integrate different production and consumption systems in a region so the resources circulate among industries and urban systems. This level requires development of municipal or regional by-product collection, storage, processing, and distribution systems

<sup>33</sup> Xie Zhenhua vice minister of the National Development and Reform Commission [NDRC]

At present, the General Administration of Environmental Protection (GAEP) is launching a special strategic research program on China's environment, under which a total of about 29 special subjects are being studied. The results of these studies should be incorporated into China's environmental protection work during the 12th Five-Year Programme, as well as its environmental protection work of a longer range (BBC Monitoring Asia Pacific, 13/03/2008).

These changes are timely, given the damage inflicted on China's environment and waterways over the last three decades of rapid economic development. China has finally set ambitious energy efficiency goals and has enacted legislation (including recent amendments to the Energy Conservation Law) to achieve these goals. China wants to increase energy efficiency per unit of gross domestic product by 20 percent from 2005 to 2010. The results to date have not been particularly encouraging (the yearly reduction targets were not met in 2005 or 2006), but the central government has confirmed that it will not rescind the goal (China Business Review, 1/01/2008).

### **2.3 The major impediments to the implementation of the regulations**

The Chinese government has done a lot in the last decades to reduce environmental pollution by enacting laws and setting environmental goals to achieve. However, their implementation has always encountered barriers.

One of the major problems in the implementation of regulations in China is the conflicts between economic development and environmental issues. Too often, the economic growth is favored at the expense of the environment, especially, in local communities. The central government has exerted pressures on the economic growth for so long that state government and local administration all too often promote their economic interests over the implementation of environmental regulations. Thus, the enforcement of environmental regulations is hampered whenever efforts to promote environmental protection threaten economic growth.

China's environmental programs also suffer from insufficient authority and lack of coordination among institutions. The National Environmental Protection Agency has supreme authority over all lower-level agencies, yet it has failed to ensure that they all conform to national standards because this agency relies on local governments for funding and staff. Moreover, since many industries that cause pollution are owned and managed by local governments, it is difficult to expect them to regulate themselves.

Furthermore, if one factor had to be identified as the major cause of China's environmental crisis, it would be the lax enforcement of the existing environmental laws-the practical manifestation of the "clean up later" policy and the decentralization which has made the control of the enforcement of environmental regulations impossible for the Central Government.

Finally, the government failure to promote environmental concerns, insufficient financial and human resources, lack of technical training among staff, and low pollution discharge fines represent various institutional constraints that undermine the successful implementation of environmental protection regulations in China.<sup>34</sup>

However, the central government recently started to take on some measures to solve those issues and ordinary citizens and the press have also entered the stage as major actors, and their effect on environmental operations in China can be significant (China Business Review, 1/01/2008).

### **3. What is done in China to improve the pollution conditions?**

#### **3.1 The change happening**

The Chinese government has recently realized the need to act efficiently in the environmental field since it could otherwise seriously harm its economy. The health effects of increasingly polluted communities are becoming a political challenge for the central government. Social unrests are emerging. People living near polluting factories are protesting against the contamination of land and water supplies. Environmental activists say that if authorities in Beijing want to maintain social stability, and continue economic growth, they have to tighten regulations and employ cleaner technology (US fed News, 29/02/2008).

Over the past two years, central authorities have repudiated the clean up later model and demanded that government agencies at all levels get tough on polluters. Actions to back up this rhetoric have been tentative to date: Certain environmental metrics have been added to the criteria used to

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<sup>34</sup> Xiaofan, Li .2006. 'Environmental concerns in China : problems, policies, and global implications', Social Science Review, Pi Gamma Mu Inc, 43-57

evaluate local political cadres, SEPA has set up regional offices to increase national oversight of local environmental officials, and bank loans in certain sectors have been tied to proof of environmental compliance.

Plants that flout environmental regulations run a high risk of conflict with their neighbors. Plants that operate within permit limits may also find that their neighbors do not like the smells coming from the plant. Unless these issues are resolved they can lead to law suits where compliance with the applicable law is not necessarily a defense. Companies should cooperate with neighborhood groups to address any concerns they may have before conflicts escalate into formal complaints to regulators or lawsuits.

For example, in China, individuals injured by solid waste can seek recovery of their damages in a lawsuit where the burden of proof is placed on the defendant-the generator of the solid waste. In other words, to avoid liability in China the defendant must prove that there was no connection between its solid waste and the plaintiff's injuries. (This contrasts sharply with US environmental tort jurisprudence, where the burden of proof lies with the plaintiff.) Moreover, several of China's environmental statutes provide a cause of action similar to a private nuisance action in the United States. These actions are of particular concern to facilities that were initially constructed in relatively unpopulated areas but are now in the path of encroaching residential developments.

Furthermore, the Government has recently encouraged, through new SEPA regulations, greater public participation in the environmental impact assessment process, which is required before constructing projects in China. Consequently, when building a new facility or expanding an existing one, companies should engage and seek to address the concerns of neighbors, who are becoming newly emboldened and empowered stakeholders (China Business Review, 1/01/2008). Finally, one of the major upcoming projects is to elevate pollution from fines to individual lawsuit.

In fact, central government officials are eager to push local officials to comply with the energy efficiency goal. Beijing believes that energy efficiency can be achieved without sacrificing economic growth and can help moderate China's growing reliance on imported oil. Consequently, meeting energy efficiency improvement targets has become an important component in the factors used to evaluate local political leaders, and energy efficiency mandates are finding their way into many regulations and policies (China Business Review, 1/01/2008).

However, although the central government's steps are encouraging, they are likely to produce only slow, incremental, and geographically uneven increases in local enforcement levels; China's more economically developed coastal regions will generally be stronger enforcers than less-developed western regions.

### **3.2 In practice**

The Chief Financial Officer of Novo involved in the entry of NN and NZ into China in the beginning of the 1990s acknowledges that what counted when NN first entered China was the money it was entering the country with. However, he stresses that NN was clearly asked how its production would impact the environment. "They asked about this matter even in 1993 because they knew it would become a bigger issue in the future but the big entrance ticket was money. I guess it is changing".

According to Nokia's senior manager of environmental affairs, environmental awareness is fiercely growing in China. "20 years ago the Chinese central government was just starting to take care of environmental issues. Now, environmental companies are in focus". The central government realized the importance of environmental issues and is trying to implement the laws everywhere in China. It will in a stricter way control all levels to outweigh the weak law enforcement and monitoring in local regions. Besides, since stricter environmental laws started being enacted not only by the central government but also by the local government, some Economic and technological development zones (ETDZ) are areas of no-pollution<sup>35</sup>. Indeed, a portion of economic and technological development zones (ETDZ) has passed ISO 14000 environment management authentication standard, becoming regional environment protection demonstration zones (China Daily, 5/10/2006)<sup>36</sup>. Since 2003, domestic and foreign companies have to complete an environmental impact assessment (EIA) prior to project construction to assess the possible positive or negative impact that a proposed project may have on the natural environment. Lately there have been some cases where companies couldn't build factories. NGO's and citizens have also become more involved. The citizens now can report to the government if a close-by industry is polluting.

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<sup>35</sup> Nokia's senior manager of environmental affairs

<sup>36</sup> China Daily. Advantages and Characteristics of State Economic and Technological Development Zones. 5/10/2006

The government can then ask the company to prove that they are operating in respect to the laws. Finally, Chinese consumers just started to buy green products.<sup>37</sup>

Table 6: Companies' perception of change of stakeholder behavior towards environmental issues in China

| Company      | Year of entrance | Change in stakeholder behavior towards environmental issues?  |
|--------------|------------------|---|
| Novo Nordisk | 2002             |   |
| Novozymes    | 1994             |   |
| Vestas       | 2006             | High focus of the government on environmental issues  |
| Nokia        | 1986             | Development of ETDZ; EIA law (2003); Greener behavior of consumers; Higher emphasis of environmental issues by stakeholders |
| Ecco         | 2005             | Chinese consumers are in higher degree choosing green products  |

Lastly, according to Vestas which entered China recently, “There is strong environmental legislation from the Chinese central government but the implementation is fairly low”. However, being an international company in China, Vestas has to live up to high standards because there is a lot of focus on foreign companies. Vestas senior strategy manager states that every time there is an issue related to the environment; the central government usually blames foreign companies. Notwithstanding, in some areas if you have a network, you can produce anyways. Some suppliers don't have the authorization but are allowed to produce anyways because they have a lot of influence on the community. It depends of the region you are in. The legislation is getting strictly implemented in the area of Beijing because of the Olympic Games.<sup>38</sup>

In general, a lot of focus is put on the environment e.g. some banks are not allowed to give some credits to polluting companies. Firms have to control their spillage to get a loan from the bank. The

<sup>37</sup> Nokia's senior manger of environmental affairs

<sup>38</sup> Vestas' senior strategy manager

central government is really pushing. It is aware. But at the individual level, for people who work in the firms or who own the firms, the most important is to make money.<sup>39</sup> For example, the Environmental Impact Assessment Law (EIA Law) requires an environmental impact assessment to be completed prior to project construction. However, if a developer completely ignores this requirement and builds a project without submitting an environmental impact statement, the only penalty is that the environmental protection bureau (EPB) may require the developer to do a make-up environmental assessment. If the developer does not complete this make-up assessment within the designated time, only then is the EPB authorized to fine the developer. Even so, the possible fine is capped at a maximum of about US\$ 25 000, a fraction of the overall cost of most major projects. The lack of more stringent enforcement mechanisms has resulted in a significant percentage of projects not completing legally required environmental impact assessments prior to construction.<sup>40</sup> In fact, according to Wang, the rate of China's environmental laws and regulations that are actually enforced in China is estimated to be barely 10 per cent.<sup>41</sup>

The central government has shut down hundreds of polluting factories and put fines in place for companies that do not abide by environmental regulations. But for experts like Paul Harris, an environmental studies professor at Lingnan University in Hong Kong, those efforts have largely failed since at the local, regional and provincial level, the level of corruption and the desire to benefit from profit and industrialization is still too powerful. Many factories would still rather pay a fine than follow more costly environmental standards (US fed News, 29/02/2008).

However, companies are increasingly being held accountable for their impact on China's environment as both government and local communities start to tackle the country's huge pollution problem. For years Chinese companies have simply paid fines to discharge waste but greater recognition of the permanent damage to both landscape and public health is forcing the government to take a tougher stance<sup>42</sup>. As stressed by David Arthur, partner at ERM in China, a consultancy working with multinationals on compliance issues "Since the 11th Five-Year-Plan, everybody is

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<sup>39</sup> Vestas senior strategy manager

<sup>40</sup> Wang, A. 5/02/2007. Environmental protection in China: the role of law

<sup>41</sup> Gu, Lin 29/09/2005. "China Improves Enforcement of Environmental Laws". China Features.

<sup>42</sup> Willy Lin, managing director of Hong Kong firm Milo Knitwear

clearer on understanding this issue. Local governments have guidelines to follow and inspect facilities. They don't cover up as before" (Just style, 4/03/2008).

China has increasingly changed its behavior toward environmental issues since the beginning of the 1990's. The central government of China understood that if they weren't behaving now the environmental degradation could harm the future economic growth of the country. Now, it however needs to convince the local government of the provinces to do the same i.e. to enforce environmental laws.

### **3.3 The effects on Foreign Direct Investments**

These are interesting times in China's environmental development: New laws and regulations are being promulgated at a breakneck pace, sustainability concepts that are more developed than those in the United States are gaining ground, new construction projects may face increased opposition from a newly empowered populace, and established facilities may be the targets of tort or nuisance lawsuits. Anecdotal evidence suggests that foreign companies are sometimes the first targets when local officials feel the need to show they are "getting tough" on polluters. Thus, foreign companies operating in China have lost their "shining knight" status on the environmental front, and their environmental performance is now under a microscope. Given these factors, the China-based environmental function of a foreign company must be as sophisticated and well-funded as its US equivalent. Failure to keep pace with China's quickly shifting environmental landscape can prevent a foreign company from fulfilling its corporate goals, land it in a Chinese court, or cause its corporate name to be featured in an unflattering headline (China Business Review, 1/01/2008).

As a final point and emphasized by a few political advisors "Industrial policies should be eco-friendly". The government should give back more tax revenue to industries for updating environment remediation facilities. The country should adopt tax policies benefiting eco-friendly industries and charging polluters. They want more penalty and reward measures in relevant laws and regulations to be taken into account.

They appreciated the action of the SEPA in February 2008 to blacklist 141 commodities from six industries for causing serious pollution or posing serious environmental risks and suggested canceling tax refund of 39 of them (Industry updates, 4/05/2008).

At last, the newly amended Energy Conservation Law not only offers great policy support to environmental protection industry, but also provides some preferential treatment in financial policies, including credit policy, which enables environment protection industry to enjoy unique advantages. During the period 2006-2010, China's environmental protection industry is expected to have an average annual growth rate of 15%-17% and its total annual revenue to reach of 880 billion to one trillion yuan in 2010 (M2 Presswire, 1/05/2008).

China, the most polluted country and the biggest recipient of foreign direct investment in the world is facing immense environmental problems. It has reached a state where its environmental degradation can harm its future economic growth. The Chinese government has taken into account the need to act against environmental degradation and started promulgating and most importantly begun enforcing environmental laws in the whole country including the provinces. Furthermore, it is now looking at MNCs entering its country. Therefore we can wonder if pro-active environmental companies can benefit from their HEP in their internationalization to China.

## Chapter 5: Analysis

In the first part of the analysis, we will determine the validity of the hypothesis by examining **whether pro-active environmental behavior of MNCs is an advantage in the internationalization process**. In a second part, in line with the hypothesis we will assess **how is pro-active environmental behavior of MNCs an advantage in the internationalization process**. Here, we will use our analytical framework to process the information collected. At last, in a third part we will discuss and prioritize the three dimensions and the different hypothesis.

### **1. Is pro-active environmental behavior of MNCs an advantage in the internationalization process?**

In the following part we will investigate whether HEP creates advantages or disadvantages for companies in the internationalization process. For that matter we will examine the two following hypotheses and test them on our empirical evidence.

#### **1.1 Are the benefits of environmental investment balancing the costs?**

All the companies participating in our study acknowledge the cost of environmental investments and the difficulty to assess the return of this investment. “It is difficult to calculate and separate the cost for the environmental issues as well as the saving of these.”<sup>43</sup> Their environmentally responsible behavior can contribute to customers preferring their products instead of those of their competitors’, however; it is still difficult to measure the impact of this. Nevertheless these companies believe that pursuing an environmental strategy can bring them opportunities.

As stressed by NN’s climate action project manager, NN’s climate strategy is not costs-benefit driven but value - driven. However, he argues that there is a strong business case for HEP. “In terms of Climate Change saving energy and converging to renewable will prepare our business for the future”. NN has experienced the positive effects of having HEP when it became the leader in the industry on environmental issues, it was rated super sector leader in the Dow Jones Sustainability Index (DJSI) and its stock value jumped three percent.

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<sup>43</sup> Nokia’s interview

NZ's responsible of Stakeholder Communication also argues that "HEP is a business case". Having a pro-active environmental strategy is important business-wise and environmental-wise for building trust among stakeholders. Nevertheless, he points out that for it to succeed you should only do things in your sphere of influence. Furthermore he argues that, "It is hard to measure the cost/benefit ratio. Though sometimes good business is also to meet stakeholders' expectations, build trust and good reputation; even if it is at first sight only a cost." It might be a moral question. When NZ builds an air cleaner on the roof of its plant, the cost is easy to calculate but not the benefits, however NZ stresses "you couldn't imagine producing without doing it". The costs of environmental investments are not all cost/beneficial in direct economic terms but they can be beneficial in terms of improving reputation or mitigating risks. By forecasting and implementing new regulations before they become compulsory, companies can avoid the costs of not being in compliance.

In the case of Nokia HEP has not been a constraint or costly. It has on the contrary led to cost savings, "We have done projects where we collected Nokia components through take-back initiatives and passed it on to our suppliers so they could use them again and reduce the costs of production". By recycling waste and water, and using green energy Ecco believes it can reduce its production costs in the long-term and therefore make beneficial environmental investments. Nokia and Ecco have integrated HEP into their core values and integrated them into their business operations. For both of these companies the management of the environment is integrated in their general management system because they recognize that this behavior is more than a mere cost. As mentioned by Nokia, "By nature, if you do business you have to take care of the environment to eliminate risks and take care of the stakeholders". Environmental performance differentiates Nokia from other companies.

For most of the companies the benefits of an environmental strategy outweigh the costs, not specifically in terms of return on investment (ROI) but in terms of opportunities, reputation and mitigation of risks. In addition another aspect has to be taken into consideration when evaluating the costs/ benefits of environmental investments: It is the opportunity cost of doing nothing.

Novo’s CFO, stresses that with the growing environmental and social concern, there is no way around corporate social responsibility (CSR). He states that “Environmental behavior may be a financial disadvantage in regards to companies that may not do such efforts, but that is a short-term solution”. Companies may not perform as well as they otherwise could in the short-term, because they are behaving beyond-compliance, which is not the case of their competitors, but this will certainly be different in the long-term: “The companies that in 25 years will have well implemented environmental policies will be the survivors, those who will have neglected them will be gone.” In Vestas case, HEP did not specifically bring advantages in the internationalization process in China. It served as a constraint in Vestas process, making it more difficult to find suppliers. However, the move to China was a necessity to gain market shares and become a renowned player. Lastly, it can also be costly and detrimental to ones business not to make environmental investments. As stresses Ecco “Companies will be closed if they do not consider the environment, there were already many small tanneries that were closed in the last 3 years in China because they polluted too much”.

All the companies participating in our study acknowledge that HEP is a business case. They recognize the cost of environmental investment but also the opportunity that it brings and more specifically the risks that it would entail not to have a sustainable strategy. All these companies value HEP, as an important component of their strategy although they recognize that it is not the main one. They see it as an important factor to avoid exposure. Therefore, the five companies interviewed value the importance of HEP from 7 to 10 where one is the lowest and ten is the highest.

Table 7: The importance of Environmental issues for Companies

| HEP   | Novonordisk | Novozymes | Vestas | Nokia | Ecco |
|-------|-------------|-----------|--------|-------|------|
| Grade | 7-8/10      | 10/10     | 10/10  | 9/10  | 8/10 |

## **1.2 Does the home local regulations that follow pro-active environmental companies act as a disadvantage in the internationalization?**

When analyzing the five companies participating in this research we found out that all these companies put their own global standards into practice in their production sites located all over the world. These high standards are the reflection of the regulations implemented in their home country, which, are Denmark for NN, NZ, Vestas and Ecco, and Finland for Nokia.

Novo's CFO stresses "We have our own rules. Whatever we build we respect our own standards which are often better than the local ones, especially outside Europe, USA and Japan". Vestas emphasizes that it has its own criteria that are applied in all its factories around the world and Nokia adds: "We have the same standards for all markets. We comply with EU regulations and apply them everywhere in the world". Nokia and the others are following the assumption that the environmental regulations will be strengthened everywhere in the world in the upcoming years, and therefore taking the move now, can only provide them with some advantages compared to their competitors. As mentioned by most of them, "We are trying to be ahead and foresee the upcoming regulation globally and in China". For that matter the companies look at what is happening in the United States of America and on the international platforms such as the United Nations. But they also look at what are the reactions from other companies. Consequently, when new regulations are put in practice, most of the companies already fit the new requirements. Moreover, they state that an increase in environmental regulations would be good for the future development of their businesses.

Consequently, these companies are manufacturing their products all over the world according to European standards. These standards are often higher than the ones required in the countries they operate in, however if the local standards are higher on particular areas they will be implemented. They are not required by law to implement such high standards in emerging economies but nonetheless do. And these behaviors don't provide them with competitive disadvantages in terms of market share. NN had 53% of the global market share in 2007 (Ethical Corporation, 11/06/2008)<sup>44</sup>, NZ had 50% of the global market<sup>45</sup>, Vestas 23%<sup>46</sup>, Nokia 40%<sup>47</sup> and Ecco 11,6% in 2005<sup>48</sup>.

### **1.3 Summary: HEP, an advantage or a disadvantage in the internationalization process?**

According to all the participating companies, HEP is not a disadvantage in the internationalization process. Novo's CFO cannot see how having a pro-active environmental strategy could be a

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<sup>44</sup> Ethical Corporation : Strategy & Management: Novo Nordisk – A healthy long-term vision. 11/06/2008

<sup>45</sup> Novozymes' interview .

<sup>46</sup> Vestas website

<sup>47</sup> Reuters : Nokia's profits jump, market share grows to 40 percent. 24/01/2008

<sup>48</sup> Exchange4media.com : Lifestyle footwear brand Ecco out to capture premium Indian feet. 15/07/2005.

disadvantage. He acknowledges that it may be that some parts of the production will become more expensive to reduce pollutant emission into the air and the water and to monitor suppliers but he thinks it is an accepted part of doing business. Nokia, who succeeded in having comprehensive requirements toward its suppliers while maintaining its prices at the same level as its competitors, agrees and stresses that if it can be a disadvantage in the first place to find suppliers after years of continuous efforts it is working. “HEP is not a disadvantage, it reduces risks and develops the business better”<sup>49</sup>. Ecco who has not been able to keep its prices at the level of its competitors says it is a matter of finding the right balance between higher prices and environmental conduct. Even Vestas which encounters high competition in China states that if it is a constraint to be pro-active environmentally, it is in other respect positive in the way Vestas can brand itself. In fact, Ecco and Nokia think they will benefit increasingly from HEP in the coming years. They are willing to promote themselves by putting special focus on their green products, especially given the growing demand for the types of products.

Finally, as stated by Nokia’s senior manager of environmental affairs when asked whether she thinks that being a pro-active environmental company can facilitate the entry process to new countries: “Today it will help in the internationalization process to be sustainable but it didn’t 20 years ago. Having a HEP company will help you; at least it won’t be a barrier to enter new markets. HEP helps to gain markets opportunities”.

To conclude, HEP companies do not only see environmental investments as costly, but also as drivers to different opportunities. Instead of being plagued by the cost and hassle of strict environmental regulations in the host country, HEP companies can use this to their benefit when internationalization by letting them slide past these barriers to entry. From this perspective pro-active environmental companies with strict home environmental standards are not at a disadvantage in the internationalization. On the contrary, these companies are able to grasp the benefits of operating under strict regulations in their home country, to further create an advantage in their internationalization. We will examine further in detail in the next section how pro-active environmental behavior is an advantage in the internationalization process.

