A genre perspective into communicating about environmental issues on corporate web sites in the oil and gas industry

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Objective of the study

> The overall objective of this thesis is to find out if it is possible to establish the existence of a (sub) genre within the wider genre of a corporate web site. Efforts are made to explore the (sub) genre of "Communicating environmental issues" on the web sites of oil and gas companies. In order to accomplish the objective, the following research question is put forward: "Is it possible to establish the existence of a (sub) genre for communicating environmental issues on the corporate web sites of companies operating in the oil and gas industry?"

Methodology

> The main research question was examined through a detailed genre analysis of sections regarding environmental issues in corporate web sites of selected oil and gas companies. The model of genre analysis adopted for the study is a synthesis between two models of genre analysis: one pertaining to the English for Specific purposes School, created by Bhatia (1993), and one that was conceived for web mediated texts, created by Askehave and Nielsen (2004).

> Data for the present study were collected directly from selected companies' web sites. Particularly they are text or part of texts focusing on the impact of the companies' operations on the environment, obtained from the section describing the Corporate Social Responsibility activities of the selected companies

Findings

> The findings underline a common pattern in describing environmental issues in corporate web sites of selected gas and oil companies, confirming the possibility to identify a (sub) genre.

Keywords

> online corporate communication; corporate web site; web mediated genre; genre analysis; international business

communication

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1 INTRODUCTION

1.1 Background

Today the Internet is the quickest and the most adopted instrument to gather any kind of information. When we say that the Internet caused a true revolution in gathering information, this statement is more than a conventional truth.

The World Wide Web - the platform that the Internet adopts - is used by almost all the population of the world every day. Every day we check emails, we chat with friends on line or we need to find some information on the Internet; one of the innovations that WWW brought is the way information is conveyed, accessed and shared. Today information is accessed faster by the Internet users than before. In this regard also most of for profit and non profit

organizations´ activities have become part of public domain, checked by the public and allowing the audiences of organizations (all stakeholders) to monitor them constantly.

Among all the activities carried out by organizations, those related to Corporate Social Responsibility are exposed to most criticism by the general audience. This stems from the natural difficult conciliation between CSR activities and business purposes. Furthermore, CSR activities are generally perceived as more challenging in those industries where the ordinary daily business operations of a company are seen as dangerous by the stakeholders. The oil and gas industry´s ordinary business operations are examples of so called *perceived dangerous activities* by the public. As a matter of fact, the worst environmental disaster ever was caused by Exxon Valdez, a company operating in the oil and gas industry.

The ordinary operation of shipping oil can in this sense be seen as a serious threat to the environment, having a big impact on CSR issues for an oil and gas company. Therefore for a company operating in the oil and gas industry, CSR policies and issues, especially the activities related to the environment, are monitored with more attention by the public than for a company which operates in an industry where the ordinary business activity carries lower perceived environmental risks. In addition, today information concerning the potential dangers of oil and gas companies can be found by anyone from the WWW, resulting in a deep awareness of various audiences on the CSR activities undertaken by those companies.

1.2 Research questions and research gap

On the basis of the above issues, the present thesis will focus on the corporate

web sites of selected companies belonging to the oil and gas industry. It will examine genre related factors of corporate web sites with the particular focus on environmental issues as a part of CSR.

Particularly the research questions are:

- **Is it possible to establish the existence of a (sub) genre for communicating environmental issues on the corporate web sites of companies operating in the oil and gas industry?**

- **If yes, which are the characteristics of this (sub) genre?**

The research questions arise since no previous studies seem to exist that would investigate communication of environmental issues in corporate web sites of oil and gas companies. Furthermore, in business communication it is vital both for research purposes and for business ones, to focus on genres which are most commonly employed in business contexts – such as web sites are today-, in order to improve communication.

1.3 General background on Corporate Social Responsibility and environmental communication

According to Grayson & Hodges (2004) Corporate Social Responsibility (CSR) is a concept whereby organizations consider the interests of society by taking responsibility for the impact of their activities on customers, suppliers, employees, shareholders, communities and other stakeholders, as well as the environment. This obligation is seen to extend beyond the statutory obligation to comply with legislation and sees organizations voluntarily taking further steps

to improve the quality of life for employees and their families as well as for the local community and society at large. This tendency of adopting a self imposed responsibility is originated by a gradual concern by the stakeholders in the company's activities, especially those ones which may have negative consequences when carried out. And in the oil industry the possibility to incur in activities with dangerous outcomes is quite high. (e. g. the Exxon Valdez disaster that was mentioned in the introduction).

G & H (2004) further argue that since CSR activities are demanded to a great extent by the stakeholders, it is possible to see CSR activities as originated by a pull process instead of a push one. It is a response to a precise need of the customers, the need to act ethically. This leads to the consideration that companies, when promoting CSR, have to adapt themselves to the market in this case to all company´s stakeholder. As a matter of fact, in marketing, when a product is pull driven (production of a service or product is only demanded by consumers and does not originate as an idea from the producer), the producer has to fulfill the request of the consumers, by creating the product or service needed and to shape it according to the customers. This is exactly what CSR aims at. It is likely, therefore, that sections regarding CSR web pages are created to accomplish this goal. In this regard it is expected that companies know accurately the consumers attitude toward CSR.

Carrol (1991) proposes a model of CSR activities carried out by companies, especially for those operating on the oil and gas sector. In his pyramid model there are four layers through which CSR policies are generally developed: economic, legal, ethical and philanthropic. The first two layers fulfill the need of the company to be profitable, to distribute dividends to the shareholders, and to operate according to the laws. The second two layers, the ethical and the philanthropic, accomplish different needs. The ethical layer responds, as stated above to the customer will of morality, meanwhile the philanthropic layer does

not respond to any apparent need of the stakeholders, but it is a spontaneous commitment that the company undertakes in order to demonstrate its natural and uninfluenced interest in CSR activities. However, according to Carrol (1991), stakeholders especially those related to western based companies do care about this. In this regard it is particular to notice that if a company fails to accomplish the ethical layer it will be considered by the audience as immoral; meanwhile if it is not philanthropic, no immediate and tangible consequences will be seen on the perception of the company. In the global oil sector, the ethical dimension plays a crucial role in the way corporate communicators diffuse their CSR view to the external world, especially in terms of brand building. In this regard it is expected that corporate web sites of the selected companies, all western based, present many aspects related to the ethical layer of CSR.

Carrol´s model (1991) is particularly suitable for CSR activities undertaken by Western companies, where the philanthropic layer is considered at the top of the CSR activities. This stems from the fact that the western audience, western stakeholders expect companies to exceed the statutory needs, by undertaking extra obligations which demonstrate a commitment to causes considered relevant for the stakeholders themselves.

Graph 1. Carrol CSR Pyramid, developed countries

Carroll, 1991

» CSR Pyramid

Philanthropic
*Be a good Corporate Citizen

Ethical
*Be Ethical

Legal
*Obey the Law

Economic
*Be Profitable
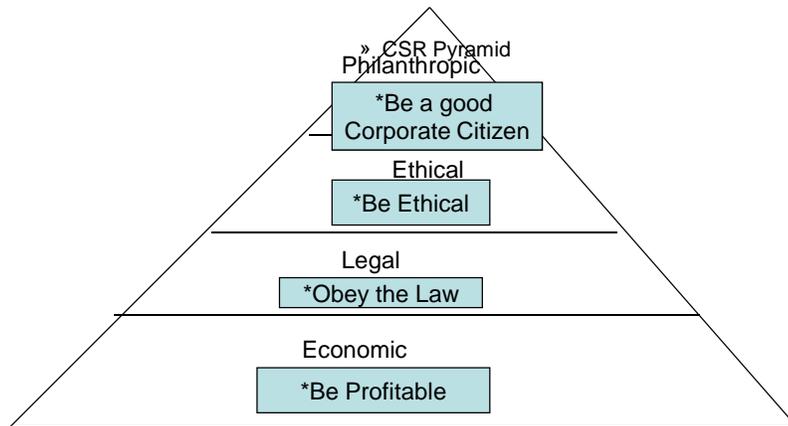
5

It is to be noted that, for the developing countries the pattern of CSR issues is not the same as for Western countries. Visser (2007) in his studies reviews the pyramid of Carrol (1991) reordering the layers according to the stakeholders of oil and gas companies of the developing countries.

Graph 2.Visser´s CSR pyramid for developing countries

Visser's CSR Pyramid (2007)
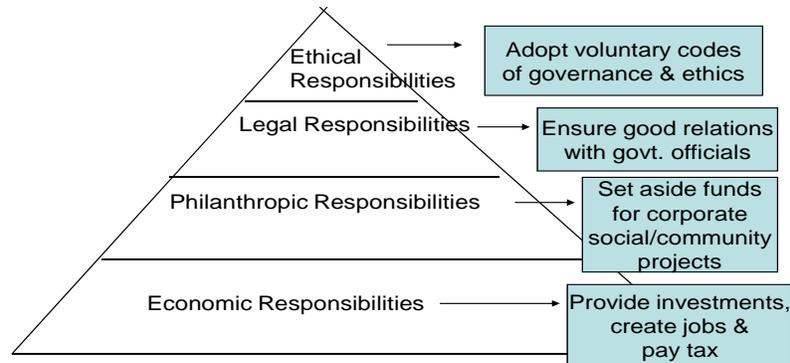
Since the sites examined will pertain to companies operating in the developed Western world, it is possible to assume that the information displayed by the Internet web sites examined will reflect the pattern of Carrol by putting more emphasis on the philanthropic and ethical aspects.

If we look at both models we can see that the economic layer is at the basis of each pyramid and this stems from the fact that the main purpose of any for profit organization is to have a return on the capital invested both for in western developed countries and in developing countries. After the first level in the developed countries the importance of the legal aspect of CSR is emphasized. In this regard in western countries is highly important to operate and communicate that the company operates according to the law standards. The legal layer in the developing countries takes the second position just after the top of the pyramid, while just after the base of the pyramid it is possible to find the philanthropic layer. In the developing countries, as a matter of fact, it is crucial to be philanthropic especially to communicate a total commitment to local communities, which will certainly look as beneficial to the company operating in the community. Lastly, to be ethical is highly

emphasized in both the developed and developing countries.

Within the wider umbrella of CSR issues the topic of environmental communication also constitutes fundamental background for the present study.

In his book "Environmental Communication And The Public Sphere" Robert Cox (2006) defines Environmental communication as the study and practice of how individuals, institutions, societies, and cultures craft, distribute, receive, understand, and use messages about the environment and human interactions with the environment. This kind of communication, includes a wide range of possible interactions, from interpersonal communication to virtual communities, participatory decision making, and environmental media coverage. Environmental communication as an academic field emerged from interdisciplinary work involving communication, environmental studies, environmental science, risk analysis and management, sociology, and political ecology.

According to Cox (2006) environmental communication is also a type of symbolic action and can serve as two different functions Those functions are pragmatic and constitutive. Cox (2006) argues that environmental communication is pragmatic because it helps individuals learn and focus on environmental problems. An example of this would be a group of protesters trying to save trees by rallying people together to help. Further environmental communication is constitutive because it places environmental problems in a way that people can understand them. An example of this would be trying to minimize the use of resources now, so in the future there will be resources for people to use. Usually companies involved in environmental communications aims at fulfilling both functions in order to communicate a deep involvement in these issues.

Previous studies on how companies communicate their involvement in environmental issues have been carried out by e.g. Richard G. Peters, Vincent T. Covello, and David B. McCallum. In their paper "The Determinants of Trust and Credibility in Environmental Risk Communication: An Empirical Study" (1996), the authors study trust and credibility of companies in environmental communication among citizen groups, industries and society. They found out that such variables as trust and credibility are differently perceived by companies and the society. This gap in conceiving environmental communication has an important implication for companies. As a matter of fact, corporate web sites should be constructed with this aspect in mind.

Other studies in environmental communication have been carried out Davis (1995) who his article "The Effects of Message Framing on Response to Environmental Communications" demonstrates how framing messages in environmental communication give positive responses by the audience. In this regard companies that take this aspect into consideration when communicating environmental issues will have a more "environmentally educated" audience.

The present study focuses on environmental communication; therefore, this brief overview of CSR issues and earlier studies in environmental communication was presented.

1.4 Structure of the thesis

The research questions will be answered by analyzing generic features of corporate web sites of selected oil and gas companies in sections dedicated to environmental issues.

In order to achieve the results, the thesis will first present a literature review on genre, genre analysis and previous studies on corporate web sites, which provides the theoretical foundation for the study. In the literature review, two models of genre analysis will be presented, which will represent the substantial part of the theoretical framework of the study.

The study will continue with a deep genre analysis of sections displaying environmental issues on web sites of selected companies according to the genre analysis models presented. A particular focus will be given to the language adopted and the possible different audiences involved. The companies examined operate in three different countries (Finland, Italy and Canada). In addition, all the companies studied, as stated above, belong to the same industry (oil and gas industry).

The choice of Italy, Finland and Canada for the present study stems for the fact that all three belong to the so called *industrialized world* and at the same time they all belong to three different *cultural clusters*, i. e. the Latin cultural cluster, Nordic cultural cluster and Anglo cultural cluster (Robbins & Stylianou, 2003 p. 208). Identifying the generic features through companies belonging to different cultural clusters will show how the web sites are managed according to

different cultural factors. The language adopted in the analysis will be English, since all the companies selected present a web site in English and operate worldwide. The ultimate objective of the genre analysis carried out on the sections communicating environmental issues is to verify the presence of common characteristics that allow confirming them as a (sub) genre.

In Chapter 1 an overview of the study is presented and Corporate Social Responsibility and environmenal comunication are defined and discussed.

In Chapter 2 related literature and related studies to this thesis will be presented. The theoretical background used in this study will also be introduced. The aim in presenting previous related studies and literature is to show how this thesis aims at filling the existing research gap.

In Chapter 3 the methodology adopted will be introduced and explained.

In Chapter 4 findings will be presented and in Chapter 5 the findings will be discussed.

The data collected for this study is included in the present report as Appendixes 1,2 and 3.

2 LITERATURE REVIEW AND THEORETICAL BACKGROUND

In this literature review the concept of genre will be introduced and two genre analysis models will be presented. These are the core concept for the foundation of the whole study.

2.1 Previous studies on genre

In communication, and also in business communication, the term "genre" refers to a distinctive type of text, with a specific function or purpose, which is characterized by the rules owned both by the sender and the receiver of the message (Swales, 1990, pp. 24-26). Therefore, it is possible to encounter a genre every time a sender and a receiver of a given message share a common framework on the basis of which they understand each other.

When introducing the term genre, scholars quite often also speak about genre analysis, which commonly refers to the study (or better analysis) of a single genre. In the field of applied linguistic it is possible to identify three schools of genre analysis: English for Specific Purposes, which includes such major contributors as John Swales (1990) and Vijay Bhatia (1993) and analyses text through a linguistic point of view; the new Rhetoric School, whose most prominent authors are Carolyn Miller (1984), Charles Bazerman (1994), JoAnne Yates & Wanda Orlikowski (1994), Carol Berkenkotter & Thomas Huckin (1995)

and its starting point is that genres are used to build social structure and using genres reproduces these structures; and finally the Australian or Hallidayan school, which takes the name from its most prominent contributor Michael Halliday (1964), and is employed mainly in educational contexts.

Within the discipline of business communication, the emergence of studies adopting the concept of genre in recent years may be attributed to its suitability in investigating the new and changing business environments (Kankanraanta, 2005, p. 32), especially those where the influence of the Internet and other new technologies is mostly evident. Current genre research aims at creating some 'order' to the 'chaos' of the business world by identifying and analyzing various types of action, situations, and documents that seem to recur when business is conducted (Kankaanranta, 2005, p.32) and today business is conducted using the Internet and new technologies to a great extent. The need of order when dealing with genres in business communication stems from the fact that it is impossible to establish exact boundaries in genres, because genres per se are vague, and they are formed by sets of conventions, and many communicative acts cross into multiple genres by way of borrowing and recombining these conventions. This master´s thesis will investigate these boundaries in corporate web sites as stated in the section 1.4, utilizing two models of genre analysis, one belonging to the traditional school of English for Specific Purposes of genre analysis (Bhatia, 1993) and one introducing an innovative approach to genre analysis for web mediated genres (Askehave & Nielsen, 2004).

2.1.1 Genre and context

Genres are studied within a specific context. Context can be defined, for example, as "the set of conventions, circumstances or facts that surround a

particular event or situation" (Wordreference Internet Dictionary definition) or a particular occasion when the sender and the receiver of a message share "something". This "something" is partly the context. As Kankaanranta (2005, p. 32) points out today in business communication research it is considered crucial to study genres in their contexts. This is also because of the fact that genres are seen to be situated in the locations where they are used, and they should be studied in these actual social contexts of use (Berkenkotter & Huckin, 1995, p. 2). In this sense the researcher attempting at studying genres, focuses his/her attention on the moment, on the particular social situation analyzed (Bhatia, 1993, pp. 22-36), without any attempt to draw universal conclusions.

In this regard notions of social constructionism (e.g. Berger & Luckman, 1966 ; Bruffee 1986) and intertextuality (Bakhtin, 1986) contribute towards a better understanding of the concept of context. In addition also the concept of the so called "psychological element in genre" (Bhatia, 1993) is an important characteristic of the genre.