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<sup>49</sup> Nokia’s interview

## **2. How is pro-active environmental behavior of MNCs an advantage in the internationalization process?**

In the previous part we have examined that HEP of MNCs is an advantage in the internationalization of companies. We will therefore try to analyze how in this part. To do so, we will use the different dimensions that we have identified as potential areas where HEP can help the process of internationalization. According to our hypotheses, HEP can grant companies with **competitive advantages** with regards to innovation, the organization of resources, as well as product quality and reputation. It can also provide them with 1<sup>st</sup> mover advantages and create barriers to competitors. Second, HEP can increase **efficiency** by reducing transaction, coordination and factor costs, creating scale economies and mitigating risks. Our final hypotheses are that HEP grants companies with **stakeholder advantages**. Potentially, they will enjoy greater bargaining power towards local governments, and be given favorable treatment and power to influence local regulations.

Sections 2.1, 2.2, and 2.3 will prove or dismiss each hypothesis separately and the result of these findings will be presented in a following conclusion.

### **2.1 HEP provides companies with competitive advantages in the internationalization process**

2.1.1 HEP boosts innovation of companies increasing their competitiveness in the internationalization process.

The assertion can be made that a company's innovation and improvement capacity can shift with initial constraints of operating under strict regulation-mostly due to costs- and lead to innovation and competitive advantages for companies operating in countries without the same strict regulation. The ability to determine whether HEP of a company encourages innovation and enhances a company's competitiveness is difficult to assess, since companies' themselves struggle to measure the results of their environmental investments on their sales and competitiveness. However, NN says that there is a strong business case for having HEP. In the last years it implemented 50 energy saving projects and 26 of those had a payback on less than a year. It is asserting the cost

effectiveness of energy saving projects, although its current DONG energy partnership hasn't been cost beneficial yet. This project is still only cost neutral. NN is now implementing new guidelines establishing that if the pay back of an investment is less than 5 years then it must be done. Ecco bets strongly on environmental innovation to reduce factor costs<sup>50</sup> in its new tanneries to be more cost-efficient. As it stresses, "our aim is always to use less input and to produce more output". Out of Ecco's total investment in China, more than 10 percent was dedicated to environmental improvements. Currently the benefit of the investment is only 50 percent, but it is estimated to produce in a close loop within five years thereby reaching 100 percent. As a result there is a high propensity that HEP through innovation leads to cost-beneficial investments that boost efficiency of firm's and increases competitiveness.

In regards to competitiveness and internationalization, NZ stated that being ahead of things will open some doors when entering new markets. NZ's stakeholder communication manager stresses: "When you go to new countries or markets, then it is easier if you can show local governments that you are on top of things. You can show them that you have the management system in place, that you are in compliance, and that you have no catastrophe in your history". Consequently, home environmental regulations don't constrain pro-active companies, but benefit them in the internationalization.

Nokia adds that, when environmental regulation increases, HEP companies will benefit from high capabilities in that field. When taking into account the environmental impact assessment (EIA) required by Chinese law since 2003, Nokia states that pro-active environmental companies, who are able to manage their environmental standards, will more easily get licenses or permits because their high environmental standards and competencies are already apparent. It will provide them with a competitive advantage i.e. to establish an EIA.

Companies create innovation to both reduce their own water and energy consumption and recycle waste, but this comes at a price. Nevertheless, as NZ states, doing so is an advantage when internationalizing because you are able to show that your company is environmentally responsible, differentiating you from other companies. Ecco quickly attained a permit to build its tannery in China thanks to its HEP in the production of leather.

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<sup>50</sup> Definition of factor cost: The cost of all factors of production consumed or used in producing good or service.

However, Vestas didn't enjoy the same benefits from its HEP production. We have recognized two reasons for this. Firstly, Vestas has not marketed the sustainability of its production like Ecco, who went as far as inviting the Chinese government to visit its production facilities in other countries, highlighting their environmental efforts. Secondly, Vestas has faced fierce competition from other companies due to heavy focus by the Chinese government on the securement of renewable forms of energy. Indeed, the need for China to become energy efficient has pushed them to be a forerunner in this industry emphasizing competition. It plays as a disincentive for the Chinese government, to empower Vestas and other foreign company. They don't want to disadvantage their own infant renewable industry.

The majority of these companies did not have an exact environmental approach when entering China a decade or two ago (NN, NZ, Nokia), therefore we cannot accurately assess the advantages environmental behavior procured by these companies at the time. However, they all state that the development of environmental responsibility in the last years has enhanced their reputation. The case of Ecco is the most representative. Its innovation in terms of reduction of environmental impact and maximization of its use of raw materials facilitated its entry into China. Due to this and the fact that the environment has become an important issue on the global agenda, we can assume that there is currently a strong business case for companies to have a HEP when entering new emerging markets. These companies' advanced environmental technologies and capabilities are leading to advantages in the internationalization if they can affectively fit this into their marketing mix. Moreover, we can assume that, by internationalizing these companies can further make their innovation investment profitable by replicating it into new markets. Ecco replicated and further improved its innovative tannery located in the Netherlands to China. In this way internationalizing allows companies to get a higher return on investments.

### **2.1.2 The optimal organization of environmental resources provides companies with an advantage in the internationalization.**

What specific environmental resources differentiate these companies from their competitors? Can they provide them with an advantage during their internationalization?

Looking at this from a theoretical point of view, companies environmental resources stem from valuable, costly-to-copy resources and capabilities. They can take the form of physical and financial assets as well as employees' skills and organizational social processes. By optimizing the organization of these resources in terms of productivity and efficiency companies can generate a higher value.

All of the companies interviewed are constantly working to improve their environmental footprint through the implementation of environmental management system, life-cycle assessment and so on. However, in regards to the behavior of NN and Nokia, we realize that what characterizes the most valuable, costly-to-copy environmental resource leading to a competitive advantage, is not only the environmental conducts in itself but more specifically the way it is communicated. Indeed, these companies are realizing massive indirect communication about their responsible behavior through different programs which creates greater environmental awareness. These programs have a dual purpose. The first one is to create awareness on environmental issues and therefore work hand-in-hand with local government and become a support for the local authorities. The second aim of such programs is to communicate about the companies' behavior and become a respectful player attracting responsible consumers and earning exclusive local government's partnership. These are the result of an early HEP. However, in the case of Ecco, it is not the organization of the environmental resource (indirect massive communication) that constitutes its environmental ownership but the optimization of its production in itself.

One of NZ's specific environmental competencies is to compare its products with its competitors' through the use of LCA. NZ uses product LCA to document that using enzyme technology has a lower environmental impact than other substitutive products. NZ's stakeholders' manager states: "The harsh chemicals are old fashion technology. LCA is a good way to show that modern biotechnology is a better choice." NN's environmental competency is developed in a triple bottom line approach, where the company is engaged in being financially, socially and environmentally responsible. NN has not yet publicized very much about its environmental engagement even though it is well-known, because their main focus is related to their core competency, the social aspect of diabetes. NN focuses on this core competency in China especially creating a partnership with the government to inform people of diabetes and its prevention. They use training programs to create awareness, which has the effect of distinguishing themselves from others.

Nokia, similarly, focuses on the environment. Nokia is directly creating environmental awareness among the population through different programs. As mentioned by Nokia's senior manager of environmental affairs: "There are two focuses; creating environmental awareness and Nokia's environmental strategy". The documented effectiveness in these areas act as Nokia's environmental resource because they are able to differentiate themselves from their competitors.

In light of this, Nokia has organized an ongoing environmental text message competition where children from 6 to 14 years of age are encouraged to send questions about the environment via SMS to Nokia. Those ten children with the best questions are rewarded with an invitation to Nokia in Beijing. This initiative spreads environmental awareness in the different regions of China. "The child comes home and can spread knowledge to his class mates, family and village. Besides, with the one child policy, the influence of children is even higher". Through this program, Nokia is able to both create environmental awareness and spread knowledge about Nokia's environmental engagement to a high volume of people. In the past 3 years, they received 500,000 text messages. They also create awareness among their employees by way of the Environmental Ambassador Programs, which invites them to take a paid day-off, allowing them to teach environmental issues in schools in remote areas.

Nokia also recycles. It has had a recycling project for three years, where it takes back all used mobile phones. For that purpose Nokia is working with China Mobile (the biggest operator in China) and Motorola. In 2007, 2 million pieces were collected. This behavior is beyond compliance in China since there is not yet laws that has settled take back system there. This proactive strategy not only tackles the environmental problem of mobile phone's waste it also helps them build a strong environmental reputation while simultaneously bringing benefits through the recycling of materials that would otherwise go to waste.

Nokia's green products and awareness efforts are creating a good reputation for Nokia, although they do not have precise data to support this trend. As Nokia stresses "sales and pro-activeness of the company is difficult to link". Nevertheless, Nokia will continue this strategy to differentiate itself. Nokia has just completed the construction of its 'Green Nokia China Conference Building', for which they received the Gold Certificate by the USA group building committee for its

environmental friendliness. It reduces energy consumption by 20 % and water consumption by 37 %. The Chinese government and public have been invited to visit the building. This behavior helps to build the brand. Moreover, Nokia has only started to market its green image two years ago. It realized that there was a new trend starting in China for consumers to buy green products and thereby a greater awareness among the consumers about green companies. Therefore it started “to communicate with externals” to enjoy these potential benefits. Nokia realized that it had to do more in marketing their environmental pro-activeness; as a result it does eco-marketing now at Nokia global.

Nonetheless, in the case of Ecco its valuable, costly-to-copy resource, is its environmental guidelines. Ecco group tries to distinguish itself through its environmentally friendly tanneries. It constantly intends to maximize the value of resources usage by avoiding unnecessary, inefficient or incomplete utilization of resources. This is implemented throughout the value chain and characterizes Ecco’s main environmental resource. This ultimate organization of resources provided Ecco with a great advantage in its entry to China.

Four of the companies have found a way to promote their ethical behavior to their advantage: NN and Nokia through creating awareness, Ecco through its environmental production guidelines and NZ by using LCA to compare its products to its competitors’. Vestas is the only one that hasn’t yet been able to use its environmental production to differentiate itself from its competitors. Vestas doesn’t perceive that it has any specific environmental resources besides the fact that it can promote the renewable energy aspect of its product. It identifies its environmental behavior as a constraint in some areas, and a disadvantage when comparing its high standards to the relaxed ones of its competitors, especially in China where there are many rivals.

As illustrated above, optimal organization of resources can provide substantial advantages for companies in most cases. This achievement is necessary in order to grasp the benefits of the environmental investment and to create an advantage in the internationalization process. Once again NN, Nokia and NZ didn’t benefit from their environmental resources at their entry to China since their focus was not yet on environmental issues. Nonetheless they have slowly developed these resources and used them to further establish themselves in China. It could reasonably be concluded

that these experiences could serve as a resource when entering and operating in new markets, of course taken into account that each country is different culturally, socially and economically.

### **2.1.3 HEP increases the quality of the product creating an advantage in the internationalization**

According to Porter and Van der Linde (1995), the innovation made to comply with environmental regulation often improves product performance or quality. Innovation offsets can generate process offsets and product offsets. Product offsets can create **better-performing** or higher-quality products, and **safer products** with **lower product costs** but also **products with higher resale or scrap value** (because of ease of recycling or disassembly) or **lower costs of product disposal for users**.

One of the main impediments to answer this question is that it is very hard to assess the importance of the environmental behavior on product's quality. It is difficult to evaluate how NN's environmental conduct impacts what can be said to be an already high quality of insulin. Likewise, Vestas is producing a very-high quality product in its wind-turbines, which Vestas' QSE manager states, will probably last longer than the corresponding ones of its competitors'. Nokia created the new 3110 Evolve, which they claim is a greener form of mobile technology than other models. 50 percent of the materials that make up their "bio-covers" come from renewable sources. Its minimal packaging is made of 60 percent recycled material and comes with Nokia's most energy efficient charger. Based on lifecycle studies, the Nokia 3110 Evolve consumes 15 to 20 percent less energy than comparable products over its lifecycle. These improvements make the product more sustainable and differentiate the product to other products.

Ecco's products encounter the same dilemma as NN, Vestas, and Nokia. Ecco Sko A/S is one of the world's top ten shoemakers and a worldwide leader in the "comfort" segment of the shoe market. Their products are well known for their high quality, produced by one of the few fully vertically integrated shoemakers, which controls the entire shoemaking process; from tanning to design to manufacturing and even retail sales. Employees ensure that Ecco takes the environment into account, at all times, when leather and shoes are manufactured. Ecco's environmental manager in China stated that "HEP leads to better products" but could not specify in what ways. He recognizes that it is difficult to measure the value-adding of HEP on the quality of the product.

Novozymes' case is a very different one because its products are not only sustainable but also superior. Its organic enzymes are more efficient than the chemical ones. The new washing powder of NZ's implies a reduction of the washing water temperature from 60 to 30 degrees which represents high energy saving for the consumer. NZ produces a product that is based on reducing the impact on the environment, it is a substitute to hard chemicals, a sustainable product in itself although its production is highly energy consuming. In this case, the environmental strategy has a direct impact on the quality of the product.

Table 8: Analytical findings of the five companies in the context of the theories surrounding product enhancement by Porter and Van der Linde.

|   | NN  | NZ  | Vestas | Nokia | Ecco |
|---|-----|-----|--------|-------|------|
| Better performing                         |     | √   |        |       |      |
| Safer product                             |     |     |        |       |      |
| Lower production costs                    | √   |     |        | √     | √    |
| High resale&scrap-value                   |     |     | √      | √     |      |
| Lower costs of product disposal for users |     | √   | √      | √     |      |
| Total                                     | 1/5 | 2/5 | 2/5    | 3/5   | 1/5  |

In this division we have tried to assess if HEP is a driver to a better quality product according to the definition of product offset given by Porter and Van der Linde. We were unable to define whether HEP is improving the safety of products and their performance on the background of the information gathered during the interviews, however, in the case of NZ we found out that its HEP is enhancing its product performance i.e. the washing powder with enzymes. We discovered that the costs of production were lower in the case of NN, Nokia and Ecco. NN due to its energy saving projects, Nokia because of its packaging and recycling efforts, and in the case of Ecco it is its

general maximization of production. Nonetheless, these effects are unknown in the case of NZ, and for Vestas HEP revealed to increase production costs compared to its competitors (high requirements on suppliers). Vestas, Nokia and Ecco's products can easily be recycled and reused in the production process, in order to slowly produce in a close loop. This is not the case of NN and NZ due to the nature of their products. The Novo Pen and enzymes are not easy to recycle. Finally, the HEP reduces the cost of product disposal in the case of NZ, Vestas and Nokia. The consumer reduces the amount of energy used when utilizing washing powder made out of NZ's enzymes and when using Nokia's charger. It also creates savings when buying Vestas' windmill turbines which has a propensity to last longer than others.

According to these findings, the environmental strategy of companies does not directly improve the quality of the products four times out of five, depending on the product. The HEP improves the impact of these products on the environment but not specifically its quality for end-users. Nevertheless, there is no evidence that HEP reduces the quality of products either. Consequently, HEP doesn't have a negative impact on product's quality but rather a beneficial indirect one. Indeed, these products can be favored by responsible consumers towards other products that wouldn't have such low environmental impacts. As there is no direct link between HEP and an increase quality of the product, we have not been able to determine whether HEP products favor internationalization.

#### **2.1.4 Companies with a pro-active environmental strategy gain 1<sup>st</sup> mover advantage and create entry barriers to competitors in the internationalization process**

Hart (1995) argues that if firms make an early move or a large scale move, it is sometimes possible to pre-empt competitors by setting new standards or gaining preferred access to critical raw materials, locations, production capacity or customers. Moreover, as stressed by Prakash (2000) companies that embark on HEP can when entering developing countries pre-empt or shape environmental regulations. This behavior can reward them with first mover advantages, and if technologically advanced, they can raise the cost of entry to that market thus creating entry barriers for competitors. Lobbying the government authorities to enhance the level of regulation can also increase these barriers of entry, providing the company with a competitive advantage.

NN entered China in 1992 when diabetes was not a prevalent disease. They anticipated an increase in the occurrence of the disease in China and other developing countries in the coming decades. From the start they made many efforts to create awareness about Diabetes by organizing seminars and providing education on the subject. Through these actions NN slowly built up its reputation and market presence; indirectly creating barriers to competitors. As Novo's CFO stresses: "We are seen by the government as a partner rather than as a regular company. And it's been very difficult for NN's competitors." They have used their resources to play into people's sentiment. Moreover, the reputation that NN already had in the 1990s thanks to its technological advancement provided it with a 1<sup>st</sup> mover advantage when it entered China. The HEP of NN did not directly affect its entry to China, but has served indirectly by improving its reputation.

When NZ entered China as a producer of enzymes using genetically modified micro-organism, the Chinese government had no regulation in that area. Therefore, NZ invited the Chinese government to come to Denmark and visit NZ's production site in Kalundborg. NZ taught them about the strict regulations applied in Denmark and the European Union on genetically modified organism that it was following. Based on the same standards NZ was allowed to produce in China. "It was an advantage that we could use the good reputation of Denmark, and Danish regulations as a key to convince them that we could produce in China on those conditions". In regards to these codes of conduct the Chinese Government enacted its own regulations therefore forcing NZ's competitors to follow the same standards. So as one of the first enzymes producer in China it benefited greatly from 1<sup>st</sup> mover advantages.

Nokia also lobbies the Chinese central government to raise existing environmental standards, which indirectly raises the entry barriers for its competitors. It strongly advises the government about how to make better regulation at the country level. However, due to its recent entry, Vestas has not been able to create similar relationships with the government, and therefore lobbies at a more international level through its Danish seated Department for Communication with Governments. Ecco became a first mover by operating in a new market segment of the shoe industry. Due to its environmental approach it was allowed to enter China, while other tanneries were either being denied to enter or closed down.

As the examples of Ecco, NZ and NN have shown, environmental strategies are potential drivers to 1<sup>st</sup> mover advantages and can create entry barriers to competitors. This scenario can give companies incentives to internationalize in emerging markets where there is potential for market growth and possibilities to influence regulations. Nevertheless, if this attitude can generate such advantages it is not always validated, as these advantages were non-existent in China in the case of Vestas. Vestas hasn't yet been able to build barriers to competitors. This fact can be seen in the light of its recent entry to China and the already existing high competition. However, Vestas can still create barriers to competitors if it lobbies the Chinese government to take on its own environmental standards to enact new environmental policies in this industry.

### **2.1.5 Great reputation stemming from HEP is an enabler in the internationalization process**

With the increase of environmental awareness, good environmental competencies build strong reputations and can constitute a competitive advantage in the internationalization process.

NN asserts that certainly the most important is to have a good, valuable and solid technological product to the customers but it also stresses the importance of what the company can build around its product. The technology can be copied but it is harder to copy the intangibles (education etc.). NN's social activities, like the educational diabetes program in China, spread NN's brand name throughout all reaches of the topic of diabetes. Novo A/S CFO states that NN's competitors in China have sometimes tried to give the same training in the hospital and create the same awareness but it never lasted since they had other areas of focus. "Most of the time they stopped after 6 months. We never stopped we do it every year. Good products and continued efforts count". NN found its name stated throughout the media communiqué, all without addressing the media directly. This increased their reputation, leading to market opportunities and greater sales.

According to NZ, adopting HEP has been an advantage and essential to maintaining its reputation. NZ's representative states that this has been the case since the mid 80s. Indeed, the standards and the influence that it implemented in China provided it with a high reputational advantage. As he stresses "NZ is on the map of the Chinese authorities now, they have been visiting NZ in Denmark and in China." Reputation is especially important to NZ since it bases its innovation and R&D on genetic engineering, a very ethically sensitive area. NZ enzymes are used in food-products and household merchandize, areas which requires a good reputation to build trust among stakeholders.

Nokia already benefits from a high reputation, both globally and within China. It has a good reputation toward consumers especially since awareness surrounding environmental products started in urban China. Nokia is building its reputation both on the back of greener cellular products and through creating environmental awareness. Its strategy anticipates growing future demand for green products, and focuses on building a green reputation to differentiate its products from its competitor's. Nokia anticipates that the advantages of their positive reputation from HEP, will continue to grow in the upcoming years, both in China and globally.

According to a study described in Forbes magazine by The Reputation Institute, ranking the world most respected companies,<sup>51</sup> “Vestas has the highest citizenship score”, when compared to 600 companies. That particular 2007 online survey of 60,000 people showed that for the first time voters counted citizenship as having the strongest effect on reputation. Nevertheless, this score reflects the type of product that Vestas is building (renewable product) rather than its sustainable production. Vestas could market its sustainable production process to distinguish itself from the other wind turbine producers, however it does not because of the risks that it implies. According to Vestas' QSE manager, Vestas is not marketing its sustainable position because it is afraid of getting its image destroyed. In effect, just like NZ's stakeholders communication manager stated; when you start being signatories of environmental NGO's and GO programmes, etc. you become the prey of journalists that will investigate until your sixth or seventh tier supplier to witness if you are complying with your engagements. These two companies would like to avoid being treated like Telenor and Ericsson which reputation has recently been harmed by journalists.

Moreover, environmental expenditure might reduce overall costs by recruiting and retaining particularly highly skilled employees who themselves have strong environmental convictions. If environmental performance enables a firm to attract superior talent or increases employee's job satisfaction and commitment to the firm, this could lead to higher productivity in the long run. (Reinhardt 1999). All the participating companies agree to that statement. “The fact of having high environmental reputation make people want to work for you” recognizes NZ. “At the beginning, NN had difficulties to get some employees in China but then NN became a quite attractive place to work at. It had to do with the fact that NN had a CSR view and good company values” states

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<sup>51</sup> Forbes.com. Most respected companies. Building blocks for success. Tara Weiss. 21/05/2007

Novo's CFO. NN now has the lowest turnover rate of employees in the industry in China, less than 10%<sup>52</sup> which is very low.

According to the five companies, their environmental reputation makes it easier to recruit and attract employees. As stressed by Nokia the employees are more involved too. Vestas agrees: "Yes, it is easier to attract people especially when Denmark's unemployment rate is very low. It also helps not to lose your employees and make people ready to work for less money because of the attachment to the firms' values. If you brand your company strongly enough you will have some people ready to compromise in terms of salary". Employees working at Vestas are proud to play a role in the change of awareness on environmental issues. Nokia likewise argues that having a HEP improves the reputations and eases the process of attracting new qualified staff.

We argue that it is a great advantage to have a HEP. Companies with a strong reputation can more easily attract and keep employees, and save money due to lower employee turnover. This provides that tacit knowledge stays within the company making it more experienced, able to achieve cheaper training cost, and more efficient. This, all in all, makes the company more competitive.

Finally, Vestas and NZ affirm that investors are becoming more and more interested in environmental issues and were thereby able to attract them. Proactive environmental strategies have the potential to provide these companies financial backing.

In sum, considering the different sort of advantages that companies can gain from their high environmental reputation, we can assess that although taking action against environment degradation may be risky (threat of journalists turning a good story into a bad story), it will provide them with an advantage in many ways in their internationalization compared to competitors. It will endow them with the best assets; financial support, faithful and dedicated employees and honorable status.

### **2.1.6 Summarization of the section 1: Does HEP provide companies with competitive advantages in the internationalization process?**

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<sup>52</sup> This data was given by the CFO of Novo A/S which was in China five years ago. Therefore the information is five years old.

Table 9: Summarization of the section 1: HEP provides companies with competitive advantages in the internationalization process

|   | HEP  | Novonordisk | Novozymes | Vestas | Nokia | Ecco | In the IP |
|---|--|-------------|-----------|--------|-------|------|-----------|
| 1 | Innovation and competitiveness                   | √           | √         |        | √     | √    | yes (4/5) |
| 2 | Organization of environmental resources as a CA  | √           | √         |        | √     | √    | Yes (4/5) |
| 3 | Product quality                                  |             |           |        | √     |      | No (1/5)  |
| 4 | 1st mover advantages and barriers to competitors | √           | √         |        | √     | √    | Yes (4/5) |
| 5 | High reputation                                  | √           | √         | √      | √     | √    | Yes (5/5) |

According to this analysis, HEP can increase companies' competitive advantage in their internationalization process (IP).

For all the companies, excluding Vestas, HES provide them with **greater innovation and competitiveness**. Most of the projects aiming at saving energy resulted in being cost-beneficial in a year, further leading to cost reductions for the companies in the future. Moreover, the environmental expertise of these companies proved helpful to facilitate the acquisition of licenses or permits (case of Ecco) in their entry process. In addition, we can conclude that, by internationalizing, these companies can further make their investment in innovation profitable by replicating these investments in new markets.

Four out of five companies have succeeded in finding **an optimal organization of their environmental resource**. As stressed above, for three of these companies (NN, NZ and Nokia) the main environmental resource is not only the optimal use of resources in production, but more

specifically the way they communicate their environmental behavior to the public. Ecco is the only player whose specific environmental resource is the optimization of its production. Vestas, however hasn't yet found an optimal organization of its environmental resource. We can reasonably conclude that the experience enjoyed in China by these companies in terms of organizing environmental resources, can further be used to expand to new markets, although we acknowledge the existence of country specific characteristics.

Four companies out of five benefited from **1<sup>st</sup> mover advantages and created barriers of entry for their competitors**. NN, NZ and Nokia self-implemented high environmental standards in China and were able to influence local regulators to establish corresponding standards at the country level. Their early establishment and pro-active activities helped them to create exclusive relationships with the Chinese government. Ecco likewise benefited from 1<sup>st</sup> mover advantages and enjoyed fast and exclusive entry to China due to its innovative and environmental friendly tanneries. We believe that these companies can in the future benefit from similar advantages when entering emerging economies with strong emphasis on environmental issues.

Finally, all the participating companies have agreed on the positive effects of HEP **on reputation**. HEP decreases the risks of environmental incidents and increases companies' reputation allowing them to benefit from greater workforce and to attract investors due to liability issues which in turns boosts their internationalization.

Although the environmental focus was not prevalent in the strategy of NN, NZ and Nokia when first entering China two decades ago, these companies have incrementally developed their environmental policies and succeeded in gaining high market share in China. Out of the five hypotheses studied above, four resulted valid. However, as there is no direct link between HEP and an **increase quality of the product**, we have not been able to determine whether HEP products favor internationalization. Nevertheless, we can conclude that, in most cases, HEP increases companies' competitive advantage and favors their internationalization.

## **2.2 HEP increases efficiency of companies in the internationalization process**

### **2.2.1 HEP reduces transaction and coordination costs in the internationalization**

As we defined internationalization in this thesis as being foreign-direct-investment, our aim is not to explain why companies internationalize through FDI but rather how they can reduce transaction costs in their internationalization thanks to their environmental competency. The assumption is that HEP companies will be able to reduce their transaction costs in the internationalization by exploiting their ownership-specific advantage in the environmental field. Companies will, due to their environmental ownership, be able to overcome technical entrance barriers and environmental public policies by not being hindered by differing standards.

As already stated by Nokia, environmental competencies can be an advantage especially in the case of China where companies have to make an EIA by law before building a plant. It can indeed facilitate the entry strategy by reducing the amount of time necessary to get the permits and licenses needed to start a business in China. NZ and Ecco's entries into China were expedited by their high environmental standards. Environmental competencies can also ease the process of accessing a good economic zone. As stressed by Nokia's manager of environmental affairs, these new economic and technological areas that passed ISO 14000, are becoming regional environment protection demonstration zones. She states, "If you have a HEP you will easier get into these zones and enjoy governmental benefits, such as tax incentives and subsidies". Also, having high global environmental standards and controls may prevent the entire operation from being put in jeopardy by arbitrary regulatory intervention. Vestas stresses: "Being an international company in China, Vestas has to live up to high standards, because there is a lot of focus on foreign companies. Every time there is an issue, they usually blame foreign companies".

However, in the case of all the companies, high environmental standards facilitated their entry since they didn't have to study local regulations and adapt their standards to it. In fact, these companies have high global environmental standards which already comply with most of the local regulations. Therefore, they only have to change small features to comply with local regulations, in the rare cases, where Chinese regulations are contradictory or higher than the European ones. Vestas' performance is world leading; it has high ethical standards and comply with the ISO 9001, ISO 14 001, and OHS 18 000, which it applies everywhere in the world. Consequently, it has higher standards than the level of China and India, nonetheless, it asserts that "sometimes local standards are different than home standards". For example in china, bargaining collectively is forbidden and Copy Rights are valued differently. In these particular cases companies have to adapt their

standards to the local market. These little changes might induce costs that decrease the benefits gained from transaction costs.

In summation, HEP reduces transaction costs linked to environmental protocol involved in the internationalization process. It helps to attain faster permits, to reduce liability risks, and to acquire the best production plant locations. In addition, these high standards reduce coordination costs due to the companies generally higher standards compared to local ones. They therefore don't have to adjust operations as to rise to local standards and can more rapidly establish production. Although there might be some adaptation required in rare cases, and cross-border environmental monitoring and controls may reveal to be expensive, we can reasonably conclude that HEP reduces uncertainty and coordination costs in the internationalization process. In effect these companies performing beyond compliance in emerging economies are not fearful of future local regulations because they already apply their high global standards to the local market. Therefore it can be said that these companies acquire advantages compared to companies without HEP.

### **2.2.2 HEP companies reduce factor costs and gain economies of scale in their internationalization**

According to Hart, Ahuja and Romm (1994) companies can, through pollution prevention, realize significant savings, resulting in a cost advantage relative to competitors. However, as stressed by Frosch and Gallopoulos (1989), as the firm's environmental performance improves, further reductions in emissions become progressively more difficult, often requiring significant changes in processes or even entirely new production technology. All the participating companies are trying to reduce their environmental footprint by diminishing their use of energy and water and trying to recycle their waste as much as possible. However, some of these companies do it more systematically than others. NZ recognizes for example that there might be a gap when it comes to implementing clean technologies. It intends to issue by issue beat energy and water consumption but doesn't do any changes without considering the cost of the investment.

Pollution prevention may increase productivity and efficiency and reduce time by simplifying or removing unnecessary steps in production operations (Hamer and Champy, 1993; Stalk and Hout, 1990). All these companies implement a Lean Production Programme which intends to do more

with less: less time, inventory, space, labor, and money. "Lean manufacturing", is shorthand for a commitment to eliminating waste, simplifying procedures and speeding up production. This programme can be used to reduce production costs in general or more specifically on environmental issues. However, NN is the only one that specifically uses this concept to apply on its climate change strategy.

Vestas constantly works on improving its production. It intends to always find the unnecessary steps in the production process and to remove them. It implements the LEAN programme with its suppliers to decrease waste in time, energy and material and tries to reduce the amount of defects it makes, but we haven't been able to find whether these investments were successful. NN's climate strategy is to optimize its production through cLEAN® realizing energy savings in production and conversion to renewable energy. For NN this technique uses less-energy and generates more production efficiency therefore it qualifies it to be cost effective. NN does energy screening every third year to identify energy potentials. "This is a very systematic energy management process which has been introduced to achieve our reduction targets. We look into renewable fuels and whether we can switch to it". Nokia is also saving costs on environmental issues. By improving its packaging on the distribution of 250 million pieces of a compact product Nokia saved 100 000 million Euros in 2006 and 2007. This represented huge savings. Consequently the issue is not always about the cost of the investment but also about the gain that it procures.

Ecco succeeded in increasing production efficiency and reducing factor costs by making environmental investments in its plant in the Netherlands. It is aiming to gain even higher advantages from its production organization in its new tannery in China. Indeed, out of the total cost of building the tannery, 10% was dedicated to environmental impact improvement, and it predicts this investment to be beneficial in 5 years as it will then be able to produce in a close-loop. Ecco's by-word is "Consume less, produce more".

Considering the empirical evidence gathered during the interviews and the websites of the participating companies, there are generally some benefits coming out of environmental investments in production although reducing the environmental impact of production may require costly investment as well as complicated cost-benefit analysis. Three out of the five companies have been able to demonstrate that at least one of their environmental investments was successful. We

can reasonable presume from these results that expanding the environmental companies' production scheme to other markets with a high potential domestic demand, can further benefit their profitability by reducing innovation costs via economies of scale.

### **2.2.3 Companies' environmental strategies help to mitigate risks in the internationalization**

Proactive environmental strategies can create value by reducing risks. An effective environmental management system with an emphasis on preventive measures can help the organization avoid or minimize accidental spills and releases, while also reducing costs for response and cleanup (Martin, 2005). Pro-active environmental strategies can help companies to manage the business liability or damaged reputation, which might rise from an environmental accident that can have dramatic repercussion.

NN and NZ explain that reducing risks of scandals is what drove them to lead a pro-active strategy. "We have a long history of collaborating with NGOs and that began in 1970 when NN had a major crisis. The enzymes produced would cause skin allergy for the people in production. But these enzymes were also used for detergents, so house wives were at risk. The US market was huge and very important but a consumer movement started advising people not to use our products because they were hazardous. So from one day to another NN lost a great deal of this market. A company can really be caught on the wrong foot if it doesn't consider stakeholders interests and end user interests". After this incident NN decided to always comply with all the regulations and to make sure that its shareholders and customers were happy. The two incidents became the basis for NN proactive attitude. "Instead of being cornered where you have nothing but to take the beatings, it is better to be there proactively and to shape the frameworks". This behavior has become part of the NN strategy.

NZ is a signatory of the Global Compact and is implementing the ISO 14001 in all its production sites. Therefore it operates very "by the book" which reduces its potential risks of incidents. NZ's environmental strategy adds to its ethical behavior and secures it a good reputation that is essential for its development. As stressed by NZ's stakeholder communication manager, "You can be sure that if we had a bad reputation no food company in the world would dare to use NZ products in their food products because the consumers would be scared. So we have to behave to make our

customers feel comfortable”. At the beginning, NN and NZ (who still existed as single entity) were not focused on the environment because it wasn’t in the societal focus at that time. It was more interested in treating the employees in a decent way and avoiding accidents. However, with the growing importance of environmental issues, NN and NZ have placed the environmental behavior high on their priorities list.

Vestas’ QSE manager ranks the importance of environmental behavior for the company at ten out of ten because it helps the company “avoid exposure and because it is an issue that the society have to work on”. In addition, a company must be very careful because as he stresses there is a higher attention in the renewable energy industry. “It is different than being a manufacturer of table and chairs, there is a bigger focus in this industry”. Nokia also states that you need a basic level of environmental behavior to eliminate risks and stakeholder’s inspection.

A companies ability to mitigating environmental risks is essential. They don’t want to take the risk, while abroad, losing their high environmental reputation through an awkward partnership with a local company. They want to secure their assets, especially their reputation, thus they would rather internationalize through full ownership or own the majority of the share while making a joint-venture to secure that the company’s guidelines will be the ones implemented. NZ made a JV in China where they partnered with a local enzyme company called Hongda. NZ has 65% of the shares and rapidly turned the new company’s operations into NZ standards. “The company had environmental standards to live up too”. Consequently there is a strong case to think that company’s environmental behavior will push them to internationalize through full ownership investments or joint-venture where they have the majority of the shares to secure their reputational asset and reduce risks.

#### **2.2.4 Summarization of section 2: Does HEP increase efficiency of companies and therefore facilitate the internationalization of these companies?**

Table 10: Summarization of the section 2: HEP increases efficiency of companies in the Internationalization process

|   | HEP                                  | Novonordisk | Novozymes | Vestas | Nokia | Ecco | In the IP |
|---|--------------------------------------|-------------|-----------|--------|-------|------|-----------|
| 1 | Reduce TC                            | √           | √         | √      | √     | √    | Yes (5/5) |
| 2 | Reduce factor costs; scale economies | √           |           |        | √     | √    | Yes (3/5) |
| 4 | Mitigate Risks                       | √           | √         | √      | √     | √    | Yes (5/5) |

According to this analysis, HEP can increase companies' efficiency in their internationalization process.

All the companies were able to benefit from a **reduction of their transaction and coordination costs** thanks to their high environmental standards in their internationalization. These companies rarely have to adapt to local standards since they are applying their high environmental standards stemming from the European Union everywhere they manufacture. In consequence, Ecco and NZ benefited from a fast entry and the other companies were able to easily enter China thanks to their HEP.

Although environmental investments are costly in the short run the benefits can outweigh the costs in the long run. Most companies reported beneficial environmental investment **that reduced factor costs** because they were more resource efficient. We argue that if they were replicated into new markets it could imply further economies of scale.

According to the participating companies, beside, the will to reduce their environmental footprint, their main incentive was to embark on high environmental strategy in order **to mitigate risks**. Therefore to secure that their high environmental standards are applied these companies internationalize through FDI.

In regards to efficiency we evaluate that high environmental standards imply costs, but the reduction of transaction, coordination and factor cost induced in the internationalization, and the opportunities it can bring in terms of economies of scale and diminution of risks makes it profitable. Nonetheless, the desire to secure companies' high environmental standards to avoid environmental

incidents, may reduce their possibilities in the internationalization only allowing them to either do Greenfield investments or get the majority of the shares in a joint-venture with a local partner.

## **2.3 HEP provides companies with stakeholder advantages in the internationalization process**

### **2.3.1 Environmental strategy increases bargaining power of firms toward local governments in the internationalization process**

A relation of power can be established in between firms and local governments depending on who hold the resources. Blodgett (1991) suggests that the bargaining power and skills of an organization's management may mediate the control implications of resource dependence. A company may be able to negotiate favorable terms with regulators by offering other valued social benefits, such as environmental skills.

None of the participating companies approve the hypothesis that pro-active environmental companies get an increased bargaining power in their negotiation with local governments on the bases of their experience in China. The growing awareness on environmental issues is relatively new compared to when NN, NZ and Nokia entered China. Besides, although, China faces high environmental degradation and is starting to take a stricter approach on environmental issues, it doesn't want to put its companies at a disadvantage towards foreign MNCs. As mentioned by Vestas' senior strategy manager : "the central government of China is thinking about increasing further tax break for companies investing in technology, however they don't want to give unreasonable advantage to foreign companies compared to Chinese companies".

China has a strong economic policy and the purpose for opening its economy at the end of the 1970's was to be able to feed its country and grow economically to become a super-power. It has always opened its barriers to foreign companies rationally, calculating the benefits it could get from the incoming companies, and impeding companies that were non-beneficial to enter the country e.g. tanneries. It knew a few years ago that it would need to switch into more renewable energy but that it lacked the technological expertise to do so. Therefore the Chinese government set up a local-content-requirement law stipulating that 70 % of the wind turbine that would be sold to China

would have to be produced locally. “It was a deliberate initiative from the Chinese government to attract foreign companies and benefit from know-how and technology spillover to the domestic industry”<sup>53</sup>. Vestas wasn’t able to bargain its entry to China. This is probably due to the fact that China is an attractive country to many companies in the renewable energy sector considering its significant population and increasing need for energy.

Consequently although the theory stresses that companies possessing an environmental competency can enjoy a favorable bargaining advantage when entering new countries, it is not the case in China. We argue that China attracts many foreign companies by its significant market and therefore do not procure a higher bargaining power to pro-active environmental companies. However, in other developing countries, less advanced in their development and less protective it could be the case.

### **2.3.2 HEP helps companies to get favored treatments from local governments in the internationalization process**

According to Clark (1993), environmental competencies have provided some firms with a competitive edge over other investors in regard to government contracts, concessions and procurement. Favored treatments by local governments can also entail tax break, subsidies, and permits.

Most of the participating companies have benefited from favored treatment by the central government when they entered China; however, it was seldom because of their environmental competencies. As mentioned above, most of the companies (NN, NV and Nokia) entered China more than a decade ago when economic growth was still favored at the expense of the environment, thereby they didn’t receive any special treatment.

NN benefited from tax-incentives for five years but this advantage didn’t stem from its environmental behavior. It was just an incentive that was given to all the companies entering China to attract foreign companies. It also always got some great help and support from the local government e.g. it only took two months to NN to get the license to start its business. NN explains

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<sup>53</sup> Vestas’ interview with the Chinese senior strategy manager.

these favored treatments because of the reputation it was enjoying thanks to the quality and technology of its products at that time.

Vestas which entered China in the mid- 2000s did not specifically enjoy favored treatment from the Chinese government thanks to its environmental behavior. It benefited from certain incentives like tax holiday in the Economic investment zone it was in, but this was not specifically related to its HEP. It did not benefit from any specific direct advantage although Vestas' investment into China as a wind-turbine producer has been a targeted approach (local content-requirement law) of the government.

Although Nokia didn't receive any special treatment when it entered China, since at that time the environment was not the government's top priority; Nokia states that nowadays environmental companies can get access to industrial areas, subsidies and tax incentives. Nokia's Chinese senior manager of environmental affairs reports that there are some economic and technological development areas all over China, where only light polluters are allowed. Nokia was welcomed in all these areas thanks to its environmental behavior. Thus, she concludes that if a company has HEP it can more easily get into these zones and enjoy governmental benefits.

The Chinese central government has not yet provided favored treatments to the pro-active environmental companies as it doesn't want to penalize its companies towards the foreign ones. However, as stressed by Nokia the possession of environmental capabilities might provide some advantages. Ecco enjoyed the privilege to build a tannery in China although the Chinese government was pretty resistant to welcoming foreign tanneries into China, because of their detrimental environmental impact. It shows that the environment is increasingly being considered. The actors interviewed acknowledged a substantial change from the Chinese government on environmental matters, nevertheless it is still difficult to evaluate if pro-active environmental companies will be advantaged in their entering process to China thanks to their environmental behavior.

### **2.3.3 Pro-active environmental companies influence local regulations representing an advantage in the internationalization**

Companies with high social and environmental ethics can, through their civil responsibilities enjoy enhance local awareness. NN was able to build a good relationship over the years with the Chinese government through its educational programme on Diabetes. It made an agreement with the Chinese academy of sciences to collaborate with them on research and as a result is now given the priority as a partner. “We have earned that due to ten years of work in the market”. NN entered China with its own standards and has now succeeded in becoming a real partner for the local government. “By us coming there and introducing our own standards it gives a little contribution to that country’s ability to improve theirs”. Developing countries often face ineffective regulatory structures due to a lack of trained personnel, control technologies and capital resources therefore they often borrow environmental regulations from developed countries which they have the greatest degree of commerce with as well as technological and educational interchange (Hadlock, 1994).

Nokia is in the same case as NN. It didn’t have a HEP when it entered China since environmental issues were not at that time in focus. However, as environmental awareness rose it started placing itself as a pro-active environmental company each time gaining a closer relationship with the local government. Thus, thanks to its great experience in China it nowadays advises and lobbies the government to make better regulations, laws and standards.

When NZ entered China with its high standards it was able to pre-empt and shape the Chinese environmental regulations rapidly. Indeed, since China didn’t yet have standards on this matter, NZ’s ones influenced the Chinese regulators. This conduct gave it the opportunity to reap benefits such as first mover advantages, and to raise the cost of entry for its rivals thus creating barriers to competitors. Hence, NZ’s competitors when entering China had to follow NZ standards. NZ helped the Chinese government to upgrade their regulations and will continue lobbying the government in favor of stricter regulations since “stricter regulations constitute an opportunity for NZ”. In emerging economies, where environmental protection is still nascent, governments are known to utilize the environmental protection codes of large, reputable corporations as examples on which to base their regulations (Tsai and Child, 1997).

Although Vestas creates environmental awareness by requiring from its supplier to comply with their environmental guidelines it is not directly lobbying the Chinese government. Vestas would like to see its competitors ask the same requirement to their supplier “if the other firms were doing

the same it would be easier to make the supplier change their attitude”. Besides, the suppliers would better see the need to make environmental investments and would diminish Vestas disadvantage compared to its competitors. Consequently, higher environmental standards in China in the renewable industry would be favorable to Vestas.

We don’t know if Ecco has tried to lobby the Chinese government yet, nonetheless with its tannery being ten years ahead of environmental regulation, and knowing the resistance of China to get foreign tanneries, we can predict that Ecco’s production standards of leather will have a significant impact on the Chinese regulations. Although environmental companies might not straight from the beginning influence local regulations when entering a new country, there is a great chance that the influence of their environmental standards will further benefit them by setting barriers to competitors. As Hadlock (1994) argues due to the ineffective regulatory structures inspections by government representatives of a MNCs’ operating facility in a developing country are often rare, however when they occur they often turn into a training and information gathering since government officials have no previous knowledge about the new technology.

Influencing local environmental standards doesn’t seem difficult for pro-active environmental companies. As mentioned above, NN, NZ and Nokia frequently uses there good relation with the Chinese government to influence local environmental regulations to their advantage, creating barriers to competitors. Nevertheless, these advantages are not yet enjoyed from companies that recently entered (Ecco and Vestas). This might be the result of two factors. First, their recent entry might not have yet allow them to build a relationship of confidence with the Chinese government necessary to play a role in the enactment of environmental regulations. Second, they might not yet have had the time to brand their environment global standards as necessary. Nonetheless, the opportunity of influencing environmental regulations of an industry when entering a country, thus raising barriers to competitors can constitute a substantial driver to internationalization.