2.1.2 Genre and context: Social constructionism, Intertextuality and the "psychological element"

Social constructionism

Social constructionism refers to the thinking that the reality "created" by the context, when an exchange of messages occurs, is constructed by like-minded peers and is not identifiable as an objective one (Bruffee, 1986, p. 774). Within this perspective genre is considered to function as a mediator between the particular and the surroundings, that is, the text and the social context with its multiple situations Devitt 1993, pp. 577–580). Furthermore Devitt (1993) underlines the interconnection between genre and the context "when we as

readers recognize the genre of a particular text, we recognize, through the genre, its situation". According to this point of view, genre helps to identify situations and these, (situations) create a genre. By this perspective genre analysis can be seen as a circle, in which genre and context influence each other.

The reader can understand genre specificity by the lexicogrammatical choices of the text (Askehave & Nielsen, 2004, p. 6). As a matter of fact if we incur an expression such as "mix well for approximately 5 mins.", we immediately recognize a recipe, whereas when reading "According to the section X of the paragraph Y this act cannot be applied to the discipline of subcontracting", it is possible to infer we are dealing with legal acts. Moreover Rubin (1988, p. 1) points out this aspect very clearly and gives a simple account of how written discourse and the social context are intertwined: "written discourse is shaped by the social context in which it takes place" and "writing (and the activities surrounding it) shapes social contexts. Social contexts and written discourse stand in a reciprocal, mutually constructive relationship, one to the other".

It is also possible to assume that the context of the genre examined in this thesis, (the Internet and the Internet communities) has a stronger influence on the genre studied here (corporate web sites) than other texts transmitted by a non mediated way. This derives mainly from the way of communicating that the Internet requires. The Internet, with its capability to display information by just a click, evidently shapes the various texts and any other communication elements written on a web site. As a matter of fact an Internet user can see the main common pattern of this "shaping" action on which web sites are built: the most user friendly display possible in order to facilitate the navigation. In this sense an Internet web site has the aim to convey the desired information as quickly and as efficiently as possible. This particular aspect will emerge in the

sections dedicated to the selected corporate web sites.

However it must also be underlined that a single genre, e.g. a corporate web site, is not created overnight (Askehave & Nielsen, 2004, p. 7), but it may take years before the members of a discourse community agree on a conventional response to a recurring situation. Therefore, also to establish corporate web sites as a genre - as identified for instance by Crowston and Williams (2000, pp. 201-216) - has taken long time.

Intertextuality

Another pattern through which genre can be studied, is intertextuality, which is a mere linguistic feature instead of social (such as the context). As the word suggests, intertextuality refers to an influence or a mixture of a previous genre in the creation of another. From this perspective it is evident that genres are intertwined and without exact boundaries. This development in genre study, starts from Bakhtin's work (Bakhtin, 1986, p. 89), who views any discourse as split in utterances and points out that "utterances are linked to previous and subsequent communicative events" and he continues "our speech . . . is filled with others' words, varying degrees of otherness and varying degrees of our-own-ness". From this perspective also corporate web sites could be seen a genre partly derived from non-electronic and non-mediated texts containing corporate information such as catalogues, memos and other paper documents. The intertextuality on corporate web sites can be noticed by the fact that they absorb many aspects from other genres. They share, for instance, graphic aspects. Like in graphics, corporate web sites are a combination of texts, illustration and colors as well. They also share elements of genres typical of written reports. As a matter of fact, in corporate web sites it is possible to see the style and tone of reports; for instance in sections describing

the history or the business of companies the style typical of a report is particularly evident.

The psychological element in genres

As stated above in subchapter 2.2.1 "Genre and context", genre analysis situates texts within textual and social contexts, underlining the social nature of the production and reading of texts (Chandler, 2000, p. 1). However in order to better understand genre analysis, Bhatia (1993, pp. 19-21) introduces another element: the psychological element. According to this viewpoint the investigator tends to apply a mere tactical view on the construction of genre (Bhatia, 1993, p. 20). In this regard, when considering the psychological aspect, genre is seen dynamically, and is not considered as static. This stems from the fact that according to this approach, the writer (or any sender of a message) can use a particular linguistic form in order to influence the audience psychologically. Examples of these methods are news written with a particular emphasis or sensationalism, creating an emotive movement in the readers. Furthermore Bhatia (1993, p. 20) adds that when studying genre according to the psychological view, generally the senders of the message adopt certain psychological strategies. These strategies are not discriminative (Bhatia, 1993, p. 20) in the sense that they do not change the natural purpose of the communication (inform-promote); however, they have a strong and in some cases subtle and decisive psychological influence on the audience. The psychological influence of corporate web sites is obtained in most of cases by mental associations that the Internet users make, caused by the contents and the delivery of the web site.

2.2 Previous genre based studies on corporate web sites

In business communication research today the study of corporate web sites is considered more and more important in order to understand particular differences and specificity among textual and social contexts, and web sites present new forms of textual and social contexts. However, corporate web sites as genres have not been explored to a large extent in business communication research; especially the genre features of CSR related communication incorporate web sites do not seem to have been examined previously.

Previous studies on web sites have been conducted by Crowston and Williams (2000, pp. 201-216), who refer to web sites, particularly personal web sites as an "emergent" web-genre rather than a "reproduced" one. In addition, focusing on personal web sites, Bates M.J. & Lu S. (1997, pp. 331-340), Chandler D. (1998, p. 3), and Dillon A. & Gushrowski B.A. (2000, 51a pp. 202-205) identify structural characteristics of personal web sites, including the presence of personal information about the creator, number and patterns of hyperlinks; layout; presence of formulaic welcome messages; and iconographic and technical features. Similar characteristics can be found in corporate web sites as well. Instead of personal information they display "corporate information", usually shown on the welcome or home page. (Robbins & Stylianou, 2003, p. 207). This "corporate information" generally covers the history, the core business and peripheral businesses of the company, career possibilities and information regarding the company's corporate citizenship. This corporate social responsibility section will be particularly explored in the present thesis. However, although it is possible to draw a clear parallelism between personal and corporate web sites, underlining the common *features* of both, the web sites created for business purposes deserve a more focused, specific investigation. A personal web site has indeed a different sub purpose and in

most cases a different audience than corporate web sites. The information displayed by a personal web site has a mere informative purpose while information accessible on corporate web sites aims at reinforcing the business activity the company is involved in.

Crowston and Williams (2000, pp. 201-216) discuss the "emergent" or "derivative" nature of corporate web sites. They refer to the work of Bhaktin and his intertextuality pattern and argue that as a genre per se corporate web sites are for sure "emergent", in the sense that they carry an innovative way of conveying information, and their mix of contextual, linguistic and psychological features are unique, but they also "reproduce" characteristics of other genres (graphics or reports as cited above). Therefore, according to the Bhaktinian approach it is clearly possible to see the intertextuality characteristics on corporate web sites.

2.3 Bhatia´s genre model

Bhatia (1993, pp. 13-41) considers five elements for genre analysis. These are: purpose, content, channel of transmission, audience and form. This model pertains to the English for Specific Purposes school of genre analysis, and many researchers argue that in order to better understand such web based genres

as corporate web sites, we need new typologies of genre analysis. Therefore, in section 2.4 another model will be provided that better completes the analysis of web mediated genres. The purpose of presenting Bhatia´s model first, is to show how traditional genre approaches present genre, and also that they may not anymore be fully exploitable for texts produced in the Internet era.

Purpose

As argued above (Crowston & Williams, 2000) corporate web sites present distinctive characteristics that permit scholars to define them as a genre. They also have particular characteristics or so called "web features" that distinguish them from other types of media (Madeja & Schoder, 2002, p. 1). In this thesis a model of genre analysis drawn by Bhatia (1993) will be illustrated. According to Bhatia, the primary element to define a genre is its purpose, and a secondary role is given to other elements such as content, form, channel of transmission and intended audience.

Considering first the purpose, as suggested by Bhatia it is possible to say that the main purpose of corporate web sites is to give information. However, the kind of information displayed, is not only informational, in the sense that corporate web sites do not only want to inform, by displaying for instance facts or data about companies. The purpose is rather "informational-promotional": with a corporate web site a company informs its audience (all stakeholders) of its products and/or services. When promoting its products, the company automatically differentiates its offer from others. All the characteristics of differentiation are remarkable in companies´ web sites. The first element of differentiation that an Internet user catches, when incurring on a corporate

web site is its distinctive colors and its distinctive logo. These elements accompany the visitor of the site during all his navigation in all the web pages of the company. The purpose of the company by displaying these elements is to constantly remind the user, mostly indirectly, about the company. Specifically, the aim is to install in the mind of the user a mental association (logo-company, distinctive colours-company). This action pursued by the company has an important impact on Internet users and consumers, who, when recognizing, either consciously or not, the logo or colours of the company in the moment of purchasing a product are mentally "reinforced" to purchase products or services of the company which they recognize in the logo or the company colours.

In this regard the psychological element of genre described by Bhatia and cited above is particularly important.

Content

Content features are informative-promotional, as also mentioned above. They inform visitors about the company. The information obtainable through a corporate web site is clearly identifiable in its homepage; it includes: corporate information, communication/customer support, currency, financial information, employment opportunities and social issues (Robbins & Stylianou, 2003, p. 207).

Corporate web sites generally share the same contents. Identifiable also in their homepages, these include: search capabilities and site maps, a feedback mechanism, privacy policy statement, security information and location information By clicking on each section it is possible to display further detailed

information about them. (Robbins & Stylianou, 2003, p. 207)

Audience

Companies´ web sites are addressed to all the stakeholders and all possible visitors of the site. In their paper "Organization of Corporate Web Pages: Publics and Functions" Esrock & Leichty (2000, p. 327) point out that the most frequent combination of various publics addressed by a generic web site content are investors/customers/press. This fact can be seen by the information displayed and the tone in which the information is written. As a matter of fact the information available on corporate web sites varies according to the degree of specificity, from which different Internet users can benefit. Different stakeholders have different needs and since a corporate web site is addressed to all stakeholders, it has to satisfy all the stakeholders, tailoring messages for the concerns and interests of a diverse audience (Esrock & Leichty, 2000, p. 328). Therefore, a corporate web site is built taking this aspect into consideration. For example investors interested in the company can gather detailed information in the annual report and, based on this, define their investment strategies. Similarly recently graduated students can search in the page to gather info on the company´s hiring practices. The most difficult challenge in this sense is to build web sites that have to promote a sense of uniqueness and corporate identity while balancing the addressing to a varied audience. (Esrock & Leichty, 2000, pp. 329-331)

Channel of transmission

The channel of transmission is the Internet. The Internet is characterized by its rapidity in displaying information. And, as stated above, corporate web sites are built around this concept. This medium presents unique characteristics, such as instant accessibility on information and possibility to interact simultaneously (Dholakia & Lopo, 1998, pp. 724-725) that have a strong impact both on the audience and the form.

Companies aim at making the access easy for the user in order to facilitate and to promote further visits. Therefore, a user friendly interface is favoured and a use of appealing colour patterns to the Internet users is accurately adopted.

Form

With the term form in traditional genre analysis we refer to common lexicogrammatical structures in which the text is delivered (Askehave & Nielsen, 2004; Bhatia, 1993). The form in which corporate sites are written shares many features of other communication modes. For instance, corporate web pages take many linguistic and rhetorical features typical of reports. Reports are usually characterized by their informative tone and their persuasive elements and recommendations. Therefore, the writing style of corporate web sites should also include these rhetorical characteristics.

2.4 Askehave and Nielsen´s genre model

The previous chapter identified particular features characterizing corporate web sites according to Bhatia´s genre model. The elements presented demonstrate the unique features of corporate web sites and the innovative genre´s peculiarities.

According to Askehave & Nielsen (2004, p. 2), genre analysis of web pages must be carried out within an innovative perspective. They stress the fact that since web mediated genres present a new way to produce and read text, a new genre analysis model has to be introduced. In this regard the two authors emphasize the fact that the internet plays a crucial role in determining web sites as genre. In fact, according to their perspective, the Internet becomes an integrated part of web genres. In this regard, they do not argue that in genre analysis there would be one element more important than others, such as the purpose was for Bhatia (1993).

This aspect was already pointed out by Macluhan (1962) who noted that in media studies the "medium is the message". This aspect was not mentioned in the previous model by Bhatia who approaches genre analysis within a "traditional" perspective of the English for specific Purposes School.

For these reasons the Askehave and Nielsen genre model (2004, p. 17) is considered more appropriate for this thesis.

2.4.1 Particular characteristics: multimedianess, hypertextuality, "navigating mode" and "reading mode"

The model proposed by Askehave & Nielsen (2004, p. 12) starts with the premise that on web sites there are two important characteristics to be explored at a first glance. These are multimedianess and hypertextuality.

Multimedianess is a characteristic that consists of the simultaneous combination of texts, images, sounds and animation. This characteristic favours the reader´s participation which is motivated to listen to sounds, to read texts, and to watch images. With this rich polysemous potential the web user is "invited" to participate actively in assigning meaning in the process of text consumption (Landow, 1997; Bolter, 2001).

Hypertextuality is another characteristic that enables the reader to read texts on the Internet with a non-linear transmission of information. Commonly a hypertext is defined as a system of non-hierarchical text blocks where the textual elements (nodes) are connected by links. This definition is drawn on the basis of how hypertexts are accessed by the reader and not on how they are structured (Landow, 1997; Bolter, 2001). From this it is possible to infer that there is no clear distinction between text production and text consumption (Landow, 1997; Bolter, 2001). In addition with a hypertext the reader can choose his own path of reading, and in this regard the reader becomes an effective web author, in the sense that the web user becomes the author of the text he is reading on the web. Therefore this process can be called "hyper reading" and not "hyper texting" (Sosnoski, 1999, p. 135). The non linear transmission, and consequently the non linear reading, allows the reader to choose what to read.

The hypertextuality characteristic has an innovative impact on the formulation and reading of texts. Traditionally, we are supposed to read a book from chapter one to chapter two, but in a hypertext this is not the case. In a hypertext the reader has the total control over the text. However, as Finnemann (1999, p. 7) points out, the reader cannot escape from sequential linearity, since he can make only one choice at a time. This feature could be described with the following graph:

Graph 3. Ordinary text path vs. hypertext path

After having analyzed multimedianess and hypertextuality, the core concepts for the new genre model of Askehave and Nielsen (2004, p. 17), in a study of web sites it is necessary to focus on two other aspects suggested by Finnemann (1999, p. 27). These aspects are also the foundation of the Askehave & Nielsen model (2004, p. 17); i. e. the navigating mode and the reading mode. The characteristics are typical of hypertextuality.

The reading mode leaves the user in a traditional reader position with

sequential reading, while the navigating mode allows the reader to navigate the site and proactively construct his/her own reading path (Finnemann 2001). Thus, the reader demonstrates two different cognitive capacities and two types of behaviour when moving between the reading and navigating modes. This capability of shifting, typical of the Internet and hypertextuality is central for the proposal of the genre model of Askehave and Nielsen (2004, p. 17). As we have seen in the genre literature above it is possible to infer, that in traditional genre analysis of Bhatia´s model, purpose and textual characteristics play a significant role, usually leaving just a secondary role to the medium. However, in their genre model Askehave and Nielsen give a strong emphasis on the medium employed, considering hypertextuality as a fundamental variable to be added to Bhatia´s dimensions.

The model can be graphically represented as follows:

Graph 4. (Askehave and Nielsen 2004, p. 17)

Navigating Mode

Medium

Communicative purpose

Links/moves

Rhetorical strategies

Text
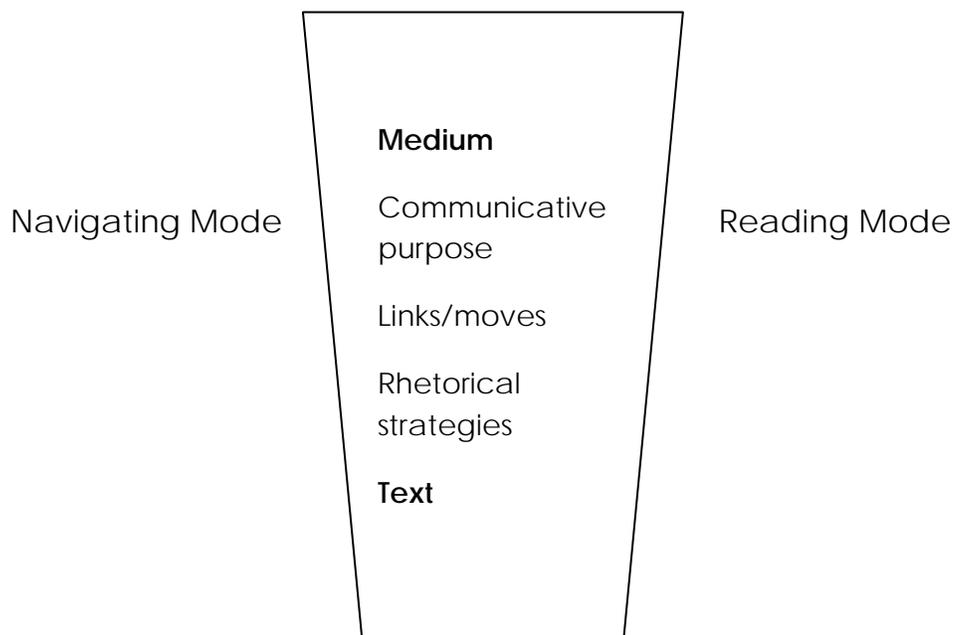
Reading Mode

The genre model presented above has the following implications:

- User shifts from acting as a reader to acting as a navigator

- Shifts are always circular, the change between navigation and reading is constant

- When in the reading mode the user "treats" the text as if it was a printed one

- When in the navigation mode the text is "treated" as a mere medium

In the following section a more detailed discussion on analysing a corporate web site according to the Askehave and Nielsen model (2004, p. 17), will be presented.