#### **2.3.4 Summarization of the section 3: Does HEP provide companies with stakeholder advantages in the internationalization process?**

Table 11: Summarization of section 3: HEP provides companies with stakeholder advantages in the internationalization process

|   | HEP                         | Novonordisk | Novozymes | Vestas | Nokia | Ecco | In the IP                    |
|---|-----------------------------|-------------|-----------|--------|-------|------|------------------------------|
| 1 | Increase Bargaining Power   |             |           |        |       |      | Not in China (0/5)           |
| 2 | Provide favored treatments  |             |           |        |       | √    | Possible in the future (1/5) |
| 3 | Influence local regulations | √           | √         |        | √     |      | Yes (3/5)                    |

According to this analysis, HEP does not increase companies' stakeholder advantages in their internationalization process as described above.

First of all, the assumption stating that companies possessing an environmental competency could enjoy a favorable **bargaining position** when entering new countries has been denied in the case of China. We explained the latter by China's great attractiveness and therefore conclude that in other developing countries, less attractive, advanced and protective it could be the case.

Second, we weren't able to identify a relevant link between HEP and the acquirement of **favored treatments** into China except in the case of Ecco. In effect, all the companies benefited from special treatment but it was mainly the result of regular policies to attract FDI. However, the case of Ecco gives expectations for future changes in the light of the increasing degradation of China's environment. Nevertheless, the Chinese government does not intend to put its companies at a disadvantage.

Last, we identified that the companies that have been to China for the longest time (NN, NZ and Nokia) were able to **influence local regulations** thanks to experiences and long partnering-relationship with the Chinese government. However, in the case of Vestas and Ecco this trend was not identified. We conclude that influencing local regulation is a potential advantage that pro-active environmental companies can benefit from when internationalizing even though it might require some time.

In general we think that companies can benefit from their HEP in their internationalization in terms of bargaining power, favored treatments and by lobbying the local government. However, if some companies succeeded in grasping these benefits in China, we don't consider this country to be the best example of the political advantages a company can enjoy thanks to its HEP. China, as mentioned above, doesn't need to attract foreign companies through favored treatments, its markets is already attractive enough in itself. Nonetheless, if China needs environmental expertise, which is likely, considering its increasing environmental awareness it might further facilitate the entry of environmental strategies.

## 2.4 Summary of the potential advantages HEP companies can benefit from

In this part, we will summarize the results of the analysis, stating which of the hypotheses from the analytical framework can and cannot be validated with regards to the creation of advantages, and explain why.

Table 12: Concluding table of the analysis of the advantages of HEP companies in the internationalization process

|                         | <b>Competitive advantages</b>                          | <b>Efficiency</b>                                  | <b>Stakeholder advantages</b>     |
|-------------------------|--|--|-----------------------------------|
| <b>Advantage</b>        | High reputation - 5/5                                  | Mitigate Risks -5/5                                | Influence local regulations - 3/5 |
|                         | Organization of environmental resources - 4/5          | Reduce TC- 5/5                                     |                                   |
|                         | 1st mover advantages and barriers to competitors - 4/5 | Reduce factor costs; increase scale economies -3/5 |                                   |
|                         | Innovation and competitiveness - 4/5                   |  |                                   |
| <b>Not an advantage</b> | Increase product quality - 1/5                         |  | Enjoy favored treatments -1/5     |
|                         |  |  | Increase bargaining power - 0/5   |

We accept that the advantages considered in each hypothesis have been validated when at least three of the five participating companies have achieved it.

For all the companies, excluding Vestas, HEP provided increased **competitiveness** in their internationalization. These companies benefited from greater innovation, organization of resources, and improved reputation. Additionally, they often enjoyed 1<sup>st</sup> mover-advantages, building entry barriers for competitors. However, we were unable to find any direct link between these companies' HEP and an increase in product quality. Nevertheless, we conclude that, in most cases, HEP increase companies' competitive advantage in their internationalization.

The case of Vestas is different. Our analysis pointed to the fact that Vestas did not enjoy the same benefits from HEP as other companies in its internationalization, especially with regards to competitiveness. Although, Vestas did encounter the same advantages as the other four companies in terms of reputation, efficiency and stakeholder advantages, although to a lesser degree. It did not succeed to benefit from innovation advantages, 1<sup>st</sup> mover advantages, to create barriers for competitors or organize its environmental resource optimally. In summation, Vestas is the only company that hasn't been able to effectively use its environmental production to differentiate itself from its competitors. We identified a number of reasons to explain Vestas' situation. First of all, Vestas is a company that only recently has grown into a global brand, and it has likely not yet constructed an optimal internationalization strategy or combination of strategies. Second, it was compelled to rapidly move its production to China due to a local-content-requirement law, in order to access what Vestas forecasted to be their 2<sup>nd</sup> most significant market in 2008. Third, China's demand for energy independence created huge opportunities for renewable energy industry, inducing high competition for Vestas. Last, it doesn't brand the specificity of its products which are not only renewable ones but also produced in a sustainable manner.

All the companies were able to benefit from **efficiency advantages**. HEP reduce transaction and coordination costs caused by environmental regulations and also decrease factor costs through energy savings, recycling and technological improvements in the internationalization. Finally, HEP helps companies mitigate the risks of incidents when expanding abroad through full-ownership or majority ownership in a joint-venture.

The participating companies weren't able to benefit from **stakeholder advantages** in China. We didn't establish companies' HEP as provided bargaining advantages or special treatments in China,

with the exception of Ecco who quickly received an entry permit. Nonetheless, within the stakeholder dimension, we assume the case of China to be unique and therefore do not envision that it can apply to other developing countries. As stressed, China recognizes that its attractiveness as a market is incentive enough for companies to enter, and does not need to provide further direct incentives to companies to attract them to the market. However, companies having a long experience in China (NN, NZ and Nokia) were able to lobby the local government to their own advantage.

We conclude that, in general, pro-active environmental companies gain advantages in their internationalization process in terms of competitiveness and efficiency. For these companies, leading an HEP is an advantage or neutral, but never amounts to a disadvantage. Even Vestas argues that if it is a constraint to finding suppliers; in other areas, such as reputation, it is an advantage.

Instead of having to bear the cost and hassle of strict environmental regulations, we would argue that HEP companies reverse the process to benefit from them. These companies grasp the benefits of operating under strict regulations in their home country, to further create an advantage in their internationalization. In effect, they use their high standards and good reputation to more easily enter developing countries, where environmental standards are lower, and shape these countries' regulatory framework to their benefit, creating barriers for competitors. In that sense, pro-active environmental companies gain advantages in their internationalization process.

### **3. Discussion and prioritization of the findings**

In this part we will discuss and organize the results obtained throughout the analysis. We will first do so in terms of the dimensions and then by studying each hypothesis. The findings will be organized on the basis of what companies find most relevant. However, in the case that some hypotheses are ranked equally important to the companies we will hierarchize them on the basis of what we found most significant to the companies in their internationalization.

### 3.1 Discussion and prioritization of the dimensions

On the basis of the previous part of the analysis we argue that not all three dimensions of the analysis were equally important for the companies in their internationalization (Refer to Table 12). We found that **efficiency advantages** constituted the main advantages that the companies can gain in their internationalization. Within this dimension all the five companies benefited from reduced transaction cost and coordination cost and enjoyed benefits in terms of risk mitigation. The second main source of advantages stems from **the competitive advantages dimension**. All the companies agree that good environmental competencies build a stronger reputation and constitute a competitive advantage in the internationalization process. Nevertheless, in the **Stakeholder advantages** dimension, none of the hypothesis studied were validated by all the five companies and therefore constitutes the weakest dimension. In this section we will emphasize the main dimension and try to explicate the latter results.

#### 3.1.1 Efficiency advantages

The efficiency dimension is the one representing the most potential advantages for HEP companies in their internationalization. Two hypotheses of this dimension were validated by the five companies and one was evaluated an advantage by three companies.

HEP and **risk mitigating** is closely linked especially in the internationalization. Avoiding encountering an incident that would harm the company's reputation is a need, especially, for these active companies in the environmental field, therefore they would rather internationalize through full ownership or own the majority of the share while making a joint-venture to secure that the company's guidelines will be the ones implemented. They don't want to take the risk while they go abroad to loose their high environmental reputation through an awkward partnership with a local company.

HEP companies reduce their **transaction and coordination costs** in their internationalization. These high standards reduce transaction costs because the companies generally higher standards

compared to local ones facilitate the entry strategy by reducing the amount of time necessary to get the permits and licenses needed to start a business in China

In the case of three companies out five, HEP reduces **factor costs** and favors economies of scale in the internationalization process. Although environmental investments are costly, some projects aiming at saving energy, recycling waste and improving packaging result cost/beneficial. Therefore we argue that pollution prevention projects can increase productivity and efficiency and reduce time by simplifying or removing unnecessary steps in production operations. Furthermore it is likely that by expanding the environmental company's production scheme to other markets with a high potential domestic demand companies can benefit from scale advantages.

We argue that the efficiency dimension constitutes the one that companies can enjoy the most advantages from since it is the dimension where MNCs can benefit the most from their global activity. In fact, these companies elaborate standards or production scheme that they can operate all over the world and therefore realize scale advantages. We also suggest that most of these companies also decide on an internationalization scheme to mitigate risk (through full ownership or joint-venture) and replicate it all over the world, except in some rare cases where the context impedes this reproduction, to benefit from experiences and scale advantages.

### **3.1.2 Competitive advantages**

The dimension on **competitive advantages** is likewise of great importance for companies when they internationalize although to an extent minor to the efficiency one. The five companies evaluated reputation as a substantial advantage in the internationalization and three of the other hypotheses were evaluated to be important advantages by four of them. Nonetheless, the hypothesis which stated that HEP increases product quality in the internationalization was refuted.

HEP increase companies' **reputation** which further enhance their internationalization opportunities both in terms of entering new markets with focus on the environment, and attracting conscious consumers. In fact, high environmental reputation attracts a large pool of potential employees, which lead the company to obtain a skillful workforce. Also, these companies are the targets of stockholders which provide them with the funds needed to internationalize.

Furthermore we found that four out of five companies benefited from advantages stemming from innovation and competitiveness, an optimal organization of environmental resources, 1st mover advantages and barriers to competitors.

**Innovation** constitutes a major driver in the internationalization. This was seen in the case of Ecco that was allowed to enter China due to its innovative and world leading tannery. Companies with advanced environmental technologies and capabilities can be favored in their internationalization thereby increasing their competitiveness if they can affectively fit this into their marketing mix. We believe that this will be the case, even more so in the future, because of the growing importance of the environment.

Companies also rank the **organization of environmental resources** as a major advantage in the internationalization process. We indicate that companies that found an optimal way of organizing and communicating their environmental resources can gain an advantage in their internationalization process. We argue that these experiences could serve as a resource when entering and operating in new markets, of course taken into account that each country is unique culturally, socially and economically.

Environmental strategies are potential drivers to **1<sup>st</sup> mover advantages** and can create entry **barriers to competitors**. HEP MNCs can influence governments to enhance environmental regulation. Thus, HEP can give companies incentives to internationalize in emerging markets where there is potential for market growth and possibilities to influence regulations. Besides, being a first mover can create advantages from suppliers, distributors and customers who can become familiar with and loyal to their products.

According to our detailed analysis on product enhancement, the environmental strategy of the companies does not directly improve the **quality of the products**. We found that it was only in the case of Nokia that HEP improved the quality of the product. Therefore we argue that HEP does not directly improve the quality of the product for the end-users but more generally improves the impact of these products on the environment by favoring their disassembly and their recycling.

In terms of competitive advantages we found out that four out of the five hypotheses were validated out of which three were approved by four companies out of five. Thus, we argue that HEP increases companies' competitiveness to a great extent. More specifically we indicate that companies that are able to communicate their HEP can particularly gain competitive advantages in their internationalization. Indeed, NN, NZ, Nokia and Ecco are the companies that were able in a balanced manner to promote their HEP, benefited from competitive advantages in their internationalization. We suggest that the secret of such a success may stem from a very adroit environmental strategy and communication. As states NZ: "It might be important to be one step ahead but it might be dangerous to be two steps ahead because you might move in the wrong direction". Environmental performance must be communicated with care, not to attract media in search of a failure in the system. Nokia advises to only communicate the environmental actions that the companies has already done.

### **3.1.3 Stakeholder advantages**

The last dimension, Stakeholder advantages, turned out to be less relevant in this research. Two of the three hypotheses were dismissed. This was in the case of the hypotheses that companies would gain an increase of their bargaining power and would obtain favored treatments from the government in their internationalization. These results can largely be seen in light of the lack of empirical evidence on this area and on the special characteristics of China. We weren't able to talk to the Ministry of the environment of China and to most of the business strategy department of the companies interviewed therefore we couldn't assess whether companies benefited in the negotiation process from bargaining advantage or if they enjoyed favorable treatment. However, in the cases where we were able to talk to people involved in the entry strategy to China we found out that they didn't benefit from any of these advantages. Therefore, we argue that the special attractiveness of China as an FDI destination might be the reason why HEP companies don't get further special treatments. Moreover, although environmental issues are becoming an important concern in China it is not the major determinant in the decision of entry to China by the Chinese government. Nevertheless three companies out five were able to enjoy stakeholder advantages in China by influencing local regulations. The companies that have been in China for the longest time were able to play a determinant role in the enactment of local regulations due to experiences and long partnering-relationship with the Chinese government. Thus, we argue that it is a potential advantage

that pro-active environmental companies can benefit from when internationalizing even though it might require some time.

The findings of our analysis showed that both Efficiency and Competitive advantages dimensions were of great importance for the companies in their internationalization. However, we did not find that the stakeholder dimension was of considerable importance for the companies entering China. Nevertheless, it might be the case in other developing countries. Finally, to more specifically assess whether the efficiency or competitive advantages dimension is the most important for companies, we are now going to prioritize the hypotheses.

### **3.2 Discussion and prioritization of the hypotheses**

In the analytical framework we outlined 11 hypotheses on the basis of the three dimensions. These were tested in the analysis in the three generic areas (dimensions). On this background some of the hypotheses were validated and others dismissed. Among the ones that were validated we discovered that there is hierarchy in terms of importance for the companies. The prioritization was made on the background of the number of companies that we found benefited from this advantage and when the hypothesis were ranked equally important by the companies, we prioritized them on the basis of what we found most relevant to the companies in their internationalization according to the analyses of the interviews led.

Table 13: Prioritization of the hypotheses

| Number of HP               | Rank | Hypothesis   |
|----------------------------|------|--|
| Hypothesis 5 (CA)-         | 5/5  | Good environmental competencies build a stronger reputation and constitute an advantage in the internationalization process      |
| Hypothesis 8 (Efficiency)- | 5/5  | Companies' environmental strategies help to mitigate risks in the internationalization   |
| Hypothesis 6 (Efficiency)- | 5/5  | HEP reduces transaction costs and coordination costs in the internationalization   |
| Hypothesis 4 (CA)-         | 4/5  | HEP companies gain 1 <sup>st</sup> mover advantages and create entry barriers to competitors in the internationalization process |
| Hypothesis 1 (CA)-         | 4/5  | HEP boosts innovation of companies increasing their competitiveness in the internationalization process                          |
| Hypothesis 2 (CA)-         | 4/5  | The optimal organization of environmental resources provides companies with an advantage in their internationalization process   |
| Hypothesis 11 (SA) -       | 3/5  | HEP companies influence local regulations which lead to an advantage in the internationalization.                                |
| Hypothesis 7 (Efficiency)- | 3/5  | HEP companies reduce factor costs and gain scale advantages in their internationalization  |
| Hypothesis 3 (CA)-         | 1/5  | HEP increases the quality of the product creating an advantage in the internationalization                                       |
| Hypothesis 10 (SA)-        | 1/5  | HEP helps companies to get favored treatments from local governments in their internationalization                               |
| Hypothesis 9 (SA)-         | 0/5  | HEP increases bargaining power of firms toward local governments in the internationalization process.                            |

According to our findings, three advantages have been benefited from by all the five companies. These constitute the Hypothesis 5, 6 and 8. However according to the information gathered during the interviews and external perception we have decided to hierarchize these advantages as follows.

The main advantage that all companies enjoy in their internationalization constitutes hypothesis 5: **“Due to the increase of environmental awareness, good environmental competencies build a stronger reputation and constitute an advantage in the internationalization process”**. We found that for all companies, HEP led to a strong reputation that constituted a competitive advantage in the internationalization. HEP increases companies' reputation allowing them to benefit from greater workforce and to attract investors due to liability issues which in turns boosts their internationalization. It can be argued that having a good reputation is one of the most essential things for a company, both in terms of creating customer awareness, and to increase market opportunities.

The hypothesis 8 constitutes the next main advantage companies benefit from in their internationalization. **“Companies’ environmental strategies help to mitigate risks”** in general but also in the internationalization. Most of the companies state that they have started implementing HEP to mitigate risk and nowadays keep this precaution principle while internationalizing. Consequently, these pro-active environmental MNCs choose to internationalize through either full ownership or by owning the majority of the share while making a joint-venture to secure that the company’s guidelines will be the ones implemented.

At last, all the companies benefited from the advantage of the hypothesis 6: **“HEP reduce transaction costs and coordination costs in the internationalization”**. The companies did not have to adjust to the regulation of China because their standards were already higher, except in some rare cases. Furthermore they could enjoy scale advantages by using their high standards globally.

Three advantages have been achieved by four of the five companies. These are constituted by hypothesis 4, 1 and 2.

The hypothesis 4: **“Companies with a pro-active environmental strategy gain 1<sup>st</sup> mover advantages and create entry barriers to competitors in the internationalization process”** was validated by four companies which benefited from these advantages in China. First mover advantages are particularly important. These companies succeeded in influencing the government of China to set higher environmental standards within their area of business. Furthermore by being a first mover, companies could capture a high proportion of the market shares further creating barriers to new entrants.

In line with Porter and Van der Linde, we found that the hypothesis 1: **“HEP boosts innovation of companies increasing their competitiveness in the internationalization process”** turned out valid for four out of the five companies participating. Most of the projects that the companies implemented that aimed at saving energy resulted in being cost/beneficial in a due period of time, further leading to cost reductions for the companies. Moreover, the environmental expertise of these companies proved helpful to facilitate the acquisition of licenses or permits in their entry process.

Also the hypothesis 2: **“The optimal organization of environmental resources provides companies with an advantage in their internationalization”** turned out valid for four out of the five companies participating. These companies succeeded in strongly communicating their environmental conduct in China, differentiating themselves from their competitors through different programs that could create useful experience for further internationalization.

Two advantages have been confirmed by three of the five companies. These are hypothesis 11 and 7.

Three of the five companies were able to benefit from their HEP to influence the local government in China therefore validating the hypothesis 11: **“Pro-active environmental companies enhance local environmental awareness and influence local regulations which lead to an advantage in the internationalization”**. We explain this factor mostly by the fact that China, and developing countries in general, have less strict environmental regulations than developed countries, but as environmental concern grow on the International stage and as these countries progressively face local environmental degradation they are increasingly willing to strengthen their environmental regulations. Consequently, we argue that an HEP company that strongly communicates its high environment standards can after some time in a new country build a relationship of confidence with the local government necessary to play a role in the enactment of environmental regulations.

Furthermore three of the five HEP companies indicated that they benefited from reduced factor costs and increase economies of scale in their internationalization. The hypothesis 7: **“HEP companies reduce factor costs and gain economies of scale in their internationalization”** is therefore validated. These companies were able to make cost saving by diminishing their use of energy, water and raw material and recycling their waste. HEP can increase productivity and efficiency and reduce time by simplifying or removing unnecessary steps in production operations. Besides, by entering new markets and replicating such production schemes, companies can create scale advantages. However, it is only three companies that enjoyed cost-savings. All the companies interviewed make environmental investments because they are convinced of the need to act sustainably and that it will benefit them in the future. Nonetheless, environmental investments are still costly and not always cost-beneficial which can restrain companies to further implement environmental enhancing projects.

We found that the following three hypotheses are dismissed in this research.

It is only in the case of one company that HEP showed to increase product quality in this study. Therefore the hypothesis 3: **“HEP increases the quality of the product creating an advantage in the internationalization”** was dismissed. We argued that the HEP of MNCs improve the impact of these products on the environment but not specifically its quality for end-users. However, to assess more specifically this matter a larger study with more companies involved is needed.

A single company was able to benefit in its internationalization from the advantage mentioned in the hypothesis 10: **“HEP help companies to get favored treatment from local governments in their internationalization”**. This was observed in the case of Ecco which recently entered China. This result is not out of place when we consider that three of the five companies entered China at least a decade ago when environmental concern were not yet of priority. Nevertheless, in this time of growing environmental awareness, the decision to give favored treatments to HEP companies to push other companies to be more responsible could be of a growing possibility. In fact, members of the Chinese government are already mentioning to adopt tax policies benefiting eco-friendly industries and charging polluters (see chapter 4 on China).

The hypothesis 9: **“Environmental strategies increase bargaining power of firms toward local governments in the internationalization process”** was strongly dismissed. None of the companies were able to benefit from this advantage. We argue that this is due to the abnormal attractiveness of China and that therefore it might be different in other developing countries. However, further evaluating how HEP companies may enjoy bargaining advantages in their internationalization to other developing countries than China would be relevant.

This study strongly indicates that there are advantages that pro-active environmental MNCs can benefit from when internationalizing due to their environmental focus. Although the environmental factor is not the most important determinant in the internationalization, we argue, in this research paper that its scope is increasingly growing and it does provide companies with advantages in the internationalization. Especially in terms of reputation, risk mitigation, reduced transaction and

coordination costs; but also in gaining 1<sup>st</sup> mover advantages and creating barriers to competitors, benefiting from greater innovation and organization of environmental resources.

## Chapter 6: Conclusion

According to our findings pro-active environmental behavior of MNCs constitute an advantage in the internationalization process. Although having a pro-active environmental behavior is costly for companies the benefits of having a comprehensive environmental strategy outweigh the costs; not specifically in terms of return on investment (ROI) but in terms of reputation and risks mitigation in the internationalization. Besides, most of the companies acknowledge the opportunity cost attached to not having a HEP in the present but more specifically in the future. All the companies leading environmentally are convinced of the priority that the environment will be given in the nearest future. In consequence, all these companies highly value HEP and integrate it into their strategy.