2.4.2 Analysing of a corporate web site according to the Askehave and Nielsen Model.

Askehave and Nielsen (2004, p. 17) propose a model which includes the communicative purpose, functional units and rhetorical strategies of the genre to be considered from the perspectives of the navigating and the reading modes. Therefore, drawing from their analysis, a general analysis of web sites will be discussed, focusing on both the reading mode and the navigating mode.

Communicative purpose in the reading mode

The primary goal of a corporate web site is to inform the reader who searches information about the company.

Askehave and Nielsen (2004, p. 9) point out that in the reading mode the main

goal of a corporate web site is to inform through introducing the site´s content. They argue that there are also two sub goals important for the reader: to create/consolidate the image of the sender and to present local or global news.

The purpose of the companies to present news for the readers is to keep them updated on the situation of the company. Generally the news presents a local or a global vision, related to the business of the company. The news, if permanent are accessible through links such as "investor" or "press", and they take the form of small summaries to provide the reader a quick overview.

Communicative purpose in the navigating mode

This perspective analyses the main purpose of a web home page as providing access to the web site. In this view the focus is not on the information displayed, but on the display as an enabler of information.

Rhetorical strategies

The model introduces the concept of rhetorical strategies which will be defined in this section. Rhetorical strategies represent what was *Form*, in Bhatia´s model. They can be both visual and verbal and are adopted to realize a communicative intention. There are specific characteristics, visual or verbal that distinguish a genre. Therefore, it is possible to identify similar rhetorical features in texts belonging to the same genre. And the aim of rhetorical analysis in genre studies is to look for regularities or practices in the actual formulations of genres. For instance, leaflets which advertise touristic places are characterised by vivid images with appealing colours and appealing

descriptions. However, this does not mean there is no room for variation when writing a genre-text. Writers or communicators can choose either to use a common repertoire in writing a text or opt for personalization or a combination of both. Bhatia expresses this concept accurately:

Most often it [the genre] is highly structured and conventionalized with constraint on allowable contributions in term of their intent, positioning, form and functional value. These constraint, however, are often exploited by the expert members of the discourse community to achieve private intentions within the framework of socially recognized purpose(s). (Bhatia, 1993, p. 13)

The genre approach in this sense aims at establishing if some rhetorical expressions are preferred to others.

"Moves" and their analysis in the reading mode

This analysis draws on previous work of Swales (1990) who established that in traditional genre analysis the text is formed by a staging structure formed by a number of so called "chunks" or moves. The fact that texts present this pattern is directly linked to the communicative purpose. To understand the overall meaning of any type of message, as a matter of fact, it is necessary that the reader focuses his attention to each stage of the message. It is not possible to make all the meanings all at once. Each stage in genre contributes a part of the overall meanings that must be made for the genre to be accomplished successfully (Eggins, 1994). With this, Eggins (1994) wanted to underline the fact that when language is adopted, to perform any communications, language itself is employed systematically. The message goes always from A to B, following a precise structure. This structure, according to Swales (1990), can be divided in elements called chunks or moves, as stated above. Focusing their attention on the genre analysis of corporate web sites, Askehave and Nielsen found a common pattern of chunks, which form the structure of corporate

web sites.

The first chunk of a corporate web site is to attract attention, immediately when the reader enters the home page. The second chunk consists of greeting the visitor to establish a feeling of welcoming on the web site. The third element of the structure is the identification of the sender. In this step both the user and the web-owner are concerned with the importance of identification. During this phase the user can keep track of his whereabouts on the Net and the web owner master his image creation strategy. This move is realized with the company logo in most cases. The fourth layer of the structure is obtained by the indication of the structure content, providing a general overview of the content of the web page and a main menu. Then as a fifth step there is a detailing selected content. With this move more detailed information about the topics is provided, listed in the main menu in the form of small summaries. In this phase it is fundamental for the corporate web page creator to display information of the company, mainly promotional but also retain the attention of the reader in order to keep his navigating on the site. Establishing credentials is the sixth phase of the structure, by which a trustworthy image is established by the web owner. The latter three moves are pursued to establish contact, to establish a discourse community and to possibly promote an external organization.

As the name suggests the move structure of a text indicates a preferred way of organizing a text in order to realize a particular communicative purpose, most notably obtained by creating a sequence of moves through which to go when writing and later reading the text (Bhatia, 1993, p. 30). This tendency in which a sort of sequence and linearity pervades the text seems to be suspended on corporate web sites. As a matter of fact a web text is not intended to be read in its entirety but rather scanned by the reader before s/he finally decides which elements to read. (Askehave & Nielsen, 2004). Even if the author may

have previously set a particular intended path, the reader selects elements which will be read at a determined time, making his personalized move structure.

"Links" and their analysis in the navigating mode

In the navigating mode is not possible to utilize the same structural criterion as in the reading mode utilizing "chunks" as the units of analysis. Instead, in this analysis we can use hyperlinks as units. A link is defined as a clickable object, which allows the navigator to go from one place to another on a web page or a web site. A central aspect in this kind of analysis is to establish the functional value of the links, in other words to define the relationship between links, what is the relation between B (textual point of destination) and A (textual point of entry). We have to make a premise that generally links do more than simply guide the navigator from a place to another (Askehave & Nielsen, 2004, p. 11). They add meaning to the chunks of information which they connect, as they postulate a relationship between two information units connected by the link (Askehave & Nielsen, 2004, p. 11). Tosca, in this regard (2000, p. 3) noticed that every link communicates a presumption of its own optimal relevance and that links do not interrupt the flow of meaning; on the contrary they enliven it. This makes the reader understand that if there is a link, it is because the information accessed from the link, is relevant to the information which has just been read.

2.4.3 Typologies of texts in the corporate web sites

Investigating semantic and pragmatic aspects of language is also essential for the purpose of this master´s thesis from the textual perspective. In order to

investigate those aspects, the work of the French linguistic Jean-Michel Adam (Adam 1992) is referred to.

According to Adam, a text type is a text unit composed of text sequences appearing in structural configurations of a semantic relational network. He identifies five typologies of texts that are suitable for the analysis of text of corporate web sites: the descriptive text type, the narrative text type, the argumentative text type, the explicative text type and the dialogical text type. Each typology of text has its own characteristics which will be briefly explained in the following sections (Adam, 1992)

Descriptive text type

Description is a basic element for all text typologies. Adam identifies two main subtypes of description: explorative and expository description. Where the former is concerned with description of state of being and the latter with description of acts. The explorative way of describing aims to give a detailed portrait of the properties of the subject, generally answering questions as "what/where/who is *x*?" Usually this kind of description consists of two macro propositions, i. e. topic anchoring and aspectualization. Topic anchoring tells the reader what the text is about, meanwhile aspectualization aims at giving an actual description of the scene.

Expository description describes a development of an established procedure instead of an object and answers to questions such as "how to proceed" or "how to do a certain task"

Narrative text type

Askehave and Nielsen (2004), building on the work of Adam (1992), argue that in web mediated genres, a typical narrative text type is structured as follows: firstly an initial situation is presented to the reader (orientation) then a conflicting event taking place is presented (complication) and following a chain of acts (action) then a solution (resolution) and finally a moral implication of the story (moral). For instance, a web site of a company X which produces brooms presents the following information. "When the floor is dirty" (orientation) "And the dirt is hard to get away" (complication) "You can use Broom X" (action) "With Broom X the floor is not dirty anymore" (resolution) "Brooms X are the best against the dirt!" (moral).

Argumentative text type

According to Adam (1992) the argumentative typology of text is structured by three elements Claim, Datum, Warrant. The first two elements function respectively as a conclusion and an argument, while the last element functions as the inferential link between the two. For instance a web site can display the following information "When your floor is dirty" (datum) "You should use Brooms X to clean it" (claim) "Since no other broom cleans that well!" (warrant)

Explicative text type

This kind of text consists generally of two kinds of macro-propositions: effect and cause. It is different from the argumentative typology of text because it does not articulate any judgement. It just states that A causes B to exist. For instance " Company X developed special Brooms X" (B) "Since today it is becoming harder and harder to clean floors" (A)

Dialogical text type

In this kind of typology the text generally presents a question and an answer, where the web user´s attention is more stimulated with the question. This is an interactive mode of presenting text on the Internet.

2.4.4 Functional typologies of links

Now that that the typologies of texts have been defined we should, for the purposes of the thesis, also define the links that display those texts. As we have seen above in each typology there are two units of text (A and B) that act as units in the sequence of the text. This text sequence forms a certain semantic pattern, which in turn correlates with a particular function/macro speech act (such as describing, explaining, etc...). In a text A, we identify a link and interpret the link as the first macro-proposition of a given text type sequence. Then we can click on the link and reach text B where we complete the text type sequence by identifying the remaining macro-proposition of the text type. Before analysing the links (Askehave & Nielsen, 2004) we will divide them into two broad categories: generic links and specific links.

According to Askehave and Nielsen (2004), generic links provide access to the main topics on a web site and they often appear at upper levels on a web site, this tendency is even more frequent in the corporate home pages. Due to their general, topical status, generic links are also frequently inserted in the top

section of a web document were they provide shortcuts to the main subject areas. The fact that a link has this location in a home page, gives the link itself a particular value regarding the information it will display. Generic links present in most of cases a descriptive nature since their function is to bring the navigator on to an information chunk which identifies a general topic. From a mere linguistic point of view links often display a single noun or a single phrase and if the link is accompanied by a text, the text usually assumes meta-discoursal characteristics, providing navigational information and not information about the topic itself. Askehave and Nielsen (2004) found that generic links are usually displayed in a corporate web site as follows:

Home	Products	About us	Sustainability	Contacts

Further Askehave and Nielsen (2004) showed that specific links generally function as previews of what is to come, they are thematically contextualised and introduced by leads, explaining the relevance of the link and which, together with the link itself, constitute the first macro-proposition in a particular text type sequence. Specific links are collocated generally down in the home page of the corporate web site and they have a changeable nature since they may change in hours or days, depending on the purpose. This feature accentuates the dynamic nature of web texts in opposition to the static one of printed texts. Specific links consist only of the lead and in the clickable object. The lead has the function of setting the scene, giving the navigator an idea about the information behind the link which is the actual "gateway". Generally specific links function as a mere "reading guide" and they suggest the relevance of a link. A typical example of a specific link can be the following:

Company X is really proud to bring you the innovative product Y that will allow you to save energy

Read more

Table 1 Generic and Specific links (Askehave & Nielsen, 2004, p. 34)

The following table combines the dimensions discussed in this subsection, i.e.

text types and link types.

Function	Generic Links	Specific Links
Descriptive-explorative	X	X
Descriptive expository		X
Narrative		X
Argumentative		X
Explicative		X
Dialogical		X

According to the table above it is possible to see that Generic links only display a descriptive-explorative function whereas specific links may present all the functions discussed.

2.5 Summary of literature review

The literature review presented in Chapter 2 introduced the concept of genre, which constitutes the basis for this study. It went through previous studies on genre pertaining to the "traditional genre analysis school", and particularly it introduced the model of genre analysis conceived by Bhatia (1993), which

illustrate the five elements of genre (purpose, content, channel of transmission, audience and form). It also showed which web mediated genres were mainly studied previously (particularly corporate web sites and personal web sites) demonstrating a clear research gap in studying "communicating environmental issues" in CSR sections on corporate web sites of oil and gas companies.

Another relevant contribution that the literature review gave for the purpose of this report is to underline how traditional genre analysis is not fully exploitable for web mediated genres. In this regard it introduced the Askehave and Nielsen genre model (2004) which adds other elements to Bhatia´s model (1993). These elements are multimedianess and hypertextuality. The two were deeply illustrated in section 2.4.1.

The section 2.4.1 further underlines the importance in considering these two elements when studying web mediated genres.

The dimension of hypertextuality is particularly fully explored. For this purpose, in section 2.4.4 the concept of link with a dual classification is introduced (generic link vs. specific link) and the key concepts of reading and navigating mode are discussed (section 2.4.1). These are further developed in section 2.4.2, where the communicating purposes of both the navigational and reading mode are explored.

In addition, the literature review shows a particular typology of texts that can be found on a corporate web site.

3 METHODOLOGY and DATA

The literature review and the theoretical background (Chapter 2) introduced

two models of genre analysis (Bhatia 1993, and Askehave & Nielsen 2004). This chapter will present the methodology used and the data collected to answer the research question(s).

3.1 Methodology

In order to establish the existence of the (sub) genre "communicating environmental issues of CSR" on oil and gas companies´ web sites and in order to identify its characteristics a synthesis of the two models will be adopted. A synthesis of the two models is adopted since, as stated above in Chapter 2 in web mediated genre texts, traditional genre analysis is not fully exploitable. Therefore, Bhatia´s (1993) genre analysis will be adopted, and the important dimensions of multimedianess and hypertextuality, identified by Askehave and Nielsen (2004) will be added. Therefore, six dimensions of genre analysis will be explored in total: purpose, content, audience, form, multimedianess and hypertextuality. The channel of transmission is left out of this analysis, since it is the Internet for all three selected companies.

The companies chosen to be analyzed are Neste, from Finland, Eni from Italy and Petro Canada from Canada. These companies were selected because they all belong to the so called "*industrialized world*" and in the same time they belong to three different *cultural clusters*, i.e. the Nordic cultural cluster, the Latin cultural cluster and the Anglo-Saxon cultural cluster. The researcher considering useful for the purpose of this report to take samples from different *cultural clusters* in order to verify the existence in all three clusters considered the (sub) genre of "communicating environmental issues of CSR" on gas and oil companies´ web sites.

The present analysis focuses on the section dedicated to communicating environmental issues. Collecting data in these sections was facilitated since each web site of the selected companies presented a specific link containing

information on environmental issues. For the Finnish company Neste Oil the pages examined were those displayable under the specific link "Environmental Responsibility", displayable through the generic link "Responsibility". For the Italian company Eni the pages examined were those displayable by the specific link "Environment", displayable through the generic link "Sustainability". For the Canadian company Petro Canada all the pages displayable through the link "Environment and Society" were the pages studied. The web pages accessible through these specific links were considered as sets. In total, since the companies studied were three, there were three sets. Thus, practically the genre analysis with the combined Bhatia/ Askehave & Nielsen model is carried on each set. The six dimensions are analyzed as follows.

To investigate *purpose,* the aim is to see if in one of the pages of the set of pages at least states the purpose, and if not if it is possible to infer it through linguistic features. This step is pursued by looking for the presence of structures such as "to", "in order to" in combination with such verbs as "demonstrate" "show" or similar verbs adopted to define a possible purpose.

Also it is investigated if each selected set of pages of each company presents a similar *content* pattern. This action is pursued by a general overview for each set of pages and by verifying if the main "theme" or "issue" as for instance "the climate change", or a group of common "themes" or "issues" can be found. In this section the aim is to establish the possible recurrence of a covered issue when communicating environmental issues of CSR.

Further efforts are made to identify a possible common *audience* for the sets of pages and a recurrent *form* or the adoption of similar rhetorical strategies. The existence of a possible common audience and form are investigated through the identification of a possible similar range of vocabulary adopted in all three sets of web pages.

In addition to Bhatia´s dimensions also Askehave and Nielsen´s multimedianess and hypertextuality are explored. For the three sets of pages, *multimedianess* is explored by searching similarities in the way of displaying texts, images, sounds and animation. For instance, if in two sets of the selected pages there will be similar images, e.g. images displaying nature, with texts e.g. communicating about environmental issues, a similarity in adopting multimedianess will be confirmed. Therefore, just two out of four elements among images, videos and texts will confirm a similar way in adopting multimedianess. Even though two out of four may sound insufficient in order to establish a similarity, this will be done since the use of sounds and animation is not frequently adopted on the web sites of the selected companies.

As stated in section 2.4.1, *hypertextuality* is a crucial dimension in Askehave and Nielsen´s model. Therefore, this dimension was examined with a particular attention. First of all, on each set of pages, the aim was to identify a common way in displaying the specific links. Particularly it was investigated if by clicking on each of the specific links displayable in the set of pages, similar sections would be found. This is examined by looking if the "reading mode" is favoured, with specific links displaying a reading linearity, or if the "navigating mode" is favoured, which means absence of linearity. Linearity is verified if each set of pages displays specific links with a prefixed order; if the links are supposed to be read in a particular order (the presence of numbers or letters in this case would be a good indicator of linearity).

In addition to defining similarities in hypertextuality, following Askehave and Nielsen, efforts are also made to verify the typology of specific links for each set of pages. In this regard if in all the three sets of pages the same typology of specific links e.g. dialogical, is the most frequent, similarity will be confirmed.

The researcher established that if at least in four out of six elements examined

similarity can be confirmed the sets of pages studied can be seen to represent a (sub) genre of communicating environmental issues on a corporate web site representing the oil and gas industry.

In the following section the data for the study will be presented.

3.2 Data

The data were retrieved from the Internet on March 15 2009 and the entire set has been attached to this report (Appendix 1, Appendix 2, Appendix 3).

As stated above in section 3.1 "Methodology", the data for the present study are texts or part of texts displayable if clicking on the generic link "Sustainability" or "Responsibility" of the following companies´ web sites: http://www.nesteoil.com/default.asp?path=1;41;535 of the Finnish company Neste, http://www.eni.it/en_IT/home.html of the Italian company Eni and http://www.petro-canada.ca/default.aspx of the Canadian company Petro Canada.

Next, the companies will be briefly introduced. The actual data investigated, i.e. the selected pages of the web sites of the three companies can be found in Appendix 1, 2 and 3.

3.2.1 Companies´ descriptions

Neste

Neste   Oil   defines   itself   in   its   corporate   web   site

http://www.nesteoil.com/default.asp?path=1;41;535 , as a refining and marketing company focused on advanced, clean traffic fuels, with a strategy that prioritizes growing its refining and premium-quality renewable diesel businesses. It is listed in the Helsinki Stock Exchange Market since 1995. Its activity is divided into main 5 businesses, Oil refining, Renewable fuels, Oil retail, Shipping and Specialty Products. The company has subsidiaries in 16 countries and counts 4800 employees

Eni

Eni operates in the oil and gas, electricity generation and sale, petrochemicals, oilfield services construction and engineering industries. According to its web site http://www.eni.it/en_IT/home.html, in these businesses it has a strong edge and leading international market position.

Further on the web sitehttp://www.eni.it/en_IT/home.html we can read that every action that Eni undertake will be more and more based on making the most of people, contributing to the development and well-being of the communities with which it works protecting the environment, investing in the technological innovation and energy efficiency, as well as mitigating the risks of climate change.

Eni is active in 70 countries with a staff of about 76,000 employees.

Petro Canada

Petro Canada is a Canadian oil and gas company with international interests. The web site http://www.petro-canada.ca/default.aspx argues that the company creates value by responsibly developing energy. The company operates worldwide and strives for conceiving new products and for pursuing a

continue customer satisfaction.

The company operates in Libya, UK, the Netherlands, Syria, Trinidad and Tobago and Norway with a workforce of 6000 units.

4 FINDINGS

With the availability of the data, it was investigated if the section communicating environmental issues on the selected companies' web sites can constitute a (sub) genre and, if yes, which are its specific characteristics.

The following section will discuss the question if it is possible configure for each set of Neste, Eni and Petro Canada pages the six elements that form the model "Bhatia plus Askehave and Nielsen."

Purpose

In the data it is not clearly expressed or stated which the purpose for each set of pages is. However, it can be inferred by reading all the texts and the parts of texts present in each set.

From the analysis by the researcher there is one purpose that distinguishes each set of pages and which is common in all three web sites. The purpose is "to communicate how the companies are deeply committed to environmental issues".

For instance, if we take the main specific link of each set analyzed, which is "Environmental responsibility" for Neste, "Environment" for Eni and

"Environment" for Petro- Canada it is also possible to infer this. On Neste the web site there is written "Our strategy underpins our approach to environmental responsibility" while on the one of Eni "One of foundations of Eni's sustainable development model is the environmental sustainability of its business activities" and finally on Petro Canada´s "A key focus for Petro Canada operations is understanding the interaction between our operations and the environment, and integrating environmental stewardship into our projects and business operations".

The above sentences demonstrate the deep consideration that each company has toward the environment in which it operates. In this case environment refers to the natural environment. In particular, the fact that each company considers the environment as an element to be taken into consideration in its business strategy and/or operation(s), aims to make the reader understand the high importance given to the natural environment in the oil and gas companies. Another indicator for the deep importance given to the environment is the fact that all the above mentioned sentences are in the introductory specific links treating environmental issues of each company. Therefore, communicating that the companies have a strategy that totally respects the environment and communicating it in the first page available to discuss environmental issues, contribute to show that the purpose of each set of pages is common and that it is to "communicate how the companies are deeply involved in environmental issues".

The "communication of a deep involvement in environmental issues" can be also inferred from the particular activities that the companies undertake and that are explained in the web sites. For instance Neste explains in the dedicated set of pages that "Neste Oil is committed to efforts aimed at halting the destruction of rainforest and the reduction of biodiversity, and irresponsible land use". Also from Eni the deep involvement can be inferred from a description of a

particular activity, such as the planification and building of pipelines. For instance in the web site of the Italian company it is possible to read "When planning and constructing gas pipelines, the route is chosen from among various alternatives on the basis of their environmental impact, the safety of transportation and the techno-economic feasibility". Similarly Petro Canada states that: "Petro Canada produces numerous products that mitigate environmental impacts that could result from the use of traditional products".

Therefore, the "communication of a deep involvement in environmental issues" can be inferred not only from the fact that for each company environment is considered as crucial when planning the strategy, but also from the fact that on each site for different and particular activities undertaken important efforts are made in order to take care of the natural environment. Each company communicates a thorough care for the environment, for instance Neste in order to avoid damages when searching for new lands for its business activities, Eni when planning and building new pipelines and Petro Canada when conceiving new products.

Therefore, another indicator for the uniqueness of the purpose is this duality (general-particular). The purpose is here regarded as general when it is inferred from the communication of planning the strategy according to natural environment care, while it is particular when the company communicates that a single business activity is carried out paying a strong attention to the natural environment.

In several of the pages examined, there is often mentioned the fact that environmental care is a priority to consider for any particular business activities by the companies. For instance, Neste Oil explains that: "the impact of airborne emissions are monitored using bioindicators to analyze how pollutants affect the incidence and nature of lichen on the bark of pine trees in the area seawater

quality and sediment composition are monitored, together with local fisheries groundwater and surface water quality at refineries is monitored regularly plant noise is measured regularly at locations most subject to this type of impact", communicating to the reader the deep involvement in environmental issues once again. Other examples that further underline the environmental care are respectively in Eni´s and in Petro Canada´s sites the following: "Eni invests in the technological improvement of processes for preventing and avoiding the presence of contaminating substances in gas flows, thereby reducing the need to purify them, and is involved in protecting the atmosphere by....." and "Climate change and the environment are top issues for Petro Canada. By taking the same strategic approach as we would to any other area of our business, we can operate in an environmentally responsible way by reducing our emissions intensity, while still remaining economically competitive

In this case the uniqueness of purpose inferred seems to establish the existence of a proper (sub) genre among the sets of pages considered.

Content

From a content point of view, in the three sets of pages considered the similarity is evident. This can be already noticed by the headings of the specific links displayable by clicking the links "Environmental responsibility" of Neste, "Environment" of Eni and "Environment" of Petro Canada.

For instance, Petro-Canada has the specific link "Water" and Eni "Water management" which cover the particular relation pollution-water. Neste does not present a specific link with such a heading; however it covers this issue under the specific link "Innovation for combating the climate change" and

"Environmental impact of end use". Therefore, the similarity of a theme covered is already tangible in the headings.

If a global view regarding the content of the data is taken, it is possible to see that all the sets of pages considered cover the same main themes: these are "management of the environmental impact in the water", "management of the environmental impact in the soil" and "management of gas emission". Even if introduced with different specific link titles, in each set of pages these three are the main themes that are covered and communicated by each company to the reader. In other words the content reflects the three main reasons of possible risk caused by carrying out the core business of each company.

The fact that the content consists of these three similar main themes, demonstrates a willingness of the companies to communicate to the Internet user that the business is carried out with the least risk possible for the environment, as already explained in the previous section Purpose. Along with the theme "management of the environmental impact of the water", the theme "management of the environmental impact in the soil" is communicated under the following specific links "Innovation for combating the climate change", "Environmental impact of raw materials", "Production-related environmental impact" and "Environmental impact of End-Use" on Neste´s web site, "Soil protection" and "Waste management" on Eni´s and "Ecosystems" on Petro Canada´s. In this case, as for the theme "management of the environmental impact in the water" it is possible to draw a difference between the links of Neste and those of Eni and Petro Canada. While Neste does not present a dedicated heading for each main theme (issue), Eni and Petro Canada do. Therefore, while in Eni and Petro Canada it is easier to identify the three main themes which constitute the content, for Neste these are supposed to be extracted from different specific links, since there is no specific link

particularly with headings dedicated to them. For instance as illustrated above, the main theme "management of environmental impact in the water" in Neste is covered under the specific links "Innovation for combating the climate change" and "Environmental impact of end use" while Eni and Petro Canada have respectively "Water management" and "Water". This pattern is also confirmed for the other main theme of the content part "management of gas emissions", which in Neste is under the specific links: "Innovation for combating the climate change", and "Production-related environmental impact" while for that Eni presents the specific link: "Air quality protection" and Petro Canada "Air emissions".

It must also be underlined in this analysis part that for each main theme covered there are several certifications listed on each web site, in order to assure the reader about the effectiveness of the actions pursued to manage the natural environment in the water, soil and in the air. In this regard Neste for instance in the specific link "Reach" explains how already in 2005 it was preparing for the REACH (namely Registration, Evaluation, Authorisation and restriction of Chemicals) a European regulation on chemical products. Also, Eni has a specific link "certification" where all the certifications of the company are listed. Finally, Petro Canada explains for instance that the company became a signatory member of Canadian Boreal Initiative, a campaign that focuses on conservation in Canada´s boreal forests.

The fact of listing certifications and awards of companies is in link with the psychological aspect of Bhatia (1993) mentioned in Chapter 2. As a matter of fact certifications seem to be listed in order to reassure the reader. Particularly in this case the psychological element is detected, as a single certification acts as a "third party" that guarantees the business activities of each company. In other words a certification is listed in order to communicate the reader that not only

the company alone does efforts in preserving the natural environment, but a third authority recognizes the effects of that activity.

This section has indicated the similarity of content among the three sets of pages favours the working hypothesis of the existence of a (sub) genre among the sets of pages considered.

Audience

As explained above in Chapter 4 Content, the pages were retrieved respectively from the specific link named respectively "Environmental Responsibility", "Environment" and "Environment" in Neste, Eni and Petro Canada. Therefore, a quick view can make us already think that the supposed audience of each set is similar. Even if this assumption were true, it would be an approximation to assign a genre´s similarity as regards audience only by looking at the similarity of titles of the links. In order to further investigate the similarity regarding audience the range of vocabulary is a suitable indicator. As stated in Chapter 2 usually corporate web sites as a whole are tailored to serve different audiences (Esrock & Leichty, 2000, p. 328). In this case, by quickly looking at the data it is possible to say that the audiences to whom the sets of pages are addressed are also possibly various. For instance, in some parts of text the vocabulary is highly specific; in Neste, for instance, there is a section that goes as follows: "The jatropha family includes around 150 plants, shrubs, and trees, all of which contain seeds with a high oil content". This sentence can be addressed to a biologist or a student of natural science. Also, in the Eni and in Petro-Canada web sites there are some parts of texts which include for instance chemical formulas which seem to be addressed to a specialized audience.

In other parts of the sets of pages the vocabulary adopted is not as specific and

also a generic audience can be assumed to be the reader of the web site. For instance, Neste displays the following as the first sentence of the link "Environmental impact of end-use": "Neste Oil makes its biggest contribution to combating climate change through its products". In this case there is no specificity in the vocabulary as there was above when talking about a "jathropha" and the sentence can be addressed to a general audience. In Eni also the sentence "When managing water resources, Eni pays particular attention to reducing the consumption of fresh water by adopting technology that uses a low amount of water, concentrating on water recycling and reusing process water and purifying industrial water" can be addressed to whoever reader. This is true as well for Petro Canada´s sentence "There is an increasing global concern for use, availability and quality of fresh water". Even if we have seen that there are parts that vary from a very specific vocabulary to a less specific one, and even if this is one good indicator for the audience of the sets of pages considered, another argument must be made. It is true that there are sentences, as the ones listed above that can be addressed to every reader; however, another reflection must be done about which kind of reader finds an appeal on clicking a link such as "Environment" or "Environmental Responsibility". It is true that such link can mostly attract the Internet users merely interested in environmental issues, as for example environmental activists concerned about companies´ activities, but also investors interested in the best practices of the companies.

If a detailed view of how each set of pages is constructed is taken, it is possible to see that usually the first specific links in each set in order of appearance covers the topic concerned more in general, and the further specific links cover it in a more detailed way. For instance if we take the specific link "New Feedstocks and technologies" of Neste we can display the following: "Neste Oil is working increasingly closely with leading research institutes in a variety of

fields. In the case of renewable raw materials, this involves partners at over 20 universities and institutes worldwide". And it continues: "Algae and other microbes can already be produced on a laboratory scale. The real challenge is to increase production to an industrial level, to millions of tonnes per year. There are many unresolved issues, which is why much research is focused on this".

Then if we click on the further specific link "Algae" we display the following:

"Microalgae produce sugars, lipids, and proteins from CO_2, water, and nutrients using photosynthesis. Tens of thousands of different species exist, and can be found wherever water and light is available. Although these unicellular organisms can divide as often as several times a day, they normally double their biomass in one to three days. Microalgae are seen as the origin of the world's crude oil, and most species produce intracellular lipids. Under favorable conditions, microalgae can produce lipids year-round, and offer a dramatically higher production potential than oil plants. Microalgae can be grown in seawater and on land unsuitable for cultivation, and can make use of the nutrients contained in wastewater, for example. As they also bind CO_2, they offer a number of exciting possibilities in helping us meet tomorrow's energy needs". This example shows how first, the vocabulary in the first specific link is less specific than in the second one, and also that links seem to be ordered according to a degree of specificity of vocabulary. The fact that links are ordered in this way, present a high skim value tool for the reader who can choose to read the most appropriate parts for his/her purposes. This aspect will be covered in depth in the following section when analysing elements pertaining to the Askehave and Nielsen model.

Thus from the data it is only possible to say that the audiences of pages vary since the texts vary, showing various degrees of specificity. This pattern is present in all the three sets of pages considered.

Therefore, according to this element of the genre analysis conducted here, it is not possible to establish whether the sets of pages represent a (sub) genre or not. Since there is no specific audience, the pages do not seem to constitute a genre as regards the audience.

Form

By analyzing the data it is possible to notice particular features regarding the rhetorical strategies adopted as well as the lexico grammatical features, which constitute what in Chapter 2 was defined as form. They characterize the sets of pages analyzed

First of all, after having an overall view of all the pages, it is obvious that a vocabulary characterized by terminology such as "commitment", "protection of the environment" "reduction of the impact on the emissions" emerges. These linguistic characteristics all underline an involvement in environmental issues. In addition, the adoption of terms such as "protection", "commitment" and "reduction", implies the dangerousness of some specific activities undertaken by the companies. As a matter of fact there would not have been a need of such words as "protection" if there was no "danger": normally only a person or thing that feels menaced needs to be "protected". Similarly, "reduction" refers to the preoccupation of the companies' aims at "reducing" the impact, and if not "reduced", there would have been certain consequences on the environment.

This kind of terminology demonstrates as well the trustworthiness of the so called "psychological element" identified by Bhatia (1993). This terminology aims at reassuring the Internet reader about the actions undertaken by the companies, who with such terminology is reassured and "protected" about the actions that are carried out, as was already explained in the *content* part.

The rhetorical strategies mostly adopted are those typical of the *descriptive text and the explicative text.* These typologies of texts were already mentioned in the literature review (see p. 35 and 37). In this regard on all the three sets of pages considered the texts are either descriptions or explications about companies´ activities.

This aspect will be particularly developed when examining the hypertextuality of Askehave and Nielsen (2004) in the following section. Concerning the analysis limited to this part it emerges, that the verbs adopted to construct the sentences in the three sets of pages are the ones that are more suitable for descriptions and explications. Therefore, for descriptions especially *expository descriptions* as in the case of the three sets of pages, the verb *to be* in all its tenses is frequently employed. As shown in the literature review as a matter of fact the typology of text *descriptive expository*, is the most suitable to describe *acts and actions.* Another peculiarity is that for the *explicative* texts the preposition *to* is often employed in order to show the link between the effect and cause, a pattern that distinguishes this kind of text as demonstrated in the literature review part.

In this case the similarity among the three sets of pages concerning the form is confirmed, and therefore, based on the form the (sub) genre is confirmed.

Multimedianess

For each of the sets considered, similarity in multimediannes is studied only in texts and images, and sounds and videos were left from this analysis as reported in Chapter 3 since only Neste Oil presents videos in the selected pages and in none of the selected pages it is possible to listen to a single audio file.

Since the similarity of texts is already acknowledged by the previous analysis of the four elements of Bhatia´s model (1993), in this section the focus will be

entirely on the visual images displayable in the three sets of pages.

The first element of similarity that is possible to catch when entering each of the selected web pages, is the constant presence of the logo of the company and the institutional colors of the company. These accompany the reader in all of the selected web pages during his navigation. This fact is also linked to the psychological element of Bhatia (1993) as clearly demonstrated in the literature review in Chapter 2.

The similarity among the three sets of pages in terms of colors and logo is not emerging. This is obvious since in order to be distinctive each company aims at having a particular logo and a mix of particular colors in order to be easily recognizable. However, the way that logos and colors are displayed in the pages is common for all the web sites studied. In Neste, for instance, the colors adopted are white, green and blue, in Eni these are yellow and white while in Petro Canada these are red, black and white. As stated above these are in constant presence in each of the selected sets of pages. Another similarity is that at least in one of the selected page for each company an image showing nature is presented. The images of nature mostly employed are the ones that represent vegetation as in the specific link of Neste "production related environmental-impact", where a Finnish forest in summer is displayable. In Eni also in the specific link "soil protection" green fields surrounding countryside houses constituted the introductory image of the link. Finally in Petro Canada as well in the introductory specific link "Environment and Society" the main image is a lake surrounded by green fields and a mountain.