These companies that are originally from the European Union, manufacture their products all over the world according to their high environmental standards at home and still succeed in having high global market-share. They produce globally according to their high environmental standards and require their suppliers to comply with their guidelines. If these high requirements create a restraint at first and increase costs, this study indicates that in the long-term such constraints can be overcome, and in some cases even profitable. As a result, none of the companies stated that HEP could be a disadvantage in the internationalization.

HEP companies do not see environmental investments as costs but as drivers to different opportunities. Instead of bearing the cost and hassle of strict environmental regulations HEP companies reverse the process to benefit from them. From this perspective pro-active environmental companies having home countries strict environmental standards are not at a disadvantage in the internationalization. On the contrary, these companies grasp the benefits of operating under strict regulations in their home country, to further create an advantage in their internationalization.

HEP companies benefit from many advantages thanks to their environmental focus while internationalizing; reputation, risk mitigation and reduced transaction and coordination costs are the most important ones. However, they also benefit from 1<sup>st</sup> mover advantages and the creation of barriers to competitors; innovation scale advantages and from optimal organization of

environmental resources' experiences. Finally, to a lesser extent companies can influence local regulations and reduce their factor cost in their internationalization.

Thanks to their HEP companies benefit from reputational advantages in their internationalization. The great reputation that HEP MNCs enjoy helps them to more easily enter new countries due to the following reasons. First of all, these companies are already known by local governments when they start their entering process, therefore they don't have difficulties to get a first contact with the local authorities. Second, these companies attract a large pool of employees which allow them to further select the best ones. Finally, these companies easily get access to the necessary funds to further expand.

Pro-active environmental behavior of companies also allows companies to enhance their risks mitigation in their internationalization. These companies benefiting from high reputation cannot take the risk to harm their status and therefore internationalize through the form of full-ownership or by owning the majority of the share while making a joint-venture to secure that the company's guidelines will be the ones implemented.

Finally, the fact that HEP companies apply their high environmental standards in all the countries they manufacture in, reduce their transaction and coordination costs in the internationalization. The companies do not have to adjust to local regulations because their standards are higher, except in some rare cases. Therefore they can more easily and rapidly enter new countries.

Companies with a pro-active environmental strategy can also gain 1<sup>st</sup> mover advantages and create entry barriers to competitors in the internationalization process by influencing the government to set high environmental standards within their area of business. Also, the replication of innovative environmental projects and the reproduction of companies' optimal organization of environmental resources in various countries around the world may provide them with scale advantages. A strong communication of companies HEP in the entered country can further ease the internationalization.

At last, to a minor extent, HEP companies can influence local regulations when setting into a new country. HEP companies that strongly communicate their high environmental standards can after some time in a new country build a relationship of confidence with the local government and play a

role in the enactment of environmental regulations. Furthermore HEP can reduce factor costs and increase economies of scale in the internationalization. Companies that are able to make cost savings by diminishing their use of energy, water and raw material and recycling their waste can additionally make scale economies by replicating their successful production schemes when entering new markets.

These examples of pro-active environmental companies prove that the neoclassical critique, proclaiming environmental pro-activism as a burden on corporate interest, can be refuted. This study is in accordance with Prakash (2001) statement. Indicators of "green credence," such as certification or good reputation, which stem from proactive environmental strategies, can be an important source of competitive advantage. A credible standard reduces transaction costs, provides access to markets, improves environmental performance and reduces costs, improves access to credit, and equips firms to implement future laws and participate in law-making processes.

Undoubtedly the Chinese government has become increasingly aware of its need to take on environmental measures in order not to threaten its economy. China now needs to use more renewable energy and to seriously revise its production model. We have seen along this study that pro-active environmental companies have had a succeeding path in China although the competition is tough in some industries. HEP have helped these companies in their success and we predict it to be an increasingly important factor of the companies' business strategy to enter other emerging markets in the future considering the world's growing awareness on environmental issues.

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# -Appendix -

Today's severe global environmental conditions have greatly broadened the focus on the environment as well as encouraged governments to strengthen environmental regulation. Environmental regulation has often been seen as a constraint on business, driving cost up and putting companies at a disadvantage in their internationalization, however, interestingly enough an increasing number of companies are performing beyond compliance.

Whereas the relationship between high environmental performance and advantages has been studied before, the effects of HEP on the internationalization has to our knowledge never been studied before and can be considered a gap in the current literature. Thus, the objective of this research paper is to investigate whether MNCs with high environmental performance can gain advantages in their internationalization.

In this study we have interviewed five companies that are considered as environmental leaders within their industry. These MNCs all voluntarily adhere to different environmental standards, management systems and other initiatives such as the World Wide Fund, the Dow Jones Sustainability Index, the Ethibel Sustainability Index, the ISO 14001 etc. On the criteria of their membership to these standards, we have characterized them as pro-active environmentally. These companies are Novo Nordisk, Novozymes, Vestas, Nokia and Ecco. The companies were also selected on the background of their presence in China. China has been selected as location setting due to its severe environmental degradation that is putting its economic growth at danger and due to the fact that it is the largest FDI recipient in the world. On the background of the conventional theoretical literature on the subject, we outline three areas where companies can gain advantages by having high environmental performance. These are within competitive advantages, efficiency and stakeholder advantages.

In the first part of the analysis we determined that the five HEP companies do not only see environmental investments as costly, but also as drivers to different opportunities. Instead of being plagued by the cost and hassle of strict environmental regulations in the host country, HEP companies can use this to their benefit when internationalization by letting them slide past these barriers to entry. The five companies indicated that they have been able to grasp the benefits of operating under strict regulations in their home country, to further create an advantage in their internationalization.

## Appendix I- Executive Summary

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In the area of competitive advantages, we were able to establish different advantages that companies can achieve in their internationalization. This was particular in terms of great environmental reputation that endows companies with the best assets for the internationalization; financial support, faithful and dedicated employees and honorable status. Furthermore HEP companies can benefit from first mover advantages and create entry barriers, it can boost innovation and make them more competitive. Moreover by optimizing the organization of their environmental resources the companies can differentiate themselves from their competitors. However, we were not able to determine whether HEP products favor internationalization. Nevertheless, we conclude that, in most cases, HEP increases companies' competitive advantage and favor their internationalization.

In the area of efficiency we found out that having a high environmental performance implies costs, but that global activities reduce transaction, coordination and factor costs. Companies' environmental pro-activeness can also create profitable opportunities, economies of scale and diminish risks.

Last, we concluded that the five companies did not particularly benefit from stakeholder advantages in China, although some of the companies were able to influence local regulations due to their experiences and long partnering-relationship with the Chinese government. In general we do believe that companies can benefit from HEP in their internationalization in terms of bargaining power, favored treatments and by lobbying the local government. However, we do not consider China to be the best example of the political advantages a company can benefit from due to its HEP. We argue that it is because China's market is already attractive enough in itself and that therefore they don't need to directly attract foreign companies through favored treatments. Nonetheless, if China needs environmental expertise, which is likely in the future, considering its increasing environmental degradation, it might further facilitate the entry of environmental companies.

On the background of these areas we were able to conclude that HEP companies can gain advantages in their internationalization, where the main advantages stem from efficiency, and competitive advantages.

## Appendix II- Environmental standards

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### **1. Dow Jones Sustainability Index**

The Dow Jones Sustainability World Index (DJSI World) covers the top 10% of the biggest 2,500 companies in the Dow Jones World Index in terms of economic, environmental and social criteria. The Dow Jones Sustainability Index (DJSI), which comprises more than 300 companies, was launched in 1999. According to Dow Jones' analyses, these companies represent the leading 10 percent enterprises in terms of compliance with important environmental principles for sustainable development<sup>1</sup>. The selection of index components follows a rules-based process defined in the DJSI Guidebooks. It is based on a thorough assessment of general and industry specific sustainability criteria. The analysis is verified by an external auditor<sup>2</sup>.

### **2. Ethibel Sustainability Index**

The Ethibel Sustainability Index (ESI) provides a comprehensive perspective on the financial performance of the world's leading companies in terms of sustainability for institutional investors, asset managers, banks and retail investors. The Ethibel screens companies according to an extensive list of themes and indicators examined with respect to all areas of the companies' social responsibility (Internal social policy, environmental policy, external social policy and ethical economic policy). Concern for the environment includes an examination of the internal organization of a company and its production chains. The core terms in this area are chain management and integral environmental policy. Does the company have a comprehensive environmental care system and to what extent is this certified by external bodies? Ethibel looks into policy vision and management approach with a particular look at input (use of raw materials and energy), and output (emissions and waste) and examines the environmental impact of the finished product<sup>3</sup>.

### **3. Global Compact**

The Global Compact is a framework developed by the United Nations for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, the environment and anti-corruption . As the world's largest, global corporate citizenship initiative, the Global Compact is first and foremost concerned with exhibiting

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<sup>1</sup> Dow Jones Sustainability Indexes website 20/06/2008

<sup>2</sup> Management logs' website. Corporate responsibility forum.22/06/2008

<sup>3</sup> Ethibel.org. 20/06/2008

## Appendix II- Environmental standards

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and building the social legitimacy of business and markets. The Global Compact is a purely voluntary initiative with two objectives: to mainstream the ten principles in business activities around the world and to catalyze actions in support of broader UN goals, such as the Millennium Development Goals (MDGs). To achieve these objectives, the Global Compact offers facilitation and engagement through several mechanisms: Policy Dialogues, Learning, Local Networks, and PartnershipProjects .

The Global Compact is not a regulatory instrument – it does not “police”, enforce or measure the behavior or actions of companies. Rather, the Global Compact relies on public accountability, transparency and the enlightened self-interest of companies, labor and civil society to initiate and share substantive action in pursuing the principles upon which the Global Compact is based<sup>4</sup>.

#### **4. The World Business Council for Sustainable Development**

The World Business Council for Sustainable Development WBCSD is an organization of transnational corporations who advocate for cooperation between business and government to balance economic and environmental interests. The WBCSD is a CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development.

The Council provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices, and to advocate business positions on these issues in a variety of forums, working with governments, non-governmental and intergovernmental organizations. Members are drawn from more than 35 countries and 20 major industrial sectors.

The Council’s objectives are to be a leading business advocate on sustainable development; participate in policy development to create the right framework conditions for business to make an effective contribution to sustainable human progress; develop and promote the business case for sustainable development; demonstrate the business contribution to sustainable development solutions and share leading edge practices among members; and to contribute to a sustainable future for developing nations and nations in transition<sup>5</sup>.

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<sup>4</sup> United Nations. Global Compact. 20/06/2008

<sup>5</sup> The world business council for sustainable development. 20/06/2006

## Appendix II- Environmental standards

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### **5. World Wide Fund (Climate Change)**

WWF Climate Change works with governments, communities and businesses around the world to change attitudes about global warming. Their focus is to (1) shape international policy through science, (2) reduce carbon through forest programs -deforestation accounts for roughly 20 percent of all global emissions- (3) help high-risk ecosystems adapt to unexpected change and (4) help corporations reduce their carbon emissions.

Leading corporations are partnering with WWF to establish ambitious targets to voluntarily reduce their greenhouse gas (GHG) emissions. By 2010, the Climate Savers companies will collectively cut carbon emissions by some 14 million tons annually – the equivalent of taking more than 3 million cars off the road every year. By increasing efficiency, Climate Savers companies are saving hundreds of millions of dollars, proving again that protecting the environment makes good business sense.

### **6. The Environmental Management System**

An Environmental Management System (EMS) is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency. It is a continual cycle of planning, implementing, reviewing and improving the processes and actions that an organization undertakes to meet its business and environmental goals<sup>6</sup>. EMSs are increasingly recognized as the most systematic and comprehensive organizational mechanisms that firms can use to simultaneously improve environmental and business performance (Rosen, 2001). EMS can result in both business and environmental benefits. It may help to improve environmental performance, enhance compliance, prevent pollution and conserve resources, reduce/mitigate risks, attract new customers and markets (or at least retain access to customers and markets with EMS requirements), increase efficiency, reduce costs, enhance employee morale and possibly enhance recruitment of new employees, enhance image with public, regulators, lenders, investors, achieve/improve employee awareness of environmental issues and responsibilities, qualify for recognition/incentive programs. However, developing and implementing an EMS may also have some associated costs, including investments of internal resources, in staff/employee time, costs for training of personnel, costs associated with hiring consulting assistance, if needed costs for technical resources to analyze environmental impacts and improvement options.

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<sup>6</sup> U.S environmental protection agency. Environmental Management Systems. 21/06/2008

## Appendix II- Environmental standards

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### **7. The ISO 14 001**

The ISO 14 001 is a voluntary measure which implies to follow the requirements and guidelines of the Environmental Management System created by the International Organization of Standardization. A company can get its environmental management system ISO 14 001 certified through national accredited organizations such as l'Association Française pour l'Assurance de la Qualité in France.

The intention of ISO 14001 of 2004 is to provide a framework for a holistic, strategic approach to the organization's environmental policy, plans and actions. It gives the generic requirements for an environmental management system no matter the organization's industry. It establishes a common reference for communicating about environmental management issues between organizations and their customers, regulators, the public and other stakeholders. Whereas the ISO 14004 provides guidelines on the elements of an environmental management system and its implementation and discusses principal issues involved, the ISO 14001 specifies the requirements for such an environmental management system. Fulfilling these requirements demands objective evidence which can be audited to demonstrate that the environmental management system is operating effectively in conformity to the standard.

ISO 14001 is a tool that can be used to meet internal objectives: to provide assurance to management that it is in control of the organizational processes and activities having an impact on the environment, to assure employees that they are working for an environmentally responsible organization. But it can also be used to meet external objectives: to provide assurance on environmental issues to external stakeholders – such as customers, the community and regulatory agencies , to comply with environmental regulations, support the organization's claims and communication about its own environmental policies, plans and actions and to provide framework for demonstrating conformity via suppliers' declarations of conformity, assessment of conformity by an external stakeholder - such as a business client - and for certification of conformity by an independent certification body<sup>7</sup>.

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<sup>7</sup> International Organization for Standardization: ISO 14000 essentials. 21/06/2008

### **8. The Life Cycle Assessment**

The concept of Life Cycle Assessment emerged in the 1970 as a way to assess the overall use of energy and materials by products or services, from “cradle to grave” (creation of raw materials to final disposal). Later, the method was extended to include environmental emissions to air, water, and solid waste (SETAC 2001). In 2000, the International Standards Organization (ISO) completed work on a series of standard that have become the general benchmark for the technique.

According to the ISO 14040 and 14044 standards, a Life Cycle Assessment is carried out in four distinct phases. The first stage consists in defining the goal, scope and boundaries of the assessment. The second stage is the “Life Cycle Inventory” it consists in elaborating a database of energy/materials use and emissions to some functional unit (for an automobile, emissions per 1000 person-kilometers traveled). The third stage is the “Life cycle impact assessment” (LCIA) i.e. the translation of inventory data into potential impacts on the environment. Finally, the last step is the “Interpretation” phase.

The LCA has been used for various purposes by industry, academics, public interest groups, and government policymakers. It is commonly used to identify the phases of a product’s life cycle that have the largest environmental burdens, and therefore the greatest opportunity of improvement, to compare the burdens of different products that are used for the same task, to evaluate the influence of changes to a product, to assess the relative environmental burdens of different human activities (e.g. transportation, home heating/cooling...)

However, the LCA has certain drawbacks. The complex is inherently complex, time consuming, and costly. It requires considerable data and relies on a variety of assumptions. Finally communicating the results of a LCA is a considerable challenge, given the complexity of the method<sup>8</sup>.

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<sup>8</sup> P&G perspectives. 21/06/2008

### Questionnaire to the CSR Department

We are two CBS students finishing our Master of Business and Development Studies. We are writing a thesis on firm internationalization and proactive environmental companies. Our aim is to determine “how can pro-active environmental behavior of companies be a competitive advantage in their Internationalization process”. The research intends to understand to which extent a pro-active environmental approach can be a competitive advantage in the Internationalization process to China. It studies high environmental performance companies that have already entered China and intends to draw trends regarding the evolution of the importance of environmental issues in this particular country and consequently how it can impact the Internationalization process of foreign companies. To an extent, the spillovers of such pro-environmental strategy will be analyzed globally in the corporation.

#### **A. Environmental issues:**

- 1) In which way do you think your company has high environmental performance?
  - a. Respect of global charters and guidelines
  - b. Implementation of management systems
  - c. Implementation of clean technologies
  - d. Implementation of high internal general standards
  - e. Internal development of standards in specific environmental areas.
- 2) Do you think it is an advantage to have such high environmental performance? Why?
- 3) Do you think it makes a difference compared to other companies?
- 4) Do you have any company specific environmental resources that could be the core of a competitive advantage?
- 5) Do you think your environmental performance as being equally relevant in each department of the company and each country the company is in?
- 6) Do you see a difference between the commitment, the structure and the initiatives of your environmental policy?
- 7) How would you grade on a scale from 1 to 10 the importance of environmental issues for a company nowadays?
- 8) How would you grade from 1 to 10 the importance of environmental issues for your company nowadays?

## Appendix III- Questionnaires

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### **B. Pro-active environmental behavior:**

- 9) When and why did you embark on proactive environmental behavior?
- 10) What is the aim of such a strategy?
- 11) What is the ratio Costs/ Benefits of this environmental conduct?
- 12) Is management systems only integrated into areas such as quality, health and safety, and environmental management, or is it also integrated in the general management system?
- 13) Do you see your proactive environmental behavior as a substantial component of your global competitive strategy? In what ways?
- 14) What do you think are the risks for a company of not being pro-environmental and how can they be represented?

### **C. The company and Environmental regulations**

- 15) Do you see your performance in China as:
  - According to local standards
  - Beyond local standards
  - Following your company global standards
  - World leader
- 16) Do you feel threatened by the regulations on the environment in general and specifically in China?
  - a. Restrictions on CO2 emissions
  - b. Restrictions on the use of electricity and water
  - c. Restrictions on the need to recycle waste
  - d. Else
- 17) Do you feel that environmental regulations are going to increase in the upcoming years? In general, and specifically in China?
- 18) Are you trying to foresee the upcoming legislation to protect the environment? In general, and specifically in China?

### **D. Pro-active environmental behavior and competitive advantage in China and Globally**

- 19) Do you see pro-active environmental initiatives as a competitive advantage? Is it already or will it be in the future? In what ways?

## Appendix III- Questionnaires

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20) Can you think of some advantages that you have benefited from because you were pro-active environmentally?

Indicative but not exhaustive list of advantages that we have thought about:

### I. Locally (China):

- Political advantages:
  - From the government. Ex: relations, permits, subsidies, tax incentives
    - Pre-investment:
      - First contact
      - Negotiation
      - Approval
    - Post-investment:
      - Operations
  - From stakeholders. Ex: local contacts, sharing of market information, reputation building, attract investors
    - Pre and post-investment
      - Reputation: Chinese government, companies, associations
      - Attract investors
- Operational advantages
  - From the government:
    - Pre-investment:
      - Location (Best locations: environmental, close to customers, suppliers)
      - Entry modes (FDI: JV, Acquisition, Alliance, and Greenfield)
      - Time (shorter paperwork delays allowing a fast entry)
    - Post-investment:
      - Logistics (ease distribution/ good contact with suppliers)
      - Marketing (good reputation)
      - HR (People willing to work in this specific company)

### II. Globally (In the corporation Worldwide)

- Political advantages:
  - Pre and post investment
    - Reputation: NGO's, GO's, Association of consumers,
    - Attract investors
- Operational advantages:
  - Reputation as a marketing tool
    - Post-investment
      - Increase market opportunities
      - Increase sales

## Appendix III- Questionnaires

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Increase margins

Diminish risks (mitigate-green wash-media exposures)

○ Spillovers on the Value Chain

▪ Post-investment

Increase production efficiency

Increase quality

Reduce production costs

21) Have “proactive environmental behavior “been a disadvantage” at one point?

- Finding suppliers, customers
- Too costly
- Entering a new country (too many standards; too advanced for certain countries)

**E. Future goals**

22) Being sustainable is on the edge at the moment, many firms are working in that sense now.

- a. Are you planning to keep your status of “a proactive environmental company”?
- b. If so, what are you planning to further implement?
- c. If it provides you a competitive advantage, how are you planning to keep sustainability as a Competitive Advantage?

20) In terms of further becoming a global company, can proactive environmental behavior facilitate this process? If yes, how?

21) Where should your company in the future focus its environmental initiatives if it is to get maximum benefits in its internationalization process?

### Questionnaire to the Business Strategy Department

We are two CBS students finishing our Master of Business and Development Studies. We are writing a thesis on firm internationalization and proactive environmental companies. Our aim is to determine “how can pro-active environmental behavior of companies be a competitive advantage in their Internationalization process”. The research intends to understand to which extent a pro-active environmental approach can be a competitive advantage in the Internationalization process to China. It studies high environmental performance companies that have already entered China and intends to draw trends regarding the evolution of the importance of environmental issues in this particular country and consequently how it can impact the Internationalization process of foreign companies. To an extent, the spillovers of such pro-environmental strategy will be analyzed globally in the corporation.

#### **A. Internationalization strategy and previous experiences**

- 1) Have you had a specific way of Internationalizing until now? A particular strategy to enter new markets?
  - a. What are your previous experiences?
  - b. Did you have a particular experience in China? In what way?
- 2) Do you favor any special FDI entry mode? Which one and why? Joint ventures, alliances, acquisition, Greenfield investments, else (a mix of two).
- 3) Which mode did you use in China? And why?
- 4) When investing in China through Joint venture or Alliances, which environmental guidelines are implemented, the Chinese company ones or the ones from your own company?

#### **B. The impact of environmental issues on the Internationalization Process**

- 5) Do you take into consideration the environmental issues in the Internationalization process or while building the entry strategy? If, yes, how do you include such considerations?
- 6) How can a pro-active environmental line of conduct constitute an advantage to enter new markets? (Answering framework suggested in Q11)
- 7) Do you see it as having a different impact depending of the entry mode chosen: Joint ventures alliances, acquisition, or Greenfield investments?