Showing these kinds of images of nature, especially showing these in the introductory specific link of the selected pages as Petro Canada does demonstrates the willingness of the companies to underline once again the commitment to the natural environment.

In this regard it is possible to say that in each of the selected pages there is a concordance of purposes between the written text and the images displayable by the links. As shown above as a matter of fact the *purpose* of the sets of pages is common and it is "to communicate how the companies are deeply committed in environmental issues". Indirectly also the images aim at communicating the same thing. The fact that nature is displayed means that companies want to reinforce what is expressed with texts; therefore images function as a *support to* communicating the purpose.

In this case given the similarity among the three sets of pages in terms of the elements of multimedianness studied it is possible to confirm the sections communicating environmental issues as a (sub) genre.

Hypertextuality

This dimension of the synthesis of the genre model of Bhatia (1993) and Askehave & Nielsen (2004), together withmulti mediannes is typical of web mediated text and presents several implications in the analysis.

The first similarity in analysing hypertextuality can be already noticed when clicking on each of the main specific links of each set of pages. If we take a look at the disposition on the page of the specific links they are displayed either as follows:

Main specific link

Specific link 1	Specific link 2	Specific link 3
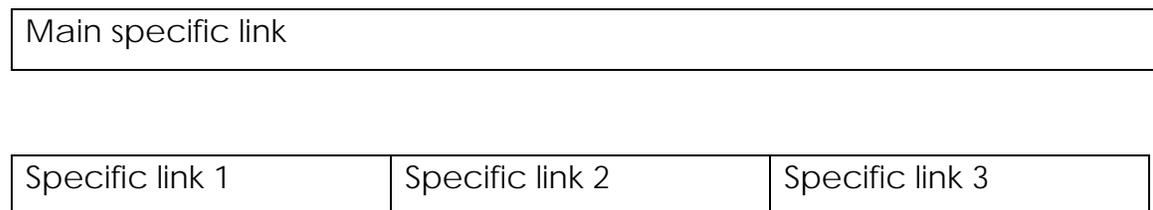
or as follows:

Main specific link

Specific link 1
Specific link 2
Specific link 3

Therefore in the menu the further specific links are displayable horizontally or vertically. Among the sets of pages considered all the three corporate web sites adopt a mixture of both: in all the pages of the sets it is possible to find out links disposed vertically and horizontally in a same page. The way in which links are displayed, can make one think that the reading mode is more prevalent than the navigating mode. As explained in the literature review in Chapter 2, the reading mode is a characteristic that leaves the reader in a position of sequential reading (Finnemann 2001), while the navigating mode is meant for the reader to construct his own reading path by clicking on whichever link available at any time. Usually, a web site creator favours either one or the other mode.

These two elements are core concepts of hypertextuality. In the investigated sets of pages the reading mode seems to be prevalent if we look at the display of the specific links, just because of the fact that the links are displayed either horizontally or vertically.

However, the links do not present for instance any numbering or lettering system in a crescent or decrescent way to invite the reader to click them according to a sequential pattern. In addition, all the three sets of pages have the titles of each specific link that do not imply that a reader has to go through them sequentially. For instance, in Eni the titles of specific links displayable in the entry page of the set considered are: "Environmental management", "Certification",

"Ecosystem Protection", "Water management", "Air quality protection", "Soil Protection" and "Waste management". Such headings do not imply an order in which they have to be read, therefore we can say that the web page creator constructed the pages favouring the navigating mode.

Another element that favours the assumption that the navigational mode is prevalent in the selected sets of pages, is the fact that each specific link displays an issue or topic that can be read as a "stand alone part". This means that a reader can enter the link (section) and just read the content of a single link and then quit, having a clear idea of the content of the link itself. For instance if we take the specific link in Petro Canada "Climate Change" we display the following:

"Climate change is a serious global issue that affects everyone, industry and consumers alike. It is one of the toughest environmental issues that we face today and in the foreseeable future. Petro Canada is not only concerned, we are also impacted. Climate change is a complex issue, which requires integrated solutions - solutions that we want to be a part of.

Petro Canada creates value by responsibly developing energy resources and providing world class petroleum products. In this process, we emit GHGs primarily through fuel combustion and fugitive releases of methane from our production facilities. Through Petro Canada's Climate Change Executive Steering Committee and Climate Change Working Group, we have created a strategy to balance both environmental and economic interests, while making sure we are at the forefront of new technology. We realize there is much more to do, but know that worthwhile changes take time to implement properly. We believe it is possible to have an approach to climate change that improves environmental quality, while enabling us to remain globally competitive.

"Climate change and the environment are top issues for Petro Canada. By taking the same strategic approach as we would to any other area of our business, we can operate in an environmentally responsible way by reducing our emissions intensity, while still remaining economically competitive."
— Kathy Sendall, Chair, Climate Change Executive Steering Committee.

Thus the reader, after reading the content of the specific link, has a clear idea of what climate change is and the actions that Petro Canada does in order to limit this problem, and he has not the need to read previously or afterwards other links in order to acquire the content fully.

The first important consideration that can support the choice of the navigating mode in the sets of pages examined is in connection with the audience to whom the pages are addressed. As was already underlined in the section *audience* the texts are meant to be addressed not to a specific audience, but to various audiences. Therefore, if the web author(s) would have designed the pages preferring the reading mode this would not have the possibility to appeal to a generic audience or multiple audiences. The reading mode as a matter of fact, "forcing" the reader to follow a path, can be too rigid for non specialized audiences or audiences not really experts in the topic. Therefore, in order to be interesting and appealing to a non defined audience, the navigating mode is the most suitable for the selected sets of pages, giving the possibility to switch easily from a specific link to another and to gain the interest of any reader

The second important consideration in order to support the choice of the navigating mode is linked to the *form* aspect discussed in the findings above. As explained above the *descriptive expository* and *explicative* text types are the only types adopted in the selected sets of pages. Therefore, a single specific link, describes and explicates fully the topic covered (stand alone part). In this regard the navigating mode is favoured since if each link can be described or it explicates an issue as a whole, there is no need to have read another link before

or to read another link after. In other words the *form* of the text types displayable in the links justifies the prevalence of the navigating mode over the reading mode.

Therefore, according to this analysis the links are supposed to be read with a hypertext path as illustrated in Graph 3 (see p. 29) and not with an ordinary text path.

In addition, there is also a third consideration that supports the working hypothesis that the navigating mode is preferred to the reading mode. This consideration regards the communicative purposes both in the reading mode and in the navigating mode. As explained in section 2.4.2 of the literature review the communicative purpose in the reading mode is to inform through introducing the content of the site, while the purpose in the navigating mode is to access, to enable to display information.

If all the sets of pages are considered, the emphasis seems to be more in displaying links as enablers to further information than to inform through introducing the content of the link. For instance if we consider the following links in Eni:

MANAGEMENT MODEL SYSTEM	COORDINATING COMMITTEE	KNOWLEDGE SHARING

and we look at the titles of the links, it is possible to infer that more than giving an accurate idea of the content they function as enablers for further information. The main reason that supports this assumption is that the titles of the links are generic. For instance if we take the title "Knowledge sharing" it does not give the idea about what knowledge is being shared among whom; similarly, the link

does not define specifically the topic it wants to introduce. For this reason, the communicative purpose in the navigating mode is far more evident than the one in the reading mode.

The same conclusion can be drawn if we take as examples for instance the specific link in Neste "Research and Technology" and the specific link in Petro Canada "Ecosystems", where the titles represent the characteristic of "enabler of information".

In this analysis part regarding hypertextuality it was also investigated which type of text was the most adopted in the specific links according to Adam´s classification of texts.

This analysis was briefly introduced when analyzing the *form* aspect where only two types of text seemed to be the only one employed. These were the *descriptive* and the *explicative* text type.

If all the data are examined, it is possible to verify that these are the only two text type of Adam´s (1992) typology employed. This stems from the fact that the *content* of the text is either descriptive or explicative. As a matter of fact in all of the links considered as data as a matter of fact there are either descriptions or explications. For instance, if we take in consideration the specific link in Eni "N-Z Lite process" it is possible to display the following: "The En-Z-Lite process makes it possible to efficiently remove organic contaminants from groundwater and respect legal limits.

The process is applied to treating refluent water and restoring a quality to the water that makes it suitable for industrial use, for example in the production of demineralised water, and therefore of steam. In 2007, further progress was made in developing the process with the registration of a patent for the thermal regeneration of water-repellent synthetic zeolites"

Where the sentence "The En-Z-Lite..........limits" represents *topic anchoring*, the rest of the text represents the *aspectualization* of the description. The fact that a descriptive style is mainly adopted is because companies here must describe what are their core businesses and which are their products. Therefore, a descriptive text type is a consequence of the need of the companies. For the purpose of this analysis it is also interesting to see which kind of descriptive text is mostly employed; either explorative or expository. While the former describes a state of being the second describes acts.

As already explained above in *form,* the description mostly employed in the data considered is the expository. Also this is a direct consequence of the need of the companies. The oil and gas companies have to communicate which processes, which *acts* they do in order to be committed to environmental issues. In the data then, it is possible to see many expository descriptions. For instance in Neste in the specific link "Sustainable palm oil" describes in detail all the acts, steps to obtain the palm oil. Also Eni in its specific link "Water injections projects" shows the processes to accomplish the projects. Finally, in Petro Canada´s link "Air emissions" there are exposed the companies´ activities in order to limit air emissions.

The other types of text widely employed in the data are explicative text types. As already shown in the section *form* above, these are text types that connect a cause to an effect. These are widely employed in the texts of the selected pages since companies need to demonstrate to the reader how a certain action (mainly to improve the environment they operate in) that they do, produces certain effects (positive effects).

To summarize this part of hypertextuality, the working hypothesis of a (sub) genre is confirmed since the layout of links in each introductory page of the sets of the pages examined is similar, the navigating mode is the one that manly emerges

in each of the selected pages and lastly since the descriptive and explicative text type are the only ones adopted in the sets of page considered.

5 CONCLUSION

5.1 Summary of the study

Firstly in section 1.2 the following research question(s) were put forward:

- **Is it possible to establish the existence of a (sub) genre for communicating environmental issues in the corporate web sites of**

companies operating in the oil and gas industry?

- **If yes, which are the characteristics of this (sub) genre?**

The background on CSR and environmental communication in section 1.3 aimed at introducing the study by giving a brief overview and presenting previous studies within the scope of the present report.

Secondly, the literature review (Chapter2) narrowed the field of the study further presenting the core concepts of genre and genre analysis. Particularly, the models of genre analysis of Bhatia (1993) and Askehave and Nielsen (2004) were presented. In that section previous studies in the field of genre analysis were listed and described, demonstrating the research gap and giving foundation the justification for the research question(s).

Thirdly, Chapter 3 showed the methodology for the present study with the choice of the four elements/dimension of Bhatia´s model (1993) i.e. purpose, content audience and, form, and the two elements of Askehave & Nielsen (2004) i.e. multimedianess and hypertextuality to analyse the (sub) genre of "communicating environmental issues on corporate web sites of companies of the oil and gas industry". In the same Chapter the companies were also briefly described and it was explained how data were collected and selected.

Fourthly, the section Findings analyzed six dimension of a model created as a synthesis of Genre analysis model by Bhatia (1993) plus Askehave and Nielsen (2004).

According to the findings the confirmation of the existence of a (sub) genre emerged as regards five elements/dimensions, i.e. purpose, content, form,

multimedianness and hypertextuality.

The audience element/dimension did not confirm the working hypothesis of the existence of a (sub) genre.

However, as the research design determined the minimum criterion for genre confirmation to be 4-5 dimensions out of 6 to be established in order to establish the existence of a (sub) genre, according to the analysis of the selected web pages the (sub) genre of communicating environmental issues in corporate web sites of oil and gas industry is confirmed.

5.2 Conclusions and implications

The study demonstrated the existence of a (sub) genre of communicating environmental issues on corporate web sites of companies operating in the oil and gas industry.

The (sub) genre identified presents several considerations that emerge from the analysis.

The first consideration is that such a genre is strongly influenced by the medium through which is communicated. In particular the navigating mode, typical of hypertexts shapes the genre to a great extent. In this regard, even though the *channel of transmission* of Bhatia´s model (1993), the Internet in this case, was not part of the analysis it is a fundamental element that has an impact also in the analysis of the other elements of Bhatia (1993) and Askehave & Nielsen (2004). This aspect was fully illustrated in Chapter 2.

Another consideration concerns the audience. From the analysis it emerges that no specific audience can be determined. This fact deserves attention from companies when they are building corporate web sites and especially the *environmental sections*. As emerged from the literature review and the subsequent analysis a reader of a web page concerning an environmental issue can be anyone who opens the page, even though an audience interested in the issues or investors in the company are the ones that have the most probability to consume the web mediated text. Given this concern, it would be interesting for companies operating in the oil and gas industry to identify with more precision the audience in order to better tailor the message.

Further considerations concern the purpose and content of the (sub) genre identified. From the analysis it emerged that texts are built to express and communicate a deep commitment in environmental issues. In this regard a question related to the *psychological element* of Bhatia (1993) can be raised. To which extent is this "deep involvement" expressed just to reassure the audience? By this question the present researcher would like to ask if in the (sub) genre a misuse of communicating environmental issues of CSR can emerge. As was discussed in section 1.3, sometimes CSR activities are undertaken by oil and gas companies just for superficial window-dressing to keep calm stakeholders, especially stakeholders who care about environmental issues and not for the pure interest of being a good corporate citizen. Similarly, environmental issues can be communicated with the same window-dressing intent.

I would like to argue that companies would have to act proactively in order to avoid this window-dressing problem.

However, it can be hard to overcome this problem; even though oil and gas companies make efforts in order to avoid this problem, by communicating more and more in depth their commitment to environmental issues, the audience,

especially the audience/stakeholders who care the most for environmental issues, can always perceive this as a way to be reassured and not as a true willingness of being a good corporate citizen.

Another consideration concerns the fact that as the researcher identified a (sub) genre through adopting the Bhatia / Askehave and Nielsen model, it would be interesting if further research could be done by utilizing the same model in discovering other (sub) genres, frequently communicated by companies in their corporate web sites such as "communicating financial issues" or "communicating employees wellbeing" for instance. Corporate web sites as a matter of fact, facilitate this operation since pages that cover a similar issue are easily identifiable.

Further research could also be carried out within the same (sub) genre investigating a bigger sample of companies from different countries than the ones examined for the present thesis.

The (sub) genre identified resulted in the emergence of implications that can be further utilized by corporate web page creators.

First of all, it seems obvious that web page creators of corporate web sites of oil and gas companies should first better segment the audience, and tailor the message according to the segments (e.g. producing an appropriate, more dedicated web text) subsequently.

Secondly, the web page creators of corporate web sites operating in the oil and gas industry should build the sections that communicate environmental issues focusing more on the reading mode than on the navigating mode. From the findings, as a matter of fact, it emerged that one characteristic of hypertextuality was the prevalence of the navigating mode over the reading mode.

Therefore, in order to give a better sense of linearity when the web text is "consumed" the reading mode should also be taken into consideration when building web sites. An attentive reader, e.g. an interested stakeholder in environmental issues would certainly benefit of some more attention to the reading mode, i.e. having a sequential reading path to follow.

Another important consideration regarding the sections of environmental issues on corporate web sites of oil and gas companies would be to test their communication effectiveness. This could be also done through qualitative or quantitative surveys or other research methods among the possible audiences. It would be important to verify the general effectiveness to improve the sections. Testing the effectiveness would mean to test if the message that it is actually wanted to give, is the one that the really audience gets. Therefore, as emerges from the findings it should be tested if the purpose of "communicating a deep commitment in environmental issues", is the one that the audience actually gets.

This aspect leads to further implications for oil and gas companies that are linked to the consistency of the messages they communicate through their environmental sections in their corporate web sites. Particularly, for effectiveness it would be interesting to check if consistency is communicated between the texts of the sections of communicating environmental issues and the images displayed in the pages.

Consistency should be explored also between environmental sections and other sections of corporate web sites of oil and gas companies, e.g. the sections concerning financial aspects, business operations or corporate governance. This action will be of vital importance for companies in order to verify if the companies´ overall message is actually consistent. In other words, companies should ensure that their corporate web sites communicate consistently what

they are.

Testing consistency could also be done through surveys among the audiences.

This action could be an initial step in order to further verify if the image, identity and reputation of the companies operating in the oil and gas industry are consistent which should be the final goal of any corporate communication strategy.

Finally it is important to bear in mind how today the corporate web site of any company represents probably the most frequently used gateway to access information about the company itself. Therefore, by managing the communication of a corporate web site properly will improve the overall communication of a company. In this regard, the present study demonstrated how genre analysis can be a useful tool in identifying variables to improve communication in corporate web sites.

REFERENCES

Adam J.-M. (1992) *Les textes, types et prototypes : récit, description, argumentation, explication et dialogue.* Paris : Nathan.

Askehave I. & Nielsen A. E. (2004) Web mediated genres. A challenge to traditional Genre theory. Centre for Virksomhedskommunikation. Working Paper 6.

Bakhtin, M.M. (1986) Speech Genres and Other Late Essays. Trans.by Vern W. McGee. Austin, Tx: University of Texas Press.

Bates, M.J. & Lu, S. (1997). An exploratory profile of personal home pages: Content, design, metaphors. *Online and CDROM Review* 21 (6), p. 331-340.

Bazerman C. (1994) "Electrifying Words: Edison's Announcement of the Incandescent Light." *Journal of Business and Technical Communication* 8:1, p. 135-147.

Bhatia V. K. (1993) Analysing Genre. Language Use in Professional Settings. "Approach to Genre Analysis". p. 13-41.

Berger P. & Luckmann T. (1966) The social construction of reality: a treatise in the society of knowledge (Doubleday, Garden City N. Y.).

Berkenkotter C. & Huckin T. (1995) Genre knowledge in disciplinary communication: Cognition, culture, power. (Hillsdale, N.J.) L. Erlbaum Associates.

Bolter, J. (2001) *Writing Space: Computers, Hypertext and the Remediation of Print.* New Jersey: Lawrence Erlbaum Associates Publishers.

Bruffee K. (1986) Social Construction, Language, and the Authority of Knowledge: A Bibliographical Essay *College English* 48.

Carrol A. B. (1991) *The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Organizational Stakeholders*, Business Horizons, July-August 1991.

Chandler D. (2000) An introduction to genreTheory.http://www.aber.ac.uk/media/Documents/intgenre/intgenre.html

Chandler, Daniel (1998) Personal Home Pages and the Construction of Identities on the Web http://www.aber.ac.uk/media/Documents/short/webident.html

Cox, Robert (2006) Environmental Communication And The Public Sphere. Thousand Oaks, CA: Sage Publications.

Crowston, K. & Williams, M. (2000) Reproduced and emergent genres of communication on the World-Wide Web. *The Information Society*, 16, p. 201-216.

Devitt, A.J. (1993) Generalizing about Genre: New Conceptions of an Old Concept, *College Composition and Communication* 44, p. 573–586.

Dholakia M. Uptal & Lopo L. Rego (1998) What makes commercial web pages popular? An empirical investigation of Web page effectiveness. *European Journal of Marketing,* 32, p. 724-736.

Dillon, A., and Gushrowski, B.A. (2000). Genre and the Web: Is the personal home page the first uniquely digital genre? *Journal of The American Society for Information Science* 51(2), p. 202-205.

Eggins, S. (1994) *An Introduction to Systemic Functional Linguistics.* London: Pinter.

Finnemann, N. O. (1999) "Hypertext and the Representational Capacities of the Binary Alphabet". www.hum.au.dk/ckulturf/pages/publications/nof/hypertext.htm.

Finnemann, N. O. (2001) "The Internet – a New Communicational Infrastructure". Manuscript for the 15th Nordic Conference on Media and Communication Research,
"New media, New opportunities, New societies". University of Iceland in Reykjavík,
Iceland, August 11th - 13th.

Grayson, D. and Hodges, A. (2004) *Corporate Social Opportunity! Seven Steps to Make Corporate Social Responsibility Work for your Business.*

Kankaanranta, A. (2005) *Hej Seppo could u pls comment on this.* Internal email

communication in Lingua Franca English in a multinational company. Solki Centre for applied studies.

Landow, G. (1997): *Hypertext 2.0: The Convergence of Contemporary Critical Theory and Technology*. London: The John Hopkins University Press.

Madeja, N. & Schder D. (2002) Designed for success-Empirical Evidence on Features of Corporate Web Pages. *Proceedings of the 36th Hawaii International Conference on System Science.*

Mcluhan M. (1962) *la Galaxie Gutenberg, la genèse de l'homme typographique*, 1962 (titre original : (en) *The Gutenberg Galaxy: The Making of Typographic Man*, University of Toronto Press)(Paris, Mame, 1967 - Paris, Gallimard 1977, tomes 1 & 2 collection idées).

Miller C. (1984) "Genre as Social Action." *Quarterly Journal of Speech* 70 (May 1984), p. 151–167.

Robbins S. & Stylianou A. (2003) Global corporate websites: an empirical investigation of content and design. *Information and management*, 40, p. 205-212.

Rubin, D.L. (1988) Introduction: Four Dimensions of Social Construction in Written Communication. In B.A. Rafoth & D.L. Rubin (eds.), *The social construction of written communication,* Norwood, NJ: Ablex Publishing, p. 1–37.

Sosnoski, J. (1999):"Configuring as a Mode of Rhetorical Analysis". In: Jones, S. (ed).
Doing Internet Research. London: Sage.

Stuart L. Esrock & Greg B. Leichty (2000) Organization of Corpoarate Web Pages: Publics and Functions. *Public Relations Review*, 26 (3),p. 327-344.

Swales J. (1990) *Genre Analysis: English in Academic and Research Settings. Cambridge.*

Tosca, S. P. (2000): "A pragmatics of links". In: *Journal of Digital Information*, vol. 1, no 6,
http://jodi.ecs.soton.ac.uk/Articles/v01/06/Pajeres/Kressleuwenmacluhan.

Visser, W. (2007) DRIVERS OF CSR IN DEVELOPING COUNTRIES: The New Thinking, *Effective Executive* (Sep), p. 55-58.

Yates J. & Orlikowski W. (1994) *Genre Repetoire: The Structuring of Communicative Practices in Organizations.* Administrative Science Quarterly, v39 n4 p541-74 Dec 1994.

Note to the appendixes

The following sets of pages that constitute respectively Appendix 1, Appendix 2 and Appendix 3 were collected on March 16th 2009 by clicking on the specific links "Environmental Responsibility" of Neste Oil, "Environment" of Eni S.p.a. and "Environment" of Petro Canada Inc. In this section there are all the web pages displayable by clicking on the above mentioned specific links. Each appendix is a set pertaining to each company. Therefore, in Appendix 1 we will have the set of Neste, in Appendix 2 the set of Eni and in Appendix 3 the set of Petro Canada.

APPENDIX 1

Neste

Environmental responsibility

Our strategy underpins our approach to environmental responsibility. We have been a pioneer of lower-emission traffic fuels for many years, and environmental issues are prioritized throughout product development work. A growing proportion of production is based on renewable feedstocks and new technologies.

The oil industry has a major impact on shaping the world's biodiversity, throughout the product chain, from crude production through logistics and product manufacture to end-product use.

A large proportion of the impact Neste Oil's own operations have on the environment is concentrated in refining and endproduct use, and is linked to the energy and natural resources the company uses and the emissions it generates.

Improving the way natural resources are used

Using natural resources efficiently is an integral part of environmental responsibility. In the case of Neste Oil, this means things like:

continually improving energy efficiency, using the Solomon Associates' Energy Intensity Index (EII)

sourcing inputs responsibly and working through organizations such as the Roundtable on Sustainable Palm Oil (RSPO), the Roundtable on Responsible Soy (RTRS), and the Roundtable on Sustainable Biofuels (RSB)

participating in research and benchmarking carried out by the Conservation of Clean Air and Water in Europe organization (CONCAWE)

developing better products and processes with a lower level of climate impact, and

using responsibly produced services and utilities; in Finland, for example, Neste Oil only buys carbon-free 'Norppa' electricity.

REACH

REACH regulation: Notice to Neste Oil customers

REACH in brief

The new EU chemicals regulation, REACH, came into force on 1 June, 2007. The regulation requires chemical substances manufactured in or imported into the EU to be registered on a phased basis. Pre-registration was required between June and November 2008. Full registration will be carried out on a stepwise schedule, with the first stage ending in November 2010.

The regulation also contains requirements for downstream users of chemicals, the most important of which is that users must provide their suppliers with use and exposure information to make registration possible.

Fully prepared to meet REACH requirements

Neste Oil began preparing for REACH requirements at the beginning of 2005. Once the regulation was finalized, we started implementing our plans to ensure that our products are in compliance with requirements and can remain on the market. **We have pre-registered the substances we manufacture and import.**

In order to register Neste Oil substances, we have either joined into or seeking membership of leading consortia. REACH requires the safe use of chemical substances to be documented. To serve our customers and fulfill our legal obligations here, we may ask some of our customers for information about how our products are used. If your company is selected, we would appreciate a positive response to our enquiries.

New feedstocks and technologies

Neste Oil is working increasingly closely with leading research institutes in a variety of fields. In the case of renewable raw materials, this involves partners at over 20 universities and institutes worldwide.

Algae and other microbes can already be produced on a laboratory scale. The real challenge is to increase production to an industrial level, to millions of tonnes per year. There are many unresolved issues, which is why much research is focused on this.

Algae

Microalgae produce sugars, lipids, and proteins from CO_2, water, and nutrients using photosynthesis. Tens of thousands of different species exist, and can be found wherever water and light is available. Although these unicellular organisms can divide as often as several times a day, they normally double their biomass in one to three days. Microalgae are seen as the origin of the world's crude oil, and most species produce intracellular lipids. Under favorable conditions, microalgae can produce lipids year-round, and offer a dramatically higher production potential than oil plants. Microalgae can be grown in seawater and on land unsuitable for cultivation, and can make use of the nutrients contained in wastewater, for example. As they also bind CO_2, they offer a number of exciting possibilities in helping us meet tomorrow's energy needs.

Other microbes

As heterotrophic organisms, microbes are unable to synthesize organic compounds themselves and need to feed on organic material, such as sugars, to multiply. Especially interesting examples in this category for Neste Oil are bacteria, yeasts, and fungi. These types of microbes are capable of storing large quantities of lipids in their cells, typically over 50% of their mass. They produce lipids and multiply very rapidly, typically achieving maturity in a couple

of days to a week. Oil-producing microbes can be grown in conventional bioreactors of the type used in the brewing and biotechnology industries. Researchers are looking for suitable sustainable nutrients that are both cost-effective and available in sufficiently large volumes to maintain industrial-scale production. Agricultural and industrial byproducts represent a possibility here.

Jatropha

The jatropha family includes around 150 plants, shrubs, and trees, all of which contain seeds with a high oil content. Most jatropha plants are toxic to man and unsuitable for food use. Jatropha typically grows on poor land, including sandy soil, and in areas that are unsuitable for normal cultivation or are classified as wasteland. Jatropha is used to prevent erosion and desertification, for example, and needs a minimal amount of fertilizer or care. As the plant is also normally free of disease, pesticides are not required either. Oil typically accounts for around a third of the weight of jatropha seeds. A hectare of jatropha can yield two to five tons of oil and four tons of pressing waste. The latter can be used as fuel or fertilizer. Plants begin producing seeds during the second year after planting and can live around 50 years.

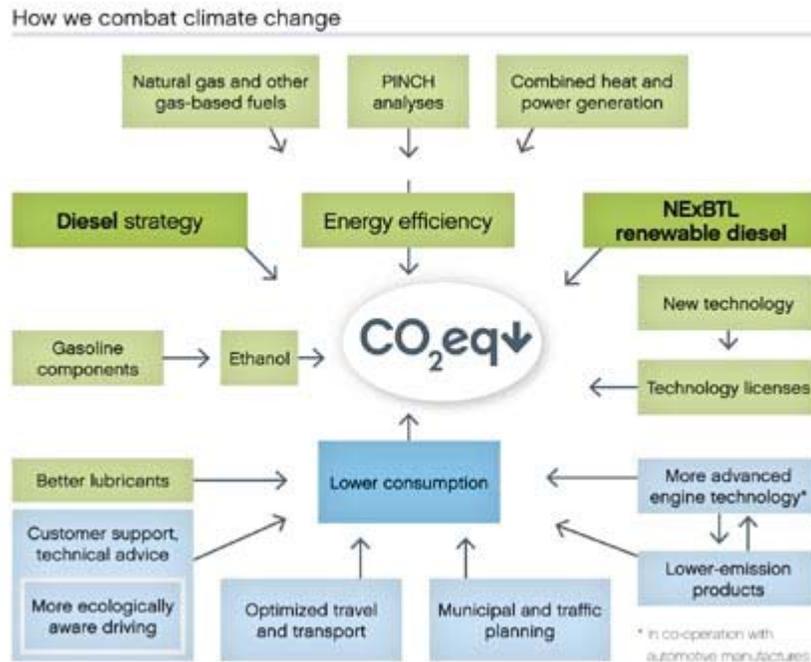## Innovations for combating climate change

NExBTL renewable diesel is Neste Oil's most important contribution to efforts to combat climate change. Produced using Neste Oil proprietary technology, NExBTL is the world's cleanest diesel fuel and can be used in all modern diesel engines.

The greenhouse gas emissions of NExBTL renewable diesel produced from sustainable raw materials, as measured over the fuel's entire life cycle, are 40-60% less than those of fossil diesel. The main challenge associated with the fuel is the availability of responsibly produced raw material inputs – which is why Neste Oil is working to identify and develop new alternatives that do not compete with food production and do not require the use of additional farming land.

Neste Oil's base oil, used in lubricants, also makes a valuable contribution to the environment. Being able to increase oil change intervals from 5,000 kilometers to 50,000 kilometers is a definite advantage in terms of sustainable development – and is made possible using the premium-quality base oil produced by Neste Oil.

High-octane, low vapor pressure gasoline components, such as Neste Oil's isooctane, enable ethanol to be blended into gasoline, and make their own contribution to combating climate change. These components also promote efficient combustion and reduce tailpipe emissions.

Neste Oil also offers a range of advanced technologies for producing loweremission products to other companies.

How we combat climate change

Natural gas and other gas-based fuels →

PINCH analyses →

Combined heat and power generation →

Diesel strategy

Energy efficiency

NExBTL renewable diesel

Gasoline components → Ethanol →

$CO_2eq\downarrow$

New technology ↓

Technology licenses →

Better lubricants →

Lower consumption

← More advanced engine technology*

Customer support, technical advice

More ecologically aware driving

Optimized travel and transport

Municipal and traffic planning

Lower-emission products

* in co-operation with automotive manufactures

Environmental impact of raw materials

In terms of the raw materials it uses, Neste Oil's potential to make a positive environmental contribution differs significantly between crude oil and renewables.

Monitoring crude oil production is challenging

The international trade in crude is concentrated in a few major centers without any direct contact with the areas where it is produced. Buyers typically know only the country of origin when buying crude in Rotterdam, for example, and its technical properties. Establishing the origin of the Russian Export Blend rude that Neste Oil uses in large quantities is equally challenging. The oil loaded at the Primorsk terminal arrives from various areas across Russia via a pipeline network stretching thousands of kilometers. The situation is slightly clearer in respect of the feedstocks that Neste Oil imports by rail, as we generally know the areas from which this originates.

Sources of renewables are well-known

As part of its strategy, Neste Oil is committed to extending its feedstock base. Although palm oil and other types of vegetable oil, together with animal fat, currently provide a good basis for producing renewable fuels, they will be joined by new alternatives in the future. Neste Oil currently uses the bulk of its R&D funds on developing new feedstocks, and is working with over 20 universities and research institutes internationally on a range of different alternatives. Neste Oil has already tested jatropha, a non-food oil plant, and is developing techniques for making use

of forest harvesting waste and algae.

We know significantly more about the origin of the renewable raw materials we use than we do about our crude oil – thanks in large part to the unique monitoring system that we have developed that enables us to trace the origin of our palm oil all the way back to the plantation. The use of segregated handling and transport guarantees that we are not supplied with material that does not meet sustainability criteria. The effectiveness of the system was confirmed by a third-party audit in 2008.

The animal fat that we use comes from two Finnish plants that both have a wellmonitored procurement chain. Our rapeseed oil comes from a Finnish supplier.

Neste Oil is involved in promoting the sustainable production of renewable raw materials through organizations such as the Roundtable on Sustainable Palm Oil (RSPO) and the Roundtable on Responsible Soy.
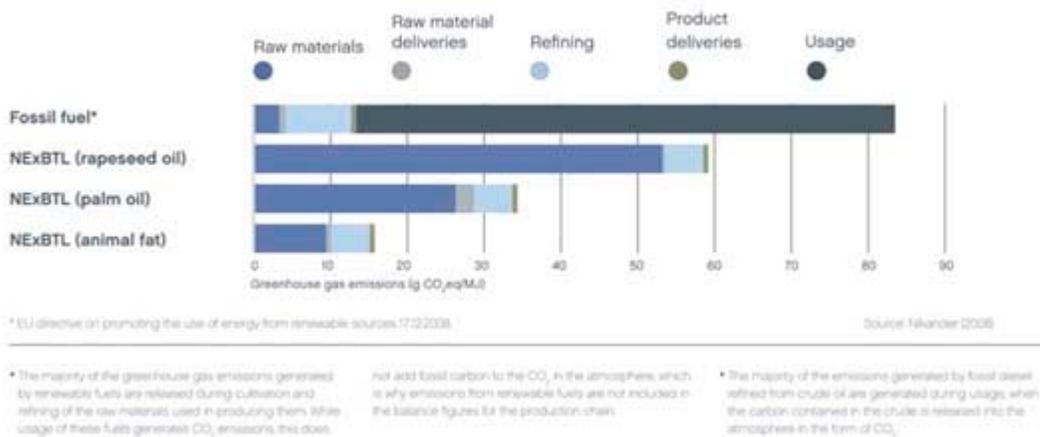
Protecting biodiversity

Neste Oil is committed to efforts aimed at halting the destruction of rainforest and the reduction of biodiversity, and irresponsible land use. The company has been an active promoter of common ground rules covering the raw materials used in producing biofuels that governments, the international community, and all those in the industry can abide by.