### C. The impact of Pro-active environmental behavior in the Internationalization process to China

- 8) What was your incentive to go to China: Low labor cost, access to resources, market opportunities, strategic asset seeking, and to benefit of first mover advantages or to follow a client or be closer from your suppliers?
- 9) Have your pro-active environmental behavior facilitated your entry into China? (Answering framework suggested in Q11)  
Were environmental issues addressed in the negotiation process?  
Did you, generally, benefit from advantages from the government and the stakeholders when entering China?
- 10) Did your company globally benefited from advantages from your high environmental performance in China? (Answering suggested in Q11)

Indicative but not exhaustive list of advantages that we have thought about:

#### III. Locally (China):

- Political advantages:
  - From the government. Ex: relations, permits, subsidies, tax incentives
    - Pre-investment:
      - First contact
      - Negotiation
      - Approval
    - Post-investment:
      - Operations
  - From stakeholders. Ex: local contacts, sharing of market information, reputation building, attract investors
    - Pre and post-investment
      - Reputation: Chinese government, companies, associations
      - Attract investors
- Operational advantages
  - From the government:
    - Pre-investment:
      - Location (Best locations: environmental, close to customers, suppliers)
      - Entry modes (FDI: JV, Acquisition, Alliance, and Greenfield)
      - Time (shorter paperwork delays allowing a fast entry)
    - Post-investment:
      - Logistics (ease of distribution/ good contact with suppliers)
      - Marketing (good reputation)

## Appendix III- Questionnaires

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HR (People willing to work in this specific company)

### IV. Globally (In the corporation Worldwide)

- Political advantages:
  - Pre and post investment  
Reputation: NGO's, GO's, Association of consumers,  
Attract investors
  
- Operational advantages:
  - Reputation as a marketing tool
    - Post-investment  
Increase market opportunities  
Increase sales  
Increase margins  
Diminish risks (mitigate-green wash-media exposures)
  - Spillovers on the Value Chain
    - Post-investment  
Increase production efficiency  
Increase quality  
Reduce production costs

11) Could you rank those 4 dimensions by affecting points to each variable on a total of 10 points: 10 being the best grade (ex: 2,5,2,1=10)

Having a pro-environmental behavior is a tool to:

|                                 | Short-term | Long-term |
|---------------------------------|------------|-----------|
| Reduce Risk                     |            |           |
| Increase operational Efficiency |            |           |
| Sell more products              |            |           |
| Create new markets              |            |           |
| <b>Total</b>                    | <b>10</b>  |           |

12) Have "proactive environmental behavior "been a disadvantage" at one point?  
 Finding suppliers, customers  
 Too costly  
 Entering a new country (too many standards; too advanced for certain countries)

### D. Marketing strategy in China

13) Marketing wise do you have an adaptive strategy or a standardization strategy?

## Appendix III- Questionnaires

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14) Are you planning to set different prices, products, promotions, positioning for China?

15) Do you use your environmental pro-activeness to market your products? In which ways?

### **E. Future goals**

16) Being sustainable is on the edge at the moment, many firms are working in that sense now.

- a. Are you planning to keep your status of “a proactive environmental company”?
- b. If so, what are you planning to further implement?
- c. If it provides you a competitive advantage, how are you planning to keep sustainability as a Competitive Advantage?

17) Where should your company in the future focus its environmental initiatives if it is to get maximum benefits for its internationalization process?

## Appendix IV- Interview Report Sheets

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**Company:** Vestas

**Interviewee:** QSE Manager- Responsible of the area of Quality, Safety and the Environment. Very operational, responsible of 60 persons, focus on quality and to avoid being exposed to bad stories, don't want any exposure, work as a green company, avoid polluting rivers and the air in China. Take care that the factory leave up with Vestas own standards.

**Date of the interview:** 10/06/2008- 10am in Denmark- 4pm China

**Length:** 1h 29 min

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Do not especially want to state the name of the company. High standards, but afraid of misunderstandings.

**Company's environmental behavior:**

Why? When? Vestas is originally a green company, it's only later that the focus to earn money came. Began around 2000.

Cost-benefit ratio: no idea. They have to do it.

The Environmental behavior integrated in the general management system, and into the global competitive strategy. On the webpage show the resources shortage, water, oil and the price of oil etc and they use that as a driver to sell their products.

Energy used 64% out of renewable energy. Do not put up their own turbine; don't want to compete with their customers. Don't erect their turbines.

**Company's Environmental standards:**

High ethical standards. 3 standards: ISO 9001, ISO 14 001, OHS 18 000 certified- ongoing. Standards applied everywhere in the world. At minimum, have to live up to local legislation. Higher standard than what the level is in China and India.

The commitments are here but the strategy, the attitude hasn't been formulated yet.

Vestas performance is Word leader. Follow standards that are higher than their competitors but sometimes local standards are different than home standards (in china: Bargain collectively is forbidden) Copy Rights differently valued in China.

**Company's perception of environmental regulations:**

They are already increasing. Vestas is watching carefully that. USA increased the percentage of the use of renewable energy. Webpage: follows news regarding use of renewable energy worldwide. Helps shape the attitude and see how Vestas work is influencing the world. Regulations are increasing as well in China.

**China:**

Being an International company in China, Vestas has to live up to high standards because there is a lot of focus on foreign companies. Every time there is an issue, they usually blame foreign companies. Live very strictly by the legislation. Wouldn't allow anything to not be in line with local environmental standards (labor law, environmental issues), the local companies don't always live up to those standards. Strong legislation from the Chinese central government, but low implementation! Local governments: ok to- pretty corrupt. In some area, if you have the right network, you can produce anyways. Legislation is getting strictly implemented in the area of Beijing because of the Olympic Games. Depends on the region you are here. In general the framework is ok, it's the implementation by the local government that not is working yet. See suppliers that don't have the authorization, the permit but allow producing because they have a lot of influence on the community.

A lot of focus is now put on the environment: some banks are not allowed to give credits to some companies that pollute; you have to control your spillage in order to get a loan from the bank. There is a stronger focus on that. Sometimes the fact that it is not a democracy makes it easy to implement.

The central government is really pushing.

The central government in China they are aware, but at the individual level for people who work in the firms or who own the firms, for most of the firms there the most important is to make money.

**Position compared to competitors:**

It doesn't seem like Vestas competitors in China put such a high emphasis on the environment. They have an environmental product but maybe they don't produce it in an environmentally friendly way.

Vestas: 50-60 local competitors- 6-7- foreign competitors. Not as high focus on the environment as Vestas.

**Suppliers:**

Vestas uses a lot of suppliers in its production. In Shanghai it is the supply chain office that finds and approves suppliers in china and in the rest of the world. Supply development in Vestas in most country. You go through the entire company (supplier) in regard to see how they behave in regards to purchase, sales, management, environment and safety. They are evaluated on this questionnaire to become or not Vestas suppliers. In some cases, the supplier standards were too long compared to Vestas'ones therefore Vestas didn't accept to work with

them unless they were changing their behavior. They made plans on what should be improved. Sometimes major investments must be done. Vestas, follow up on that to make sure they follow up the plan.

If the suppliers harm the environment go out and get some new ones. Vestas help its suppliers, expertise, strategic suppliers Vestas can pay an overprice, that money is for environmental or safety related issues.

14 001 and ILOs standards.

Vestas is growing too fast; they are working to do worldwide standards.

### **Future:**

#### **I] Neo-classical view: Environmental concerns are not applicable to business and economic thinking**

Too costly?

How can it be too costly when it is necessary? Employees working at Vestas are proud to play a role in the change in awareness of environmental issues.

#### **II] Competitive Advantage**

##### **1. Environmental regulation driver to innovation and competitiveness**

##### **2. The organization of environmental resources as competitive advantage**

- No: not easy to get access to supplier- don't understand why they have to improve. Direct influence. It's constraint
- Yes: easier to attract people. DK unemployment rate very low. It helps! Positive
- Yes: green environmental industry, would damage the image if they didn't live up to HES. Otherwise it would be counterproductive.
- Help not to loose your employees
- Specific environmental resource: not that he can see right now. Just follow the standards. It could be the fact that they are working in renewable energy.

##### **3. Environmental strategy as a potential driver to a better quality product, 1<sup>st</sup> mover advantages and barriers to competitors.**

##### **4. Environmental strategy as a high reputational enabler (customers)**

-Reputation: Afraid of getting their image destroyed. Don't say anything confidential because afraid of misinterpretation of journalists, not because they don't behave ethically correct (state the example of Telenor and Ericsson which reputation have been harmed recently by journalists). He gives example of their relation with their supplier, they are helping their suppliers to reach the level of standards that they

require, however this will be achieved progressively. Maybe at first the supplier doesn't fulfill these high standards, a journalist out of the context can easily turn that into a bad story harming the reputation, the brand name of the company.

- Yes: easier to attract people. In Denmark the unemployment rate is very low. It helps! Positively. Employees are ready to work for less money because of the attachment to the values of the firm. If you brand your company strongly enough you will have some people ready to compromise in terms of salary.

- You save money when you don't lose your employees to avoid hazards, industrial accidents. In the long term it is much cheaper if you keep the same employees, more professional, you don't spend that much time training them and you get more steady flow of products coming from your factory.

## II] Efficiency

### 5. Foreign-direct-investment a way to internationalize environmental ownership and reduce transaction costs

### 6. Environmental behavior as a driver to reduce production costs and make scale economies

- Constantly working in improving our production. We do LEAN with our suppliers, Lean is about decreasing waste in time, energy and material. Finding all that is unnecessary in the process and removes it. Trying to professionalize Vestas and its suppliers.
- Reduce the amounts of defect you make.
- If the investment is worthwhile than it is done. You only do an investment that is worthwhile if it is due to a regulation. Except if you can pay a fine instead of making the investment but it still harms the reputation...

### 7. An environmental strategy as to mitigate risks

- The importance of environmental behavior for companies nowadays is high to avoid exposure you can get if you have problems and because he thinks it is an issue that they have to work on.
- 10/10 = not the only issue but high exposure plus, Vestas is in renewable energy industry. H&M, 7tier-supplier employing child labor. Vestas say it is very far to control after 2-3 layer supplier.
- Risk of not being pro-environmental: branding. Oil Company do green commercial, "Stop thinking of oil as the problem but as part of the solution". Depends on what industry you are in. Higher attention in renewable energy (different in manufacturer of table and chairs). Bigger focus in this industry.

## III] Stakeholder theory

### 8. Increase bargaining power of firms toward local governments

**9. Environmental strategy helps companies to get favored treatments from local government**

- Some suppliers that are state-owned are actively seeking to work with companies like us because we are a renewable energy industry. Apparently the government would push to work with environmental companies.
- Vestas didn't get any special treatment, maybe in sales.

**10. Pro-active environmental companies enhancing local environmental awareness can influence local regulations**

- Vestas play a role in helping their suppliers to respect the environment. Linkages and will keep on doing that. Doing a lot to improve our supplier if the other firms were doing the same it would be easier; we could make some alliances with the other customers. If we are 10% of their customers they are not interested to make an investment of a million or half a million. In an alliance, easier to make supplier invest, change their behavior. Very difficult to make the supplier change their attitude. I would love to see the other change as well. The other companies are not requiring the same from their suppliers. We could pull in the demand together.
- Lobby the government: don't think so but would lobby the legislation that would create huge needs for Vestas products (by 2050 all production would be done out of renewable energy that uses the least water) At Vestas there is a department for communication with government. Trying to set the agenda and to promote awareness in the state the world is in today.
- Vestas try to influence, constraint on the industry creates opportunity for Vestas, to lobby the awareness and the legislation but in China, not yet deep enough into China to do so. Primarily, done in Europe and America. China is the 3<sup>rd</sup> market for Vestas and it should be the 2<sup>nd</sup> largest market this year. China is having an enormous demand for wind turbines.
- Beyond compliance: Vestas is not afraid of future regulations;
- In this industry: CO2 restriction is good for the future development of the business.

**IV] Other****V] Environmental behavior as a disadvantage towards other companies.**

HES is a constraint in Vestas process, making it more difficult. In other respect positive, in the way Vestas can brand itself.

Ask about the advantage of HES, for him right now just a constraint. A necessary issue but doesn't give them advantage, maybe in the industry but not against their competitors.

Prices are higher. Vestas is a lot more expensive. Related to quality. Higher performing product. Performance of Vestas turbine is higher. Life expectancy difference.

What is the high quality due to?

Do you promote the fact that you put such a focus on the environment? No. "This is simply the way we act". As far as he knows. Maybe some other people share a different point of view. The fact that Vestas is green is more due to the people working at Vestas.

Their big competitors T... / branding themselves all the time as a green company (the product not the process), share a lot of suppliers with them. Some of their suppliers work with four or 5 wind turbine producer. The other producers don't ask the same requirement to suppliers. Vestas is the only one putting demand on the suppliers. Harder for Vestas when they have to bargain or negotiate on the items.

Hopefully pro-active environmental behavior will become a competitive advantage in the future. It will depend on how conscious people are and become. Danes want to keep their car even though the price of oil is increasing (article in Politiken). This kind of article states that there is still a long way to go.

**Company:** Novozymes

**Interviewee:** Stakeholder Communications- In the NZ sustainability development department-Try to provide services to NZ business unit on developing NZ approach to sustainability. We are in working with different department the sustainability department, the production department and so on, on integrating sustainability in day to day business.

**Date of the interview:** 11/06/08- 9am Denmark

**Length:** 1h 11 min

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### **Sustainable products**

Main product is enzymes, and they are produced by micro-organism and fermentation tanks, just as NN for their insulin production. Before production, researchers go into nature and find micro-organism that can be used into a given product. The MO has to go into our fermentation tanks and into our own production. So we have to move the genes from the wild into our own environment. That is our production strength. That is the genetic engineering trick, to move genes from one environment to another.

1974: first environmental policy of Novonordisk because of the environmental awareness of environmental stakeholder and a number of catastrophes in the 70s-80s. Environmental impact of business was terrible. The company sensed that it was established. At the beginning though, not focused on the environment because nobody cared, it was but more treating the employees in a descent way. It was more a reaction from the expectation of stakeholders. Even more important to reputation.

### **Company's environmental behavior:**

NZ is very conventional, respect to global standards, ISO 14 001, signatory to Global Compact, environmental reporting since 1993 (now in the annual report). Very much by the book.

In implementing clean technologies, you might find a gap at NZ. We have not very systematically screen our technology to find new technology but we issue by issue beat energy and water consumption. We try to improve efficiency by energy and water reduction in that way we have implemented cleaner technologies here and there.

I wouldn't say that it depends on the investment if it is profitable. It is also a matter of being in compliance with our own values. It might be a moral question.

Specific environmental competency: NZ uses product LCA. That is the way we can document that using enzyme technology in an environmental impact compact. To bleach paper, you can use chlorine or enzymes. A LCA shows that it is much better energy wise-climate change wise to use the enzymes. The harsh chemicals are old fashion technology. LCA is good way to show that Modern bio-technology is a better choice.

LCA in NZ not integrated in its management system.

There is no investment without considering pay back time. An investment has to be profitable. Though sometimes good business is also to meet expectation from stakeholders, to build trust and good reputation although it is at first sight only a cost. But it is important that we are able to keep and attract the best employees. It is hard to measure the cost/benefit ratio.

#### **Company's environmental standards:**

High internal global environmental standards. Implemented in the same way in each country. Lately NZ has done a lot when it comes to buying new companies, especially in the bio-business of NZ making bio-polene ( ingredients for the farmer industry and they are not enzymes) and bio-business. 95% of our turnover is enzymes and all our enzymes production site are certified ISO 14 001. Although in Australia there is a small production they have a management system but it's not an ISO 14001, nevertheless it respects Novozymes standards. There pollution is not an issue. 5% of NZ is not an ISO but is covered by NZ environmental and bio-ethics policy. So they have to have an EMS.

There is no difference between the commitment and the action but you can also discuss if it is enough. However, we are able to defend what we do and that is important. We can do better in terms of CO2 emission but that would be too expensive, we wouldn't be competitive anymore.

Importance of environmental issues for NZ on a scale from 1 to 10: 10 for two reasons: minimize NZ environmental impact and the other one is the opportunity it brings. It's a business case for NZ. There is Business Case in proving that enzyme is a part of the solution when you are talking climate change. It is now very much an aggressive pro-active business case. It's very important business wise and environmentally for building trust among stakeholders.

It is important that companies in general determine how important it is. You should only do thing in your sphere of influence. Climate change is very important for NZ we have a considerable consumption of CO2, in our portfolio we have the possibility to reduce it. But if you take the Polar bear, it is not in our sphere of influence. Some companies are spread out and then it becomes overwhelming.

Big companies have responsibilities and they should be held accountable but there were no criticism at all to the guy holding the company. He is the bad guy treating his employee not

decently. The big companies, media should not forget to tell about all the bad guys. Telenor and Ericson were the perfect target for the media, they had signed the Global Compact they got a mission, vision values statement, policies. They made promises but you will be able to find companies like Ericsson and Telenor making cellular phones but they haven't promised anything so they are not good targets and do nothing to make their suppliers behave. That's why Vestas is reluctant to say that they provide the greener windmill. Because among 10 000 suppliers you will be able to find a guy who is not acting correctly.

The life of regulation usually starts regulations in the US, and then agreements become international after some years. So you can spot UN agreements.

**Company's perception of environmental regulations:**

Environmental regulations will go up in some areas, climate change, water, air pollution.

In china as well. CSR responsible in China but not a CSR department. In China responsible to be in compliance with NZ standards.

REACH regulation. NZ was not on compliance. No one was. It was about to get all chemicals registered. We have 100 000 chemicals a minor part is approved by the authorities. The rest are unknown or at least the effects. We have to register our products. We are working on that. But strict regulations will be an opportunity for Novozymes.

**China:**

Don't know about any advantages. It was 12 years ago.

NZ went to China for the market. Another parameter today is that it is cheaper to produce in China. In some ways they are moving to China. They are expanding in China more than in DK. The bigger center is still DK but there can be a shift mainly due to a growing market. Last year built a plant in India, another place to be.

**Position compared to competitors:**

HEP makes a difference towards our competitors. NZ is rated in different indexes. Rating of NZ is higher than its competitors.

Can you benefit from the reputation in terms of sales? That is difficult. There is not direct link from sales to reputation and turnover. You can't measure it, not at all. But you can be sure that if we had a bad reputation no food company in the world would dare to use NZ products in their food products because the consumers would be scared, or there would be a risk that they would be scared. So we have to behave so that our customers feel comfortable.

Performance in China, according and beyond local standards because follow global standards. The regulations about genetic engineering in China, are not the same as in Europe. We try to

keep high standards. Sometimes European standards though are not higher than the Chinese one.

3 factories in China. Produce enzyme in China.

Main competitor: Danisco. Bought and enzymes producer called xxx in the USA. But NZ has 50 % of the market and Danisco 15% of the market. Danisco is more complex business. Enzymes production in Danisco is very few. Difficult to compare.

## **Suppliers:**

It started years back that we asked suppliers about the environmental impact of the product they delivered. What are the environment characteristic of the product, if they have an EMS; NZ use the answers when we consider if they are a good supply for us. Then we started doing environmental audits, quality audits and then we linked CSR and environmental audit to that. Now, NZ is developing a new audit. NZ has 10 000 suppliers a year and because the group of suppliers is changing all the time, in 2 years we might have 15 000. We have to sort them and find a process. We have a set of criteria, what product they sell, in which country they are, a number of parameters. Now, we are developing a software so that the entire supplier can be sorted out by the computer and we might have out of the 10 000 suppliers, 100 left. Then we look if those companies are environmentally friendly. It will be implemented in January 2009. We expect a Danish supplier will fit with the requirements. Like this can be transparent to stakeholders.

But NZ produces the enzymes itself. It's soy bean, sugar, energy that they supply. Same programme will include quality and invoices.

Now kind of behind on things, they are not that systematic.

Sustainability part of the management tool strategically. HEP substantial component of NZ global strategy: We convince NZ customers and society those NZ products are a good choice that they are part of the solution.

Risks of being pro-active: if you communicate a lot about your company being very environmentally friendly many media would like to find a gap in your system. You have to be careful. There is a risk of being attacked.

## **Future strategy:**

Don't know. We have to consider stakeholder expectations. A broad range of stakeholders, it might be green associations, NGO's, it might be investors, they are still more interested in environmental issues, the DJSI. We are listening to that. The second thing we are listening to is politico-societal trends and there we are looking at the UN. What are the new regulations

and issues coming up? Water scarcity is an important issue coming up. What are the reactions from other companies and then we consider what is relevant for NZ.

Right now: water and climate change are the major issues and then continue the good work on the issues we still have. The waste treatment will be big for years, we will try to improve our recycle treatment. The impact of using genetic engineering might be a potential risk, consumers are worried. So we have to prove that we can manage genetic engineering.

### **I] Neo-classical view: Environmental concerns are not applicable to business and economic thinking**

#### **II] Competitive Advantage**

##### **1. Environmental regulation driver to innovation and competitiveness**

- NZ rejects a considerable amount of CO2 but they are aware of it and might want to do the best they can to change their habits. Therefore using innovation.
- Not threatened by environmental regulations, regulations are beneficial for us, because it is hard to our competitors. Not beyond compliance just on compliance. If the regulation is ok why should we be beyond, it's just not a goal. CSR is not to be beyond compliance but doing business in a decent way.
- Being ahead of things will open some doors. When you go to new country to new markets then it's easier if you can show them that you are on top of things. Then you can show them that you have the Management system in place. That you have your environmental reports and that you are in compliance and that you have no catastrophes.
- But strict regulations will be an opportunity for Novozymes.

##### **2. The organization of environmental resources as competitive advantage**

- Specific environmental competency: NZ uses product LCA. That is the way we can document that using enzyme technology in an environmental impact compact. To bleach paper, you can use chlorine or enzymes. A LCA shows that it is much better energy wise-climate change wise to use the enzymes. The harsh chemicals are old fashion technology. LCA is good way to show that Modern bio-technology is a better choice. On NZ website, there is a lot of examples like that, comparing NZ products compared to competitors products through LCA.

##### **3. Environmental strategy as a potential driver to a better quality product, 1<sup>st</sup> mover advantages and barriers to competitors.**

- 1<sup>st</sup> mover advantage. When entered China with NN as a producer of enzymes using genetically modifies micro-organism, then the China government had no

regulation in that area, so they invited the Chinese government to come to DK and visit the production site in Kalundborg. They told them about regulations, and we were allowed to produce in China based on the same standards as in DK. That was an advantage that we could use the good reputation of DK, and Danish regulation as key to convince them that we could produce in China on those conditions. Then competitors had to follow the same standards since it influenced the Chinese regulations. Helped the Chinese government to upgrade their regulations.

- Went there before their competitors.

**4. Environmental strategy as a high reputational enabler (customers)**

- Having HES is an advantage it means a lot to our reputation and that has been the case since the mid 80s. To some companies it is more important than for some others. It is important for NZ because it bases innovation our R&D on genetic engineering we have to build trust among stakeholders so that they believe that when NZ applies genetic engineering it's ok.
- Make people want to work for NZ
- The NZ standards in China and the way they influenced the Chinese regulation provided them with a very good reputation. Chinese minister has visited NZ in China and in DK. We are on the map due to those formal and informal contacts. Advantages from this behavior in China.

## II] Efficiency

**5. Foreign-direct-investment a way to internationalize environmental ownership and reduce transaction costs**

**6. Environmental behavior as a driver to reduce production costs and make scale economies**

**7. An environmental strategy as to mitigate risks**

- you can be sure that if we had a bad reputation no food company in the world would dare to use NZ products in their food products because the consumers would be scared, or there would be a risk that they would be scared. So we have to behave so that our customers feel comfortable.

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**III] Stakeholder theory****8. Increase bargaining power of firms toward local governments****9. Environmental strategy helps companies to get favored treatments from local government****10. Pro-active environmental companies enhancing local environmental awareness can influence local regulations**

- When entered China with NN as a producer of enzymes using genetically modifies micro-organism, then the China government had no regulation in that area, so they invited the Chinese government to come to DK and visit the production site in Kalundborg. They told them about regulations, and we were allowed to produce in China based on the same standards as in DK. That was an advantage that we could use the good reputation of DK and Danish regulation as key to convince them that we could produce in China on those conditions. Then competitors had to follow the same standards since it influenced the Chinese regulations. Helped the Chinese government to upgrade their regulations.
- Being ahead of things will open some doors. When you go to new country to new markets than it is easier if you can show them that you are on top of things. Then you can show them that you have the Management system in place, your environmental reports, that you are in compliance and that you have no catastrophes.
- But strict regulations will be an opportunity for Novozymes.

**IV] Other**

- He doesn't know the price of NZ products compared to its competitors but he says that if NZ is more expensive then it is not because of HEP but quality.

**V] Environmental behavior as a disadvantage towards other companies.**

- It might be important to be one step ahead but it might be dangerous to be 2 steps ahead because you might move in the wrong direction. Meeting in CPH next year, and no one knows what will happen. Maybe regulation will force them to go back and go into another direction. By being pro-active environmentally sometimes you make mistakes. It is a good idea to save energy you don't have to wait but when it comes to carbon trading it's a bite tricking, it might be difficult.

- The cost, is it a disadvantage. It is costly, when NZ builds a waste water treatment in Kalundborg it is costs millions, and air cleaner on the ruff it is a question of million. But of course we have to. The cost is easy to calculate but the benefit is impossible but you couldn't imagine producing without having done that.

**Company:** Nokia

**Interviewee:** Senior Manager, Environmental Affairs

**Date of the interview:** 13/06/2008- 9am Denmark-3pm in China

**Length:** 1h15 minutes

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**Company's environmental behavior:**

Leading position in the industry and especially in China. Given an award for environmental Performance. Green benchmark award. Energy efficiency award in China. Nokia's performance has been recognized by the society. Energy efficiency in telecommunication.

2 focus: Creating Environmental awareness & Nokia's Environmental strategy.

- Environment text message context: Children (6 to 14 years old) competition in environmental awareness by sending SMS – They can send their environmental text to Nokia. 10 are selected and are invited to Beijing to give them awards- spread environmental awareness to their class mates, family and Village. In the past 3 years they received 500 000 messages. One child policy, therefore he or she will influence his/her family, like this able to touch a high number of people.
- For 3 years: Recycling project- take back mobile phones- A proactive strategy- Working with China Mobile – biggest operator and Motorola. In 2007: 2 million pieces were taken back. Recycled. Beyond compliance. There are no law to settle take back system. Nokia recycle these materials.
- Nokia environmental ambassadors – Employees can make environmental activities in their spare time. Nokia help schools in remote areas to create awareness and education through these ambassadors. Plus, teach their employee first.

Environmental issues are embedded in Nokia's core value. One decade ago: Nokia decided to put Sustainable development as basic principle in the company. Since then they integrated it into the managerial systems.

**Aim:** Core value and integrated in all our business. By nature, if you do business you have to take care of the environment

- Eliminate risk
- Stakeholders

**Company's environmental standards:**

Nokia has international components. It sources all over the world. Same standards for all markets. Complying with EU rules. Own high standards. Local standards, however where Nokia standards are higher than local ones are being followed. Same product in an environmental point of view everywhere in the world.

Environmental issues are embedded in Nokia's value.

World leader. In China we work a lot to improve environmental awareness. The government also boosts energy, environmental efficiency.

Nokia recycles 83% of its solid waste. It is either re-used as such, recycled for materials or used as a source of NRJ.

The importance of Environmental issues for Companies: Grade 7-8. Environmental issues are not the only thing for companies.

For Nokia it is integrated into a strategic level – into the company's strategy therefore 9.

Nokia sells always more environmental product (the new 3110 Evolve)

They do Eco-marketing.

More environmental products are coming (After Evolve)

**Company's perception of environmental regulations:**

Nokia is trying to be ahead and foresee the upcoming regulation in China. Have done a lot of pro-active activities. Foresee an increase of environmental regulation in China. (Stricter) They are not threatened, as they are already beyond compliance. Usually, when new regulations come out, Nokia already fit the new requirements. They share experiences and help the Chinese government to make regulations. Help and lobby the government on law and standards.

**China:**

Been in China for 22 Years. In 2000 built a new factory, very difficult in Beijing because of Economic and technological development area: In these zones favored light polluters. All zones allowed Nokia to come to their area. No pollution area. Not only in Beijing, all over China now. Industrial areas in China there will become a division between pro-active companies and not- where proactive companies will benefit. Economic areas with no or little polluting companies.

Advantage for these companies: find a location for your company; can have some special benefit, tax incentives, and subsidies from the government. It means that if you have a HEP you will easier get into these zones and enjoys governmental benefits.

Since 2003 domestic and foreign companies have to do environmental impact assessment. If you are an HEP you will easier make the analysis (EIA) that your company has to furnish to get a permit, therefore you will get the permits faster to build the factory.

The environmental companies are in focus now. 20 years ago the Chinese central government just started taking care of environmental issues.

The laws can be stricter in China than in Europe. Implementation is weak though. "Enforcement and monitoring. Relatively weak in developing areas". Local governments wants to develop the economy first, so the environment is not so important.

The central government will control in a stricter way. Realized the importance of environmental issues and trying to make the laws implementation everywhere in China, at all levels. Environmental NGOs have also raised their views. The citizens now can report to the government if a close-by industry is polluting. The government can then ask the company to prove that they are operating in respect to the laws.

Cases where companies with low/bad environmental standards have not been able to build factories. Big improvements has been made.

More environmentally products are coming. There is an increasing need for green products in China by the consumers. – Just started! Chinese like to buy green products. Through our environment behavior consumers can have a feeling of the company. They know this company is good for the environment. This will help consumers to make their own choice. There is potential advantage for environmentally friendly company but Nokia doesn't have any figure to demonstrate this.

Stricter environmental laws are coming by the central government but also the local governments.

JV for the plant.

Green field investment for the HQ.

#### **Position compared to competitors:**

- Nokia makes a difference compared to other companies. Environmental performance is one of **the differentiator** for Nokia to other companies. Has been recognized from different areas- from the government. Treat Nokia very well gets incentives

- Greater awareness in the big cities. However, price is an important factor, however Nokia green products are the same prices as their competitors.
- Difficult to assess the competitiveness compared to other companies.

**Suppliers:**

Suppliers: Comprehensive requirements to the suppliers have to meet 88 requirements, to be a Nokia supplier environmental issues are a very important part of this. Nokia suppliers have to take care of their suppliers.

Nokia suppliers have to manage their suppliers so through this Supplier chain, they can control all the tiers of supplier. Great effort – by training the suppliers.

- Disadvantage to find suppliers because of high standards. Hard in the beginning, but after 10 years of continuous effort it is working and it is easier.

Nokia has the responsibility to help suppliers to improve. Nokia has done well in this area.

**Future:**

Energy efficiency, take-back and recycle. Work with NGOs, to improve our employees' awareness. Lobby activities to raise the barriers for competitors. Help the government to make better regulation.

Does HEP helps to enter new countries? It will help you, at least it won't be a barrier to entry new markets. It helps gain markets opportunities.

**I] Neo-classical view: Environmental concerns are not applicable to business and****II] Competitive Advantage****1. Environmental regulation driver to innovation and competitiveness**

The environmental companies, they get easier location access, benefits from governments: Easier access to industrial areas. Subsidies and Tax incentives.

Before building a plant Environmental impact assessment – required by the law. Easier if you can manage environmental standards well it will be easier to get their License or permits- Equal to local and international companies. Easier if you have proactive environmental standards.

The law was enforced in 2003.

## 2. The organization of environmental resources as competitive advantage

- Trend by the consumers: to buy products that are green, greater awareness among the consumers about green companies. Potential benefits for green companies.
- Nokia green products and efforts (education) are creating a good reputation for Nokia, however Nokia does not have figures, data to support this trend. Sales and pro-activeness of the company is difficult to link.
- Nokia China Conference building: They got the gold certificate by the USA group building committee. A green building that has been awarded for its environmental friendly. Save 20 % energy consumption and 37 % water consumption. – Governments and consumers have visited the building and helps build their brand.
- Branding their green image. Just started to market their green image (2 years ago). To communicate with externals. Nokia realized that they have to do more in marketing their Pro-activeness: eco-marketing now at Nokia global.

## 3. Environmental strategy as a potential driver to a better quality product, 1<sup>st</sup> mover advantages and barriers to competitors.

### 4. Environmental strategy as a high reputational enabler (customers)

The good reputation makes it easier to recruit and attract employees. Employees are quite involved too. Employees' blog is seen also at the HR department as a reason to work for Nokia.

Nokia has a good reputation toward consumers. Awareness of city dwellers of environmental products has just started. In China, basically the price of the product counts a lot, though Nokia's prices are not above its competitor's price". I believe this will influence the customer in our future". The advantage of Nokia's HEP will grow in the upcoming years.

And also Attract investors

Consumers: Differentiate their products, very positive reputation in China.

Believe that in the future consumers will get more aware of green products and influence them. Building reputation right now - will create advantages for Nokia.

## II] Efficiency

### 5. Foreign-direct-investment a way to internationalize environmental ownership and reduce transaction costs

### 6. Environmental behavior as a driver to reduce production costs and make scale economies

- However, Nokia is also saving a lot of money on environmental issues. IE. With packaging where Nokia has saved 100 million euros on packaging improvement.( huge savings) Cost-benefit ratios: Invest in the environment; spend a lot of money- You have to do that.
- However, Nokia is also saving a lot of money on environmental issues. IE. With packaging where Nokia has saved 100 million euros on packaging improvement.( huge savings). By improving our packaging Nokia saved in 2006 and 2007, by distributing 250 million pieces of a compact product they saved 100 000 million euros. Issues are not cost investments but also gain big savings. (40 min)
- Energy efficiency/ management of waste.

#### **7. An environmental strategy as to mitigate risk**

- As a way of risk mitigating- Basic level eliminate risks, stakeholders' inspection. As a good company- you reach those basic sub tasks. Energy efficiency – 1 billion consumers are using Nokia products in the world. If we reduce the energy consumption of the chargers, it will create huge energy saving worldwide.
- Difficult to calculate and separate the cost for the environmental issues as well as the saving of these. We have supply environmental management and EMS but still difficult to assess. Difficult to differentiate the cost of the budget for environmental issues. Savings are also difficult to assess from an environmental point of view.
- It might be. Don't think it's a risk to be a pro-active environmental company. Not for Nokia because they only tell the public what they have done.
- Environmental NGOs in China are not as strict as in the Western world. They also watch the bad side of the company. You have to do all the right things. If you haven't do that much yet, and communicate that might be a risk.

### **III] Stakeholder theory**

#### **8. Increase bargaining power of firms toward local governments**

Nokia is trying to be ahead and foresee the upcoming regulation in China.

- Easier to do business.
- Difficult to separate the different issues, therefore it is difficult to look at high performance only. The whole company has to be functioning well.
- HEP Companies can get more credit from the government and this may help to enter China.

#### **9. Environmental strategy helps companies to get favoured treatments from local government**

**10. Pro-active environmental companies enhancing local environmental awareness can influence local regulations**

- Help the government to make better regulation, advise/lobby the government to make laws and standards.
- Nokia Global help the CG, lobby it.

**IV] Other****China have had problems with the implementation of environmental regulation**

- Disadvantage to find suppliers because of high standards. Hard in the beginning, but after 10 years its working and its easier.
- Do not see high environmental performance to be a disadvantage, reduce risk and better develop the business.

It is not too costly- we have reused projects where we reuse Nokia components to the suppliers so we can then reduce the costs. It's not only a cost for suppliers.

Today it would help in the internationalization process to be sustainable but it didn't used 20 years ago.

Cost/benefit ratio: Some people think you have to invest and spend a lot of money on that, it is true but that is a master. We have some good examples, by improving our packaging Nokia saved in 2006 and 2007, by distributing 250 million pieces of a compact product they saved 100 000 million euros.

**V] Environmental behavior as a disadvantage towards other companies.**

No

**Company:** Ecco

**Interviewee:** Environmental Manager

**Date of the interview:** 7/08/2008- 10am DK-4pm China

**Length:** 39 minutes

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**Company's environmental behavior:**

Clean tannery, where invited into China although many tanneries were shut down.

Aim of HEP strategy: the continuous development of Ecco products.

Out of the total investment in China, more than 10% was dedicated to the environment. Currently the benefit of the investment is only half (50%) but in 5 years it will be 100%.

The environment management is integrated in the general management system: Part of the Management board but there is especially a great awareness in production.

**Company's environmental standards:**

Environmental performance.

Equally relevant: Ecco guidelines, but adjust to each country. Especially important in production.

**Company's perception of environmental regulations:**

Do not feel threaten by the regulation – Ecco is ten years ahead of regulation, they try to foresee legislation as well

**China:**

**Xiamen - Province du Fujian**

In China since October 2007 – full ownership

One Tannery, under construction, still not running

- The tannery use green energy and less water consumption

- 
- Follow a combination of Chinese legislation and the guidelines of Ecco.
  - HEP leads to better products.
  - Legislation and laws
  - Better for Employees
  - Chinese consumers are more aware of green products. We don't have any statistics about it but there is a feeling of it, The Chinese are in a higher degree choosing environmental products. The trend is going that way.
  - Ecco has been selling Products in china for 10 years.
  - Recycle water, little energy consumption.
  - Not the only international tannery in China.
  - The area of the tannery (Chennai): Avoid pollution- one of the cleanest areas.
  - Importance of environmental performance for ECCO : 8/10
  - When did Ecco embark on HEP? 1990- why? – awareness, competence for the products, enhancing the quality of the products.
  - They don't yet produce in a close loop- 70-80% but they will in 5 years (100%)
  - Recycle: waste: and water, green energy
  - Aim of such a strategy- improvement products, reputation, marketing (A difference compared to Europe) they state it is a green product.
  - Been in NL for five years
  - Management system
  - Risk – companies will be closed if they do not consider the environment (many small tanneries were closed in the last 3 years in China because they polluted too much).
  - Having a HEP is a good point for our products. It is good for our employees and surrounding.

It has become an important issue.

Ecco is the World leader for tanneries. This tannery is prepared for 10 years of regulation ahead

Benefits of HEP: marketing wise more developed in China than in Europe) and better reputation

Increase of margins

-Market-share increased.

-Increase of market opportunities

### **Position compared to competitors:**

- HEP: Make a difference to competitors- yes for sure. Our products are more competitive. Marketing Ecco's products as green products- promote as a green product. Ecco is regarded as a green brand by the consumers.

### **Suppliers:**

Not difficult to find suppliers, Ecco standards that they have to follow. More expensive products. Balance between higher price and environmental conducts.

### **Future:**

Recycle all water, solid waste, use LP energy and solar panels.

**I] Neo-classical view: Environmental concerns are not applicable to business and economic thinking**

### **II] Competitive Advantage**

- 1. Environmental regulation driver to innovation and competitiveness**
- 2. The organization of environmental resources as competitive advantage**

Competitive Advantage – the guidelines of Ecco is giving Ecco a competitive advantage.

Environmental Resources as a competitive advantage: The guidelines of Ecco group because other tanneries have very bad reputation, so Ecco distinguish itself.

- 3. Environmental strategy as a potential driver to a better quality product, 1<sup>st</sup> mover advantages and barriers to competitors.**

When did Ecco embark on HEP, 1990- why - awareness competence for the products, enhancing the quality of the products. Consume less, produce more.

**4. Environmental strategy as a high reputational enabler (customers)**

Attract employees because of the reputation.

**II] Efficiency**

**5. Foreign-direct-investment a way to internationalize environmental ownership and reduce transaction costs**

**6. Environmental behavior as a driver to reduce production costs and make scale economies**

Consume less, produce more-less input more output

Yes increase production efficiency and reduce production cost.

Increase production efficiency and reduce production cost, compare it with other production sites.

**7. An environmental strategy as to mitigate risks**

**III] Stakeholder theory**

**8. Increase bargaining power of firms toward local governments**

**9. Environmental strategy helps companies to get favored treatments from local government**

From the government- faster to get permits,

Incentives From stakeholders- help from the local government – tax , import export, easier access to electricity, water..

**10. Pro-active environmental companies enhancing local environmental awareness can influence local regulations**

**IV] Other**

**V] Environmental behavior as a disadvantage towards other companies.**

It can be very Costly to do green investments (the disadvantage), so you might loose customers however, you will gain other kind of customers through HEP

**Company:** Novo A/S

**Interviewee:** Chief Financial officer-

**Date of the interview:** 18/06/2008- 9:30 am

**Length:** 1h 22

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In 2000 already, more than 50 % of the people that have diabetes are in third world countries. Asia and Latin America, and dominated by India and China. In the future, it will reach 80%. It is something we must do- to go to China and solve the problem of diabetes. 10% of the population in big cities in China (has diabetes).

Novo Nordisk does a lot of things to prevent diabetes. Push people to make sports. Focus on the prevention of diabetes, education, seminars for free in China. It is an expression of Social Responsibility.

Seen as a partner, setting training programmes in the hospitals and making training programmes for doctors and nurses and people that have diabetes and their family and setting up radio and TV forecast to create awareness. Though when they talked to the press they never asked to get their name stated. They emphasized this is not a promotion of NN or our brand it is a promotion of the idea to have knowledge about diabetes so that people could avoid getting it. Creating awareness toward diabetes- That's what they saw and that's why we were seen as being socially responsible. They mentioned they didn't specifically want that. 15 years ago in China only 5% of the population was aware that they had diabetes; they had a miserable life and died too early, now they know. Not yet, all of them, 25% know, in Europe it's 50. Diabetes, you can have it for 5 years without knowing it. All these people that have diabetes today can live to be old, whereas otherwise they would have been dead.

Nothing wrong combining a good business with an ethical conduct. It is not contradictory but mutually supportive and everybody in China, especially the press said it was acceptable. Insulin is not expensive. Cost the same of half a pack of cigarette a day. Everybody in China can afford that.

NN has 50% of the world market in volume. That's why they make money. If they were 10 companies it would be very difficult.

Because of the training programme provided by NN to doctors, nurses, patients in the hospital they had a partnership with the government and world diabetes companies. NN made a pact with the government stating that NN would supply all the training materials, financed by a

grant from the World Diabetes foundation, and the government would provide all the time of doctors and nurses and the physical rooms to do the training. Roll out in all China, from big cities to villages. The programme was started 5 years ago when he left China. We are seen by the government more as a partner than one just selling products. And it's been very difficult for competition.

Novozymes main focus; use different ways of producing enzymes. Try to do it in a more environmentally friendly way. Different focus of the 2 companies. Novozymes, with its enzymes found a way to avoid washing cloth at 90°C but to do it at 30°C, such application in a numerous amount of household like in China, can represent a saving of energy of up to 50 gigantic power plants. They never succeeded yet, very much, with the detergent there. But Chinese are funny they say "yes" I know we can save energy and CO2 but if it costs 10c more than they will not buy it. Novozymes products are a little bit more expensive than the other ones. Customers in Europe and America are willing to pay a little bit more for things that are little bit more friendly to the environment, but not in China, not yet.

2 different angles of the 2 companies.

### **Investment in China:**

Beginning 1990's, started making the strategy for China, first thought about Joint venture, NN visited many places and potential partners. JV partners if they want to own 50% of the project then they just should make contribution to the investment. And then they realized that through their position in the world they had built their reputation. They were known already by the Chinese authorities. The Chinese ministry of health knew NN; they had been talking for 20 years not about building a plant but about how to use their technology in China. Therefore they made a fully owned FDI and that is what they still have today and they are really happy today.

JV really depends on whether you need a partner. There are businesses where it can be very beneficial.

We went to China at that time with IFU, they had 10% of the investment. It was little bite of sharing the risks. Afterwards they could buy the rest of the shares. Another JV partner couldn't really have helped them with anything.

NN went to china for market-seeking, primarily reason and not especially labor costs. They are not that many people in the plants. The most important is the depreciation of the plant. We could easily export to China because it is small products, low volume. But the transport would be crazy and plus the price volume is very low in China and we have to be on the market to compete.

The production of the Novo PEN is all done in China. Different components in the Novo Pen, probably mostly produced in China, however, didn't really know. Moved to China, but Global

supply to China. 37 different pieces. For this one, there is a lot of manual work involved. In that specific case there might be costs savings to produce it in China. It's not though the biggest product. The biggest one is the plastic pen molded in plastic piece and automatic. It is produced in Denmark, maybe in France and the USA.

Novozymes made a JV in China, they partnered with enzyme plant, Hongda. But it was 65% NZ, 35% Hongda. It was turned into NZ standards operations. We would not accept local standards. You have to agree that there are environmental standards that you have to live up too.

NZ has a much more polluting industry.

NN usually do full ownership investment if they can avoid JV. They have the luxury to be able to do so. JV: USA, Australia, Due to the circumstance, it was the best to get started with but not easy and especially not funny on a 50/50 JV.

NZ was well known so it didn't use JV in China:

The customers and potential customers in both medical and enzymes knew NN already. All the diabetes specialists knew NN and their products. NN is number one in the world in diabetes.

#### **Company's environmental behavior:**

Do you take the environmental issues in consideration when you internationalize? Yes we do. We have our own rules. Whatever we build, we respect our own standards which are often better than the local ones, esp. outside Europe, USA and Japan.