Neste Oil joined an International Sustainability and Carbon Certification (ISCC) trial in Germany in 2008 aimed at establishing the sustainability of segregated palm oil, improving the accuracy of greenhouse gas calculations, and defining product chain ownership. The project uses a German– based international certification system and will end in 2009.

Greater price turbulence has developed on the international food market recently, and has largely resulted from increased consumption, changes in what people eat, higher energy prices, poor harvests in major producer countries, speculators moving into the food market – and, to a lesser extent, by the use of materials in the food chain as energy. While committed to increasing its output of renewable fuels, Neste Oil aims to exit the food chain.

Greenhouse gas emissions generated during the product chain
NExBTL renewable diesel compared to fossil diesel

* EU directive on promoting the use of energy from renewable sources 17.12.2008

Source: Nikander 2008

* The majority of the greenhouse gas emissions generated by renewable fuels are released during cultivation and refining of the raw materials used in producing them. While usage of these fuels generates CO₂ emissions, this does

not add fossil carbon to the CO₂ in the atmosphere, which is why emissions from renewable fuels are not included in the balance figures for the production chain.

* The majority of the emissions generated by fossil diesel refined from crude oil are generated during usage, when the carbon contained in the crude is released into the atmosphere in the form of CO₂.

Sustainable palm oil

Neste Oil uses only palm oil that can be traced all the way back to the seed of the palm that produced it. This is guaranteed through extensive documentation and audits at every stage of production, from the plantation to the pressing plant and the customer.

1. The seed unit is the foundation of the consistent quality achieved by the plantation, and uses cross-pollinating techniques. Seeds are removed from their shells mechanically before being cleaned by hand. Samples are taken from each batch for analysis. They are then germinated and transferred outside to the nursery when they are three months old. When they reach a year old, they are ready for final planting, and two years after that they will start producing their first crop. Palms reach full maturity at 30 months old.

[Watch video](#)

2. The nursery has around 120,000 seedlings, which need 6-8 millimetres of water twice daily. Water is taken from the nearby river, and during the rainy season the monsoons help as well. Mature oil palms and other crops are planted around the area to protect the seedlings from the elements. These crops also provide a good habitat for insects such as dragonflies, bumblebees, and ladybirds. Thanks to the efficient cultivation methods used, the palms have a long life and yield fruit for around 25 years. The oldest palms on the plantation date from 1984.

3. During planting, it is important to use seedlings of the same age, as this ensures that the palms will grow evenly, simplifying the job of harvesting.

4. During harvesting, workers bring down the palms' fruit using long poles tipped with a sharp knife, used for cutting the bunch free of the branch. Fruit bunches weigh an average of 18 kilos, and a branch can weigh up to 30 kilos, so workers need to keep their distance. Branches and leaves are piled around the roots of the palms to compost as fertilizer. The fruit bunches are carried away in buffalo-drawn carts to collection points. The traceability process begins here by separating specific fruit from others. Loaders ensure that all the fruit is collected, as each fruit contains around 40% oil, and each bunch between 23% and 30%.

Watch video

5. At the pressing plant, the fruit are separated and the oil extracted in mechanical presses and fed into tanks. The oil extracted from the pulp is referred to as raw palm oil, while the kernel produces palm kernel oil. Traceable and non-traceable oil is stored in separate tanks to ensure the integrity of the process. The empty seed shells are transported back to the plantation, where they are used as fertilizer. The fiber and husks are used as fuel at the pressing plant. Palm oil is exported by sea and land for use in food manufacture and by the chemical and oil industry.

Watch video

6. Plantation workers are provided with free accommodation and free electricity and water. Children are given free schooling and health care is free for everyone as well. Workers has regular checkups, and the company pays for all the medicine. Ensuring everybody's wellbeing by providing things like water, schooling, and other free services is one of our biggest achievements in the social area.

Watch
video

"Environmental emissions at Neste Oil's production plants in 2008 were largely at the low levels seen in previous years. Emissions remained within environmental permit limits for the major part. Extensive work has been done at all sites to prevent pollution of the soil, groundwater, and waterways; and systematic cleanups have been carried out to eliminate past problems. Environmental performance is monitored on a regular basis.

Energy and natural resource usage

Neste Oil's Porvoo refinery is a major user of energy and natural resources. Electricity, steam, and heat are generated at the sit in a modern combined cycle power plant fired on natural gas and fuel oil. Electricity is supplied to the majority of the companies in the Kilpilahti industrial area. In contrast to the majority of European refiners, which continue to use more polluting liquid fuels, Neste Oil fires only gaseous fuels in its refinery furnaces. Neste Oil used 7.9 million m^3 of water in its processes in 2008 and 1,172 million m^3 of cooling water. Wastewater is processed in highly-efficient treatment plants featuring mechanical, chemical, and biological treatment processes. Activated carbon filtering is used with certain effluent streams, particularly those coming from petrochemical production"

"Neste Oil and Stora Enso are working together to develop a new generation of biofuel production technology based on using woodbased biomass to help reduce the use of fossil fuels and reduce greenhouse gas emissions. A joint venture pilot plant has been designed and is being built at Stora Enso's mill in Varkaus as the first stage of the project. Biowax produced by the process can be refined into commercial fuel at Neste Oil's Porvoo refinery. Neste Oil's and Stora Enso's pilot plant will process a range of forest harvesting waste and mill by-products, such as branches, stumps, bark, sawdust, and cutter chips. The advantage of the cellulosebased process lies in the fact that it does not add to the CO_2 burden put on the climate as it makes use of the natural cycle that binds carbon to wood. The overall sustainability of the process is further reinforced by its efficiency. The energy generated by the process

can be used in the form of electricity and as steam and district heat by the adjacent paper mill and the local municipality.Stora Enso will be responsible for supplying the biomass, which must be dried before gasification. The resulting syngas will then be processed via a synthesis to produce biowax. The latter will be transported to Porvoo for refining into premium-grade renewable diesel fuel. The plant's gasifier is already operational, and the second stage of the project, a synthesis plant, will be commissioned in 2009.

"Low level of airborne emissions

Neste Oil's airborne emissions in 2008 remained at the levels seen in recent years.

CO_2 emissions have increased at the Porvoo refinery following the completion of the hydrogenation plant that forms part of the new diesel line there. The plant's overall impact has been neutral, however, as the hydrogen content of crude-based endproducts has risen and their relative carbon content dropped.

Waterborne emissions

Wastewater treatment systems at both refineries operated excellently throughout the year. Oil emissions, at 0.1 grams per ton of crude input, were less than 3.5% of the 3 g/t target set by the Baltic Marine Environmental Protection Commission.

The Porvoo and Naantali refineries have had a voluntary groundwater monitoring program in place since 1995, and its work is continuing. Soil contaminants have not been found off-site. »

" Neste Oil has monitored its impact on the environment for over 20 years, and the data from this work confirms that a major reduction has taken place and provides a solid base of information for understanding the nature of the impact involved. The environmental performance of the company's production sites is excellent today.

Monitoring takes places on a continuous basis:

air quality is monitored by measuring ambient concentrations of sulfur dioxide, reduced sulfur compounds, NO_x, and ozone

the impact of airborne emissions are monitored using bioindicators to analyze how pollutants affect the incidence and nature of lichen on the bark of pine trees in the area

seawater quality and sediment composition are monitored, together with local fisheries

groundwater and surface water quality at refineries is monitored regularly

plant noise is measured regularly at locations most subject to this type of impact

Broad-based environmental monitoring around Neste Oil's refineries has been carried out since the 1970s. Emissions have fallen steadily, and the quality of the environment around the Porvoo site, for example, is well on the way to returning to the conditions that existed prior to the building of the site – as reflected in the growing incidence of sensitive plants such as lichens in the surrounding forest.

Neste Oil has reviewed the health, safety, and environmental impact of its operations in detail and the risks associated with potential major accidents – and used this data to create an action program that is updated annually. Together with other companies based in the Kilpilahti area at Porvoo, Neste Oil has also commissioned a separate analysis of how the risks associated with major accidents should be prepared for, and its results were used in zoning new areas in 2008, for example.

Exercises covering crisis management and communications during major accidents are carried out at least once annually.

Neste Oil produces an annual review of the environmental risks and liabilities associated with its operations, assesses the provisions required under accounting standards,and makes its liabilities public"

Environmental impact of end-use

Neste Oil makes its biggest contribution to combating climate change through its products. The latter generate more than 10 times the emissions released during refining and transportation, which makes the potential for reductions much greater. The more energy-efficient product usage is, the lower the level of greenhouse gas emissions will be. Savings can bring a relative CO_2 reduction running into millions of tons.

Acting to reduce local and global emissions

Emissions released through the usage of petroleum products impact air quality and contribute to a reduction in biodiversity. This is particularly true of nitrogen and sulfur oxides. Improving product quality and thereby promoting the introduction of new and better engine technology can help improve air quality, particularly in urban areas, and reduce health and environmental problems. While it has proved possible to reduce the growth in traffic emissions in

many European countries in recent years, traffic remains a central negative factor in terms of air quality.

Neste Oil refines an increasing volume of higher-quality traffic fuels from crude oil, and modern engines need less of these fuels to travel further. Lower usage benefits drivers, air quality, and the environment generally, as the bulk of a fuel's emissions over its entire life cycle are released when it is used.

Neste Green diesel, launched in 2008, contains a minimum of 10% NExBTL renewable diesel and cuts tailpipe emissions and enhances urban air quality. Combating climate change calls for rapid action and more sustainable products like this that make a positive contribution.

New bio heating oil in Finland

Neste Oil launched a new heating oil containing 2% NExBTL in Finland in January 2009. Suitable for use in all modern oil-fired heating systems, it offers excellent efficiency and lower emissions.

Adding a renewable component to heating oil is yet another way of responding to the climate challenge. The 2% biocomponent content of the new fuel could reduce consumption of conventional oil on a national scale by the equivalent of the oil used by 10,000 family homes.

Neste Oil will take part in Save More Than Fuel campaign

A Europe-wide initiative to encourage drivers to improve the way they drive

A European campaign designed to encourage drivers to change the way they drive and save fuel, money, and the environment was launched at service stations on 27 May. The 'Save More Than Fuel' initiative is a joint effort by the European Petroleum Industry Association (EUROPIA) and the European Commission.

More than 40 European oil companies and around 45,000 service stations in 29 countries will take part. The plan is to distribute a guide, available in 24 languages, on how to improve fuel consumption, drive more responsibly, and reduce traffic's ecological footprint by following a set of 10 basic tips to millions of drivers.

Four companies will take part in Finland: Neste Oil, Shell, St1, and Teboil.

"The campaign highlights the oil industry's commitment to supporting efforts by the EU and member states to improve energy efficiency and reduce carbon dioxide emissions," according to Jarmo Nupponen, Managing Director of the Finnish Oil and Gas Federation.

"Oil companies are carrying out continuous work to develop fuels that are better from an environment perspective. Even small changes in the way people drive, however, can result in major savings in fuel consumption and increase overall fuel economy and reduce emissions. Everyone can do their bit by following the campaign's guidelines and save money and help the environment," continues Nupponen.

The campaign's 10 basic tips will probably be familiar to a number of drivers, but people often forget to follow them in practice. They cover areas such as maintenance, driving styles, and avoiding overloading vehicles.

The tips are as follows:

1. Keep your car well serviced and check the oil level regularly

2. Check your tire pressure every month

3. Remove unnecessary weight from your boot or back seats

4. Close your windows, especially at high speeds, and remove empty roof racks

5. Use air conditioning only when necessary

6. Start driving soon after starting the engine and turn off the engine when stationary for more than a minute

7. Drive at reasonable speeds and above all, drive smoothly

8. When accelerating, change up gears as early as possible

9. Try to anticipate traffic flow, and

10. Consider car sharing for work or leisure.

The campaign has been launched simultaneously across Europe. Speaking in Brussels, EUROPIA's Chairman, Panos E. Cavoulacos, stressed that the oil industry is committed to efforts to helping solve society's climate and energy challenges, and has offered its service stations as a channel for promoting the importance of saving energy. The EU's Energy Commissioner, Andris Piebalgs, said that the campaign will play an important part in increasing drivers' awareness of everyone's potential to help society's efforts to save energy. As the amount of traffic increases, the need for greater energy effcieincy and more responsible driving will become increasingly important.

13.5 million tons less in CO2 emissions

Lubricants produced from premium-quality base oil offer a number of benefits, including reducing the friction between engine and transmission components and friction-related wear. This can result in fuel savings of 1-2% compared to poorer-quality lubricants. Motor oils produced from premium-quality base oil also offer a significantly longer oil change interval.

If all the investments currently planned are implemented, Neste Oil will produce 1.2 million t/a of premium-quality base oil in the future. This will generate, in theory, a reduction of 13.5 million t/a in CO_2 emissions, when taking mileage, average lubricant consumption, and the fuel savings resulting from the use of Neste Oil's base oil into account.

It is theoretically possible for Neste Oil's current base oil output (250,000 t/a) to achieve a reduction in CO_2 emissions equivalent to the mileage driven by around 1 million cars annually.

Application areas for premium-quality base oils
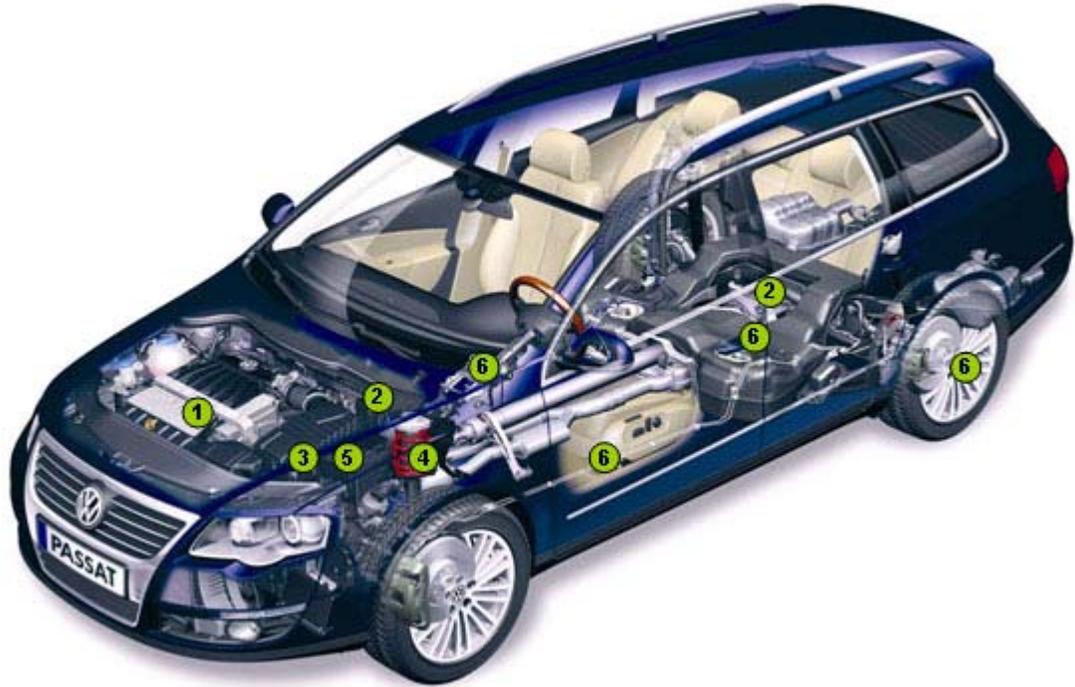
1. Engine oil
2. Driveline fluids
3. Power steering fluid
4. Shock absorber fluid
5. Gear oil (manual, automatic, direct-shift gearbox)
6. Greases

APPENDIX 2

Eni

HIGHLIGHTS

- In 2007 there was an increase of 27.08% in the number of environmental certifications, which went to 122 (9 EMAS). The environmental expenditure totalled 1,063 million euros
- Biodiversity: The project in Val d'Agri has been concluded. Further projects are ongoing in Ecuador, Norvegia, Kazakhstan
- Oil Spill: prevention operations in sensitive areas, such as the Mediterranean, the Caspian Sea and the Artic Ocean, and in Africa.
- Water consumption marked a 6.6% growth, 93.5% of Eni's water consumption is

seawater. Freshwater consumption remained fairly constant. Recycling increased by 5.3%
- Waste from production activities increased by 7.4%. However there was an improvement in quality as dangerous waste decreased by 14.3%

Environment

One of foundations of Eni's sustainable development model is the **environmental sustainability** of its business activities.

Eni's integrated approach includes the assessment of the environmental and social impact (ESIA) of the group's business activities, with these evaluations being carried out with the active involvement of local stakeholders. Eni is concerned with:

- the reduction of the environmental impact of its business activities;
- the continuous improvement of its environmental performance;
- the protection of ecosystems and biodiversity;
- the continuous improvement of the efficiency of its management systems

"Eni defined and constantly updates a **single management system model** which represents the point of reference for all operating units and includes cyclical application of HSE integrated audits"

MANAGEMENT SYSTEM MODEL	COORDINATING COMMITTEE	KNOWLEDGE SHARING

"Eni manages its environmental policies through an **integrated model management system for health, safety in the workplace, the environment and overall public safety**.

The model management system is a **single point of reference** for all the sector functions and operating units and aims to promote a process of continuous improvement in the Management Systems adopted and to **harmonise the process** of identification, measurement and evaluation of HSE performance.