It is not a polluting industry.

NN in its production site is going toward the reduction of CO2 emissions; partnerships with Dong. Not a very polluting industry but it can produce pollution indirectly, by not having a good organization of the resources, if you loose a lot of energy for example. There is always a way to optimize energy: insulation and recycling water, if you need to heat or cool something. It is also a part of the image even though for NN it is mostly the quality of the product and the way it is sold that count.

I guess all companies today who have production; where there are environmental issues should have a clear policy and understanding on that. If you have some kind of production you have some kind of responsibilities. The companies that in 25 years will have implemented environmental policies and did well will be the survivors, those who have neglected them will be gone.

He doesn't see his way around CSR. In the last 5 years NZ has done a lot to reduce its impact on the environment.

NZ biggest dream is to realize a commercial success of enzymes for second generation production of bioethanol. That would be a very powerful and positioning message for NZ.

**Company's environmental standards:**

When you do JV do you use your own guidelines? Yes, as far as we can. Own environmental guidelines. In everything they do they make sure that the values and vision and the mission and the TBL are implemented. These were not clearly defined 25 years ago. In the last 20 years have always been a majority.

Don't produce insulin in China. Come in big volume to China and then they package them there. In 2007 moved the production of the Novo Pen to China. This durable pen is now produced in China. Right now, there is a plan of building an insulin plant in China. There is an insulin plant in Brazil already. Next one in China, they knew that since the beginning. They will build it in Tianjian Economic Zone area. That's were they chose to make their investment in 1993. They have enough space there.

They have environmental industrial zones now in China, is it one of them? I am not up to speed with how much they emphasize the environmental there but I know in China in general, they are aware of the environmental problem, they just say we need to grow economically a little bit more before we do it. It is an Economic development zone like the size of Bornholm. In 1993 when they first went to visit it was only marsh land, wet and muddy and today it is an industrial city with 3 or 400 000 inhabitants with schools. It's amazing. Like the new terminal in Beijing, high quality, great architect.

There is a lot of coal in China. They open one coal factory a week. Become more effective. Opportunity for Danish technology. Very effective, total energy utilization in Denmark 60%-68% in China 25-30%. They could make twice as much energy out of the coal plant.

**Company's perception of environmental regulations:**

**China:**

-Tianjin an environmental EZ?

Tianjin EZ, is a very professional city administration. The local government has been our partner, not money wise, but support-wise. They have never promised us anything that they didn't deliver. We can always count on them and it's very nice that the relationship we built 15 years ago is still valid nowadays. We can discuss specific problems with the mayor of Tianjin. We chose Tianjin because it was a small place at that time. They would rather be a

big fish in a small pond rather than a small fish in a big pond. We have never regretted that. Now we are happy.

-The government in China: Not for NN. What counted in those days is that you were coming with a lot of dollars. But we were already then in the visibility to describe and we were asked very clearly how our production would impact the environment. It was a big part of it. They asked for that even in 1993 because they knew it would become a bigger issue. But the big entrance ticket was money. I guess it is changing.

-they benefited from tax-incentives for 5 years but not specifically from environmental behavior. Not decisive. Didn't get any special intention compared to other companies. NN got some help, support from the local government, for example to contact the central government. It gave resources and attention. It only took two months to get the license to start the business.

#### **Position compared to competitors:**

They are being copied but it has always been, and it still is, but it is small and insignificant. The market share of NN has been going down but the market is growing that the production hasn't slowed. The total market was increased by a factor of 10 in the last 10 years. 0 to 75% of the market in 10 years. They captured a lot of the growth. The market rose because of their awareness activities. It all fits together, we are socially responsible because we do all this training, it comes together with a lot of business. Then we can spend more and more on creating awareness.

Competitors: Sanofi Aventis and Ilian. Few producers in the world, in China, India and Latin America's market. Don't have that much market.

No1 in the world/ Quality, focus on diabetes. The PEN that came out in 1985 is User-friendly before needles. NN is seen as people doing very user friendly products. 30-40 years ago many competitors (50), low price subsidized products, didn't make that much money .2 Danish companies Novo and Nordisk started investing in new technologies to change that and merged in 1989. More clean products. Before extracted insulin from cow and pig tissues. A lot of research efforts to do, in order to come to that result.

#### **Suppliers:**

**I] Neo-classical view: Environmental concerns are not applicable to business and economic thinking**

#### **II] Competitive Advantage**

##### **1. Environmental regulation driver to innovation and competitiveness**

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The pen

**2. The organization of environmental resources as competitive advantage**

Yes, they used training programmes to distinguish themselves from others.

**3. Environmental strategy as a potential driver to a better quality product, 1<sup>st</sup> mover advantages and barriers to competitors.**

NN went to China in an early stage, in 1992 when there still was not that much Diabetes there. However, they forecasted an increase of this sickness there thus they set up there early, and did a lot to create awareness on this illness, slowly building up their reputation by organizing seminars and providing education on this disease, indirectly creating barriers to competitors. Finally the reputation that they already had at that time especially stemming from their technological advancement provided them with a 1<sup>st</sup> mover advantage.

**4. Environmental strategy as a high reputational enabler (customers)**

- At the beginning hard to get some employees but then became a quite attractive place to work at NN. Had to do with the fact that they took care of the business, creating awareness. Good values. Values of the companies. Lowest turnover rate in the country and industry, less than 10% (5 years ago) which is very low in China. Not in the beginning but now they can see that there is something special here. It is not only the money.
- When started reputation among a few people, but the rest was built up, and it was hard work. He had 300 business cards from journalists.
- SR: and reputation stemming from it helped Increase market opportunities and sales: for the end user, you supply something else that the product. The diabetes association for patients. Before only for doctors. More than 100 000 members (5 years ago). Free blood test, possibility to talk about it.
- NZ uses its environmental behavior to market its products because their products are oriented to improve the environment. They do it globally.

## II] Efficiency

**5. Foreign-direct-investment a way to internationalize environmental ownership and reduce transaction costs**

**6. Environmental behavior as a driver to reduce production costs and make scale economies**

**7. An environmental strategy as to mitigate risks**

Reputation: 1<sup>st</sup> it should always be a good and valuable and solid technological product to the customers but what you build around is very important. The technology can be copied but it is harder to copy the reputational activities (education and so on). They sometimes tried but they have other areas of focus so they often stop after 6 months. We never stopped, we do it every year. The continuity counts. Our efforts never stop. Good product and continued efforts.

### III] Stakeholder theory

#### 8. Increase bargaining power of firms toward local governments

#### 9. Environmental strategy helps companies to get favored treatments from local government

- They benefited from tax-incentives for 5 years but not specifically from environmental behavior. Not decisive. Didn't get any special intention compared to other companies. NN got some help, support from the local government, for example to contact the central government. It gave resources and attention. It only took two months to get the license to start the business

#### 10. Pro-active environmental companies enhancing local environmental awareness can influence local regulations

-NN internationalize with its own standards. Respect of NN standards. By us coming there and introducing our own standards it gives at least a little contribution to that country ability to improve it. We believe that if we stay there and maintain our standards than it can give a little contribution to improve the country. NN does it for its own sake, but of course it also contributes.

- Because of the training programme provided by NN to doctors, nurses, patients in the hospital they had a partnership with the government and world diabetes companies. NN made a pact with the government stating that NN would supply all the training materials, financed by a grant from the World Diabetes foundation, and the government would provide all the time of doctors and nurses and the physical rooms to do the training. Roll out in all China, from big cities to village. The programme was started 5 years ago when he left China. We are seen by the government more as a partner than one just selling products. And it's been very difficult for competitors.

### IV] Other

NN trying to sell the products for the same price all over the world but there are fluctuation of currencies. Equivalent to 1\$ a day.

He thinks that environmental behavior and social responsibilities can be an advantage in the Internationalization process. It is parts of NN strategy to explain what they do and implement things. Communicating very clearly this attitude is going to help us to position ourselves better when going to new markets or into existing markets with new products.

**V] Environmental behavior as a disadvantage towards other companies.**

I can't see how having a pro-active environmental strategy could be a disadvantage. It may be that some parts of your production will be more expensive, if you have to make sure that you avoid emission into the air and the water and monitor your suppliers and so forth ;yes it become more expensive but I think it is an accepted part of doing business.

It may be a financial disadvantage in regards to companies that may not do such efforts, but that is a short-term solution.

**Company:** Novo Nordisk

**Interviewee:** Project Manager - Climate Action

**Date of the interview:** 3/04/2008- 2.30pm

**Length:** 1h 19 minutes

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**Company's environmental behavior: Drivers behind their environmental behaviour.**

- Started back in 1975 due to the fact that Novo Nordisk was a polluting company in form of energy and water. They realized that they had to have an environmental department, the first company in DK that made an environmental report, back in 1994, and the year before the Danish government required that companies had to publish green accounts. They wanted to be ahead of the curve / regulations. You can call it leadership, however, it was more as a way to define their approach, it was seen as due diligence, to be well prepared for what was coming. Since then they have been working on implementing environmental management and rolling it out with ISO certification so that we have **global standards for all sights and that we respect the local environmental standards.**
- In 2006 almost all sites were ISO management system, lacking in China, it is on the way, it has been delayed, but they are working on that- it has a high priority. In the ISO management system we have integrated energy management into that system, so for the moment it has integrated environmental energy and also occupational health management system. And the occupational health side of all production sites are going to be ISO 18 000 certified- this year. We decided to make them integrated. That is the reason for the delay.
- We have become known as the **boy scouts within the industry**, because we comply with anything that is worth complying with. Our approach has been to collaborate with the various standards, the international initiatives and be part of that because then you have a framework from which you then can develop further your approach so it has also been a way to learn - what is the expectations, what is best practice, what is the best approach, so the list of complying is quite long and we have WWF as a partner. We have a long history of collaborating with NGOs and that began in 1970 when Novo Nordisk had a major crisis. The enzymes produced would cause skin allergy for the people in production. But these enzymes were also used for detergents, so house wives would be at risk. The US market was huge and very important. ( Ralph started a

movement) There were a consumer movement to say don't buy these products because they are hazardous to you. So from one day to the other NN lost a great deal of this market. We use it to show how a company can be really caught on the wrong foot if you don't consider stakeholders interest and end user interests. We comply with regulation, we make sure that our shareholders are happy, and house wives considered. So we will never risk being in that situation again.

- In the 1990s great concern about enzymes, NGOs calling the company and asking what they were doing.
- Decided to go into dialogue with the NGOs which led to the stakeholder dialogues that NN since have become very famous for. Many companies are hesitant over for NGOs to let them come and visit.
- In the 1990s we learned that the stakeholders' environment is more than just a few key economic stakeholders. The understanding became the wheel. It was pretty early for the time.
- The two incidents became the basis for NN proactive attitude. So instead of being cornered where you have nothing but to take the beatings, its better to be there proactively and to shape the frameworks that we are working with.
- It has become part of the NN strategy.
- Importance of the triple bottom line on a Global scale. In the US it is more important than in DK where we take it for granted, so the CSR issue is not equally important to each country. However, the focus is increasing and it is important for the employees.
- But it is not customer driven demands.

### **Company's environmental standards:**

The standards are global, and it is equally important from a production perspective.

There is a business case for Novo Nordisk for having this approach- **saving energy- saves money**. In terms of Climate change- saving energy converging to renewable will prepare our business for the future. There is a strong business case for that one. It's an advantage in increasing engagement around us.

The climate strategy is not costs-benefits but driven by values. There is strong business case for doing it. To save energy NN has a collaboration with Dong Energy.

Cost/ benefit of the energy collaboration: If the pay back time comes in less than 5 years it would worth it.

Importance of HEP for NN: Grade: 7-8

The climate change coming up, that has revitalized our focus and made it more important.

- We are a big polluter so climate change has become an important issue.
- The companies that have had wake up calls are the companies staying in front of regulations.
- Aim is to stay in front, and not get near regulation.

NN is a leader in the industry on environmental issues.

CLEAN: Manufacturing programme aiming at optimizing production facilities, water, energy and raw materials.

**Company's perception of environmental regulations:**

To stay in front of regulation. They try to foresee the upcoming legislation in the countries they are operating

**China:**

Beyond local standards, however comply with local standards. In China it is not possible to base our production on renewable energy because NN has to use the nearest local power station that is coal fired. We would like to do better. In China it is uphill. We try to do as much as we can.

- Green field investment in China.

- Relationship building: Over the years a good relationship has been build up with the Chinese government and we have made an agreement with the Chinese academy of sciences to collaborate with them on research. So by working with them, we get access and they give priority to us as a partner. We have earned that due to 10 years of work in the market, the environment is a factor to this but only one of them. In health care, environment is not a major issue for the competitiveness. The important parameters are prices and quality.

New project: The business case of doing business in China. Assumption that our approach to the market, that is a holistic approach rather than just peddling our project – will give us a longer term competitive advantage. Would we have had a lower market share if we had taken a different approach? So it's a way to assess the value of this approach.

Difficult to assess the importance of environmental behavior among the many variables. (Very difficult to Assess the different areas like increase of sales and margins, diminish risk)

When NN was rated super sector leader in DJSI the stock went up 3 %

**Position compared to competitors:**

**Suppliers:**

**Future:**

Transportation area, work with suppliers on raising their level. Water resource management - preliminary stage- due to climate change it can be an upcoming area, however we are not yet doing anything, but looking into it.

Target to reach: in 2014 to reduce CO2 emission by 10% globally on all the productions sites. Reduce use of water and on transportation. In the transportation area, use less air freight and ship instead. But there are many areas where we could do better. Also packaging, size of products and reduce weight of products. Though, we have been reducing our packaging quite a lot over the last couple of years.

How are you planning to implement it: We do the same in all countries!

LEAN program. Increases productivity and thereby increases energy efficiency.

The other lever is Energy saving (we do energy screening every third year) identifying energy potentials. We implement our projects with paybacks of less than five years. This is a very systematic energy management process which has been introduced to achieve our reduction targets and finally we look into renewable fuels and if we can switch to renewable fuels .

- 85 % of our co2 emissions stem from DK because in DK we produce the pharmaceutical active ingredient in insulin that is the very intensive energy part of it- so switching to renewable it would be in DK.
- We go for solutions that work in the places where we are. In France we get energy from nuclear plants.
- Communication to raise awareness about environmental issues within the company.

Look into BSR (Business for social responsibility) they have an office in China- consultancy company.

**I] Neo-classical view: Environmental concerns are not applicable to business and economic thinking**

**II] Competitive Advantage**

**1. Environmental regulation driver to innovation and competitiveness**

There is a strong business case for having HEP. In the last years we implemented 50 energy saving projects and 26 of those had a payback on less than a year. It is definitely cost effective. The DONG energy partnership is cost neutral to us. So I think in a few years we can conclude that the cost effectiveness is there in the case of climate change.

- New guidelines so that if we are building new buildings and improved materials, installments and the pay back is less than 5 years, then it must be done. (In production its five years)

**2. The organization of environmental resources as competitive advantage****3. Environmental strategy as a potential driver to a better quality product, 1<sup>st</sup> mover advantages and barriers to competitors.****4. Environmental strategy as a high reputational enabler (customers)****II] Efficiency****5. Foreign-direct-investment a way to internationalize environmental ownership and reduce transaction costs****6. Environmental behavior as a driver to reduce production costs and make scale economies**

- Production efficiency- use less energy. Increasing energy efficiency.

Calculations over energy saving and environmental cost

- There is a strong business case for having HEP. In the last years we implemented 50 energy saving projects and 26 of those had a payback on less than a year. It is definitely cost effective. The DONG energy partnership is cost neutral to us. So I think in a few years we can conclude that the cost effectiveness is there in the case of climate change.

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**7. An environmental strategy as to mitigate risks**

### III] Stakeholder theory

#### 8. Increase bargaining power of firms toward local governments

#### 9. Environmental strategy helps companies to get favored treatments from local government

- More welcome in new markets due to good citizenships, but not only because of pro-activeness in China and other markets.

#### 10. Pro-active environmental companies enhancing local environmental awareness can influence local regulations

Relationship building: Over the years a good relationship has been build up with the Chinese government and we have made an agreement with the Chinese academy of sciences to collaborate with them on research. So by working with them, we get access and they give priority to us as a partner. We have earned that due to 10 years of work in the market, the environment is a factor to this but only one of them. In health care, environment is not a major issue for the competitiveness. The important parameters are prices and quality.

### IV] Other

We cannot do complete cost/ benefit analysis on big implementations; however, the issue of cost is definitely there.

The environment is not a major issue for our competitiveness since the market, if anything is assumed to be ok.

- LCA on the flex pens.

Products that are made on wind power, that would be great, but in the pharmaceutical business green products is not the most important thing- the quality and price is the important thing.

- It could be good that the Danish government and other governments rewarded companies that have a good environmental management or to somehow incentivize and help build a framework so instead of having a fear of regulation that is constraining, we would rather have a framework that is conducive to a better environmental behavior.

**V] Environmental behavior as a disadvantage towards other companies.**

- As a disadvantage: Can be in the short term ie. To find suppliers that would comply with our standards, but not in the long term.

- Any pharmaceutical has to cut production cost to be competitive, however if you cannot prove that environmental management add value to your project than why would you do it, however that takes it back to the Novo Nordisk approach on not working on the short term, but wanting to balancing the short term competitiveness with the long term sustainability of the business, but other companies would maybe do it differently.

‘Advisor’ an American oriented company that is under pressure they have to cut cost and it would be or not vital areas like environmental issues.

**Company:** Vestas

**Interviewee:** Senior strategy manager

**Date of the interview:** 20/06/2008 1pm in Denmark

**Length:** 20 min

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**Company's environmental behavior:**

**Company's Environmental standards:**

**Company's perception of environmental regulations:**

**China:**

Economic investment zone: There are certain incentives in that zone. Tax holiday, percentage of tax paid lower in the first year though not especially related to HEP.

Purified industry of China: tax breaks, still thinking about increase further tax break for companies investing in technologies, high technology (national priority), however they don't want to give unreasonable advantages to foreign companies compared to Chinese companies. Same advantages as any other firm setting up.

Right now the Chinese government is re-looking at their legislation and on what can be considered high technology industries and green-industries. There have been a number of changes but it is not finalized yet.

"We are in an industry that they are prioritizing but they are working hard as well to build their own industry in this." Vestas Senior strategy manager

Advantage from being a green brand: the investment zone works to attract some industries such as the wind industries. The investment zone has the strategy to attract some of the few industries that are within the renewable industry. We didn't get direct advantage but it has been a Targeted approach of the government to attract this kind of investment for that kind of investment zone.

It was our own decision to go to China: However the driver to enter China was that the Chinese government set up a local- content-requirement law stipulating that 70 % of the wind turbine that would be sold to China would have to be produced locally. It was a deliberate initiative from the Chinese government to attract foreign companies and benefit from know-

how and technology and competencies spillover to the domestic industry in the production area. Some competitors are working in the same zone.

Vestas also went to China for the Market.

Drivers in China: the need for the Chinese government to become energy independent (they are interested in the environment but it is not the main factor. However, the Chinese government does appreciate companies that do produce in a respect of the environment. It is not the focus of Vestas customers, which think it just makes the turbine more expensive.

**Position compared to competitors:**

High pressure coming from the Chinese competitors. They know what they are doing, and foreign companies get bitten by Chinese company because they have a very high learning curve, a huge local market, meaning that in terms of production facility they can buy a very high level and it generates huge amount from volume and scale. Very often they have a very Lean, flexible and efficient supply chain. The problem is that many European companies are too slow at realizing that there is a real competitive stress coming from the Chinese manufacturer.

You have – global competitors, emergent Chinese competitors and other foreign competitors= intense competitive landscape. Main impediment for those companies they have no knowledge and understanding of China and the Chinese culture in the top management. Fortunately, Vestas CEO worked and lived 8 years in China.

**Suppliers:**

Vestas uses a lot of suppliers in its production. In Shanghai it is supply chain office finding and approving suppliers in china and in the rest of the world. Supply development in Vestas in most country. You go through the entire company (supplier) in regard to see how they behave in regards to purchase, sales, management, environment and safety. They are evaluated on this questionnaire to become or not Vestas suppliers. In some cases, the supplier standards were too different compared to Vestas' ones therefore Vestas didn't accept to work with them unless they were changing their behavior. They made plans on what should be improved. Sometimes major investments must be done. Vestas, follow up on that to make sure they follow up the plan.

If the suppliers harm the environment Vestas go out and get some new ones. Vestas help its suppliers, it provides them expertise. For strategic suppliers Vestas can pay an overprice if that money is dedicated to environmental or safety related issues.

14 001 and ILOs standards.

Vestas is growing too fast; they are working to do worldwide standards.

**Future:**

Hopefully pro-active environmental behavior will become a competitive advantage in the future. It will depend on how conscious people are and become. Danes want to keep their car even though the price of oil is increasing (article in Politiken). This kind of article states that there is still a long way to go.

**I] Neo-classical view: Environmental concerns are not applicable to business and economic thinking**

**II] Competitive Advantage**

1. Environmental regulation driver to innovation and competitiveness
2. The organization of environmental resources as competitive advantage
3. Environmental strategy as a potential driver to a better quality product, 1<sup>st</sup> mover advantages and barriers to competitors.
4. Environmental strategy as a high reputational enabler (customers)

Do they brand their companies to differentiate from their competitors: In China cannot be a CA. Very limited. In other places yes it is important green product produced in a green way too: possible to market it in Europe and in America.

**II] Efficiency**

5. Foreign-direct-investment a way to internationalize environmental ownership and reduce transaction costs
6. Environmental behavior as a driver to reduce production costs and make scale economies
7. An environmental strategy as to mitigate risks

**III] Stakeholder theory**

8. Increase bargaining power of firms toward local governments

**9. Environmental strategy helps companies to get favored treatments from local government**

**10. Pro-active environmental companies enhancing local environmental awareness can influence local regulations**

The relationship you get is the relationship you earn through your actions. It's not only that you are green and you come in and you get good relationships it doesn't work like that. You need to earn it through your engagement with the Chinese stakeholder. The relationship capital that you have you earn through your actions.

#### **IV] Other**

Because you are a green company can you increase sales and margins: not at all, not in anyway.

Do you gain efficiency: global standards, same criteria for our factory. Very high quality in our turbine. High pressure coming from the Chinese competitors.

There are no different prices in China than in USA: Global price level even though some adjustments to market levels.

**V] Environmental behavior as a disadvantage towards other companies.**