The HSE model management system foresees the **extension of certification to all the sites of the Divisions and subsidiary companies**, given that Eni views certification as an important way of providing evidence, both internally and externally, of the effectiveness of the systems adopted and of guaranteeing continuous alignment with best international practice.

In order to check the complete and correct application of the HSE management system, Eni promotes the **cyclical application of technical audits** conducted by internal experts and certified external controls".

"The coordination of environmental issues is conducted through an integrated approach to issues relating to health and safety and overseen by a HSE Coordinating Committee (COHSE), set up in the second half of 2006.

The committee is chaired by Eni's head of Health, Safety and the Environment and includes the managers responsible for HSE in the business units.

The role of the Committee is to:

- promote the development and integration of HSE management systems and the adoption of solutions **in line with established best practice and national and international standards** of reference;
- analyse proposals concerning **models for information systems and reporting** for HSE activities, and identifying integrated, homogeneous and efficient solutions;
- agree **common policies** for the acquisition of relevant **certification services**;
- identify options and course of action of common interest, also with reference to energy efficiency, GHG emissions and renewable sources of energy, consistencies with Eni's sustainability model and **flows of information** to be provided in this area;
- analyse **technological developments** of pertinence to HSE to be presented to the structures that commission R&D projects; and evaluate the results of R&D projects of common interest;

- coordinate initiatives aimed at promoting, in the appropriate quarters and in conjunction with other functions within the company, the interests of the Group in **the health, safety and environment area**;
- define initiatives for the development and **exchange of knowledge**.

 "With the aim of capturing every possible aspect of knowledge to ensure that accumulated information does not get lost, Eni has designed **its own Knowledge Management system** in order to make explicit, and therefore usable on a broad scale, the tacit and implicit knowledge of individuals within the organization.

This system of knowledge management is particularly relevant for HSE issues and initiatives undertaken to achieve these objectives have included:

- **the definition of the knowledge in the context of HSE** and the promotion of HSE training;
- the **creation of an HSE Intranet** for the exchange and updating of information;
- **the launch of the first "Practice Community"** that brings Eni experts on particular environmental issues into contact (the first community brings together experts in the soil reclamation sector) and facilitates the **exchange of knowledge** across the different business units".

VEGETATION RESTORATION	PIPELINES IN VERY SHALLOW WATER

 "When planning and constructing **gas pipelines**, the route is chosen from among various alternatives on the basis of their environmental impact, the safety of transportation and the techno-economic feasibility. In particular, a great deal of attention is given to either avoiding or at least reducing to a minimum the construction of pipelines in areas of special natural or cultural interest, archaeological areas, geologically unstable areas and inhabited areas or areas where plans exist for the construction of new houses.

This research is carried out by analysing the soil, the subsoil, the botanic and fauna species, the

ecosystems, the countryside, the agricultural activities, the infrastructure, the development plans and the environmental restrictions present in the individual areas.

During the construction phase, trenches are dug for the pipeline using technology that interferes as little as possible with the surrounding environment. Once the pipeline has been laid, the **land around it is restored to its original condition**.

The vegetation restoration project takes into account all the analyses of the ecosystems that were carried out in the initial planning phase, and it is based on the fundamental criteria of protecting biodiversity. The vegetation restoration project includes the **use of autochthonous vegetation species** and, in particular, pioneer shrub species produced in direct collaboration with specialised nurseries. Once the environmental restoration projects have been completed, in some cases **five-year projects** are set up in collaboration with universities and professional bodies to **monitor the new ecosystems deriving from the operations.**

When gas compressor stations are constructed or existing power stations are developed or expanded, environmental mitigation and restoration operations are carried out both inside and outside the plant, depending on the environmental context.
When distribution pipelines are laid or replaced, use is made of "**no dig" techniques** that require a limited amount of digging and reduce the impact of the operations on the surrounding environment.

When **underwater pipelines** are laid, innovative monitoring systems are used to show in real time the stress the pipes undergo during the laying operation.

When underwater pipelines are being used, video cameras and other instruments are used to check their state and the surrounding environment."

"Saipem has developed technology for **laying pipelines in very shallow water** that avoids the use of equipment with a strong environmental impact and of excavating and dredging large volumes of earth.

The solutions adopted and widely used in 2006 and 2007 resulted in the installation of a total of **120 km of pipeline in a highly protected sea-land environment with a rich ecosystem consisting of many varieties of flora and fauna**.

The integrated approach adopted made it possible to keep close control of the entire production chain and the overall method adopted (modularity), including the laying equipment used (Castoro 12, TRB, TRB Tenders and PE Floaters) and the individual choices for the equipment (for example, biodegradable oil)".

THE N-Z-LITE PROCESS	"WATER REUSE" PROJECT IN REFINING SECTOR	WATER INJECTION PROJECTS

When managing water resources, Eni pays particular attention to **reducing the consumption of fresh water** by adopting technology that uses a low amount of water, concentrating on **water recycling and reusing** process water and purifying industrial water.

In 2007 3,331.54 cubic metres of water were consumed, a 5.2% increase compared with 2006. **93.6% of this water came from the sea**, while the amount of fresh water used was more or less constant. Recycled water accounted for 5.32% of the total while the **use of recycled fresh water increased by 12%** compared with 2006, with improvements in the majority of the operational sectors.

In refineries, the use of equipment for treating groundwater and reusing treated water for reclamation activities has resulted in a significant increase in the use of recycled water, while in the production of electricity the construction of new gas turbine cogeneration combined-cycle power stations means that the amount of water used for producing every MWh can be reduced by around 400%.

In 2007 the petrochemical sector registered the biggest increase in the quantity of recycled water used.

 "The En-Z-Lite process **makes it possible to efficiently remove organic contaminants from groundwater** and respect legal limits.

The process is applied to treating refluent water and restoring a quality to the water that makes it suitable for industrial use, for example in the production of demineralised water, and therefore of steam. **In 2007, further progress was made in developing the process with the registration of a patent for the thermal regeneration of water-repellent synthetic zeolites**.

In the **Taranto refinery** a permeable reactive barrier has been installed for the on-site treatment of water by means of a reactive permeable material that degrades or immobilises the contaminating substances in underground water.

This pilot system is used for the on-site remediation of groundwater containing MTBE, hydrocarbons and AS.

In 2008, plans will be developed for a full-scale PRB and a financial evaluation of the project will also be carried out, while a number of sales outlets are currently offering full-scale equipment for the on-site treatment of groundwater. The En-Z-Lite process has shown itself to be the only treatment capable of respecting the rigorous MTBE levels required by authorities."

"Water Reuse is the last step in a broader project named "**The Integrated Water Project** ", concerned with treating groundwater and reusing treated water for industrial purposes.

The aim of the Water Reuse project is **to reuse all the water from effluent water treatment, including water from the hydraulic barriers** contained in the "Definitive Remediation Project", to produce demineralised water for the production of steam, which is currently taken from refining wells.

The benefits include **minimising the necessity of using well water** and admitting much lower levels of volume and concentration into the receptor bodies.

At the end of 2006, a plant for treating groundwater was constructed at the **refinery at Gela**, allowing the depuration and total reuse of water that has been contaminated by hydrocarbons in the refinery's subsoil. Approximately **18,500 metres of pipe were laid**, making this the **biggest plant of its kind in Europe**.

The treatment system is based on **67 inter-connected wells**, which make it possible to automatically recover the water from all the area south of the industrial complex where underground bentonite resin barriers have been constructed to block the polluted groundwater from flowing into the sea.

The plant is designed **to treat 300 cubic metres of liquid per hour**. Once the water has been treated and distilled, part of it is then reused to fuel the boilers in the thermoelectric power station while another part is distributed throughout the area."

"Re-injection of production water into the subsoil is **a technology that allows the pressure in deposits to be maintained, while at the same time reducing the environmental impact** of the dumping of production water from oil-related activities and reducing the amount of fresh water needed.

This type of operation is very important in **sensitive areas** such as the Libyan **desert** where there is a limited amount of water available.

In these areas Eni is committed to protecting water resources, using alternative solutions to replace the consumption of fresh water with sea water or brackish water, and numerous projects of this nature have been set up in **Libya, Egypt** (the Belaym field), **Nigeria** (the Ogbainbiri,

Tebidaba and Ebocha fields) and **Kazakhstan** (the Kashagan field). There are **two projects** currently underway in **Libya ,** in partnership with the National Oil corporation of Libya, which aim to reduce the amount of water used and to eliminate the environmental impact produced by the dumping of production water into the sea and into evaporation pits. The total investment in the two projects amounts to approximately €30 million.

The first project, in the **Bouri** offshore field, is based on re-injecting the production water that is currently dumped into the sea (operational from the second half of 2008), while the second project, in the **Bu Attifel** onshore field, consists of constructing a new system for treating production water with a capacity of around 100,000 barrels/day and modifying the present water injection system. These systems are designed to eliminate the dumping of production water and to progressively reduce the use of fresh water. In the **El Feel** field, also in Libya, there are plans to develop a system of extracting water from deep lying sources that is brackish and not directly usable for agricultural purposes or for drinking.

This operation will drastically reduce the use of fresh water."

Air quality protection

Eni invests in the technological improvement of processes for preventing and avoiding the presence of contaminating substances in gas flows, thereby reducing the need to purify them, and is involved in protecting the atmosphere by:

- managing and reducing greenhouse gases and in particular gas flaring and gas vented;
- improving energy consumption in operational processes by containing consumption and, consequently, associated emissions;
- using fuels with low levels of sulphur and carbon and developing technologies for producing eco-compatible fuels;
- adopting the best possible technologies available for fuel, treating process effluents and reducing emissions.

In the thermoelectric sector the use of the best natural gas combustion technologies has produced a decisive reduction in emissions of sulphur and nitrogen oxides for each unit of energy produced. In 2007 experiments began on installing "VeLoNOx" burners, in order to further reduce the emission of nitrogen oxides.

Eni is committed to the **environmental restoration of contaminated areas** by carrying out in-depth, complex risk analyses that make it possible to plan and carry out site decontamination operations aimed at reducing the health and environmental risks present. The decontamination projects involve adopting state-of-the-art technology such as **bioventing** and **phytoremediation**.

As part of its operations aimed at preventing and protecting the soil from industrial risks, Eni has also developed operations aimed at preventing and containing oil spills by:

- introducing specific operational procedures and management systems;
- controlling, preventing and protecting its operations from dangerous situations;
- constantly reducing the possibility of risk in all its operational activities

"Waste Management

Eni is constantly involved in monitoring and dealing with the production, recycling and disposal of waste material through **dedicated management and monitoring systems**.

The company's aim is to **reduce the production of waste** and promote the **correct management of its final destination** by increasing the quantity of waste that is recycled and sent for incineration and progressively reducing the amount sent to dumps. The temporary increase in the production of waste in recent years is attributable to Eni's commitment to **decontamination** that involves over **80% of the total amount of waste produced.**

On the industrial level, Eni has developed **advanced drilling systems** for production activities that can be used for drilling highly complex wells more efficiently and reducing mining risks. The most significant technology is called **Lean Profile**, which allows the time required and the final cost of drilling to be reduced, and also reduces the environmental impact and makes it possible to gain access to resources that cannot be exploited with traditional systems (for example in Port Fouad in Egypt).

WASTE PRODUCED BY DESTINATION 2007

19%

81%

sent for recovery   sent to disposal

On the other hand, the **Extreme Lean Profile** project makes it possible to reach increased depths, further reduces the time required and operational costs and **drastically reduces the volume of waste produced**, which obviously has to be disposed of.
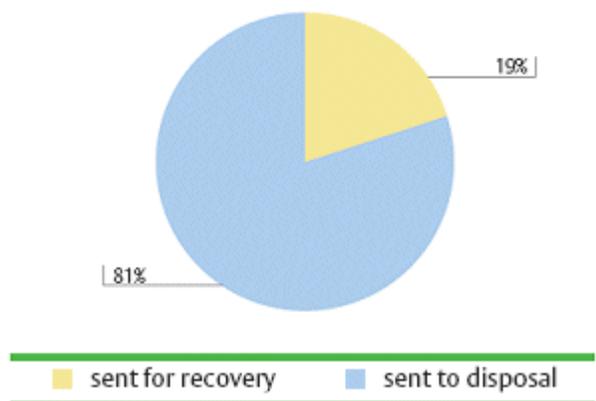
This technology will be applied to all types of wells (vertical, deflected and horizontal). In the

offshore sector, the **Clean Cut system** was applied for the first time on a platform in the Adriatic.

This technology ensures that **drilling cuttings are moved by means of a pressurised close circuit**, which avoids the danger of spills and the risk of accidents caused by manually moving drilling waste.

APPENDIX 3

Petro Canada

"Petro-Canada is a fully integrated oil and gas company, with operations ranging from oil and gas exploration and production through to refining and specialty products production, and service stations and car washes. This wide range means that our environmental footprint is significant. A key focus for Petro-Canada operations is understanding the interaction between our operations and the environment, and integrating environmental stewardship into our projects and business operations.

Our Principles for Responsible Investment and Operations guide our approach to the environment. We conduct our activities consistent with sound environmental management and conservation practices, and strive to reduce the environmental impact of our operations while continuing to be competitive.

We recognize that, as a growing company, we face many environmental challenges. We believe our people and management systems position us well to deliver on our commitment to reduce our environmental footprint, as much as reasonably practicable. A more specific set of standards is outlined in our Total Loss Management (TLM) system to guide project development, operations and decommissioning. This year, we also developed a set of principles for water management to mandate specific expectations of our businesses with respect to water management and stewardship."

Climate change is a serious global issue that affects everyone, industry and

consumers alike. It is one of the toughest environmental issues that we face today and in the foreseeable future. Petro-Canada is not only concerned, we are also impacted. Climate change is a complex issue, which requires integrated solutions - solutions that we want to be a part of.

Petro-Canada creates value by responsibly developing energy resources and providing world class petroleum products. In this process, we emit GHGs primarily through fuel combustion and fugitive releases of methane from our production facilities. Through Petro-Canada's Climate Change Executive Steering Committee and Climate Change Working Group, we have created a strategy to balance both environmental and economic interests, while making sure we are at the forefront of new technology. We realize there is much more to do, but know that worthwhile changes take time to implement properly. We believe it is possible to have an approach to climate change that improves environmental quality, while enabling us to remain globally competitive.

"Climate change and the environment are top issues for Petro-Canada. By taking the same strategic approach as we would to any other area of our business, we can operate in an environmentally responsible way by reducing our emissions intensity, while still remaining economically competitive."
— Kathy Sendall, Chair, Climate Change Executive Steering Committee

> - Risks and Opportunities
> - Our Approach
> - Looking forward
> - Performance Reporting
> - Carbon Disclosure Project

There is an increasing global concern for the use, availability and quality of fresh water. Petro-Canada recognizes that water is a shared resource that we all need to use responsibly, and, as such, water is one of our corporate priorities. We are committed to partnering with the people who share this resource, in an effort to introduce more effective water management. Though there is much to accomplish on this growing issue, our achievements to date on water management demonstrate our commitment and help raise the bar for the rest of industry.

Our business units have a strong track record in adopting innovative approaches to the design and operation of our facilities in order to optimize water use and wastewater discharge through recycling and treatment technologies. We work to protect the water quality in the communities and ecosystems where we operate.

All of our businesses continually look for opportunities to improve water management processes. In 2007, we developed a set of water principles to enable us to appropriately manage our water footprint. In 2008 Petro-Canada businesses are focusing attention on several areas to understand and improve our management and role in stewarding this precious resource.

A key part of our success is a collaborative approach to water solutions. We engage with the local community and other industries to promote responsible watershed management and look for opportunities to participate in local community initiatives related to clean water and sanitation.

We recognize the need to holistically manage our environmental footprint given the fact that ecosystems are interdependent and that the earth's resources are finite.

Petro-Canada is an active steward of the environment around the facilities we operate. We consider access to and use of land a critical priority and engage with key stakeholders in the ongoing management of this physical space. To that end, we participate in a number of partnerships and initiatives which are focused on maintaining and growing the often fragile ecosystems surrounding our operations.

Petro-Canada is in the process of becoming a signatory member of the Canadian Boreal Initiative (CBI), which focuses on conservation in Canada's boreal forest. The CBI works with various sectors to advance conservation efforts and has developed a Boreal Forest Conservation Framework. Some of the goals include: maintaining the health of the boreal forest; protecting sustainable commercial interests and ensuring long-term economic benefits for Northern communities; and, getting the most environmental, social and economic benefits from raw materials, labour and capital.

Through our association with the World Business Council for Sustainable Development, we are learning, along with other concerned organizations, how to effectively integrate our ecosystems thinking and develop enhanced metrics and indicators that will assist us in making better decisions to reduce

our environmental footprint.

Petro-Canada produces numerous products that mitigate environmental impacts that could result from the use of traditional products. We are proud of our leading edge research and development and the resulting products. Some of these include: Dust Suppressant Fluid DSF 65 which is a safe, non-toxic fluid that reduces dust on roads, fields, vehicles and industrial applications; PUREDRILL™ drilling mud base fluids represent a breakthrough for onshore and offshore drill operators who want to enhance drilling efficiency while improving health, safety and environmental practices; PureSpray™ spray oils are non-toxic, clear, colourless, odourless and free of aromatics and carcinogens. These products ensures a high standard of health and safety for the food chain, water resources and our own health and safety; PURITY™ food-grade lubricants are designed for many food processing applications in food processing plants.