Fondazione Eni Enrico Mattei

Environmental Issues and Financial Reporting Trends
A Survey in the Chemical and Oil & Gas Industries

Roberta Salomone* and
Giulia Galluccio**

NOTA DI LAVORO 32.2001

JUNE 2001

MGMT – Corporate Sustainable Management

*University of Messina, Faculty of Economics
**Fondazione Eni Enrico Mattei and
KPMG Sustainability Advisory Services

Fondazione Eni Enrico Mattei
Corso Magenta, 63, 20123 Milano, tel. +39/02/52036934 – fax +39/02/52036946
E-mail: letter@feem.it
C.F. 97080600154

Roberta Salomone Giulia Galluccio

ENVIRONMENTAL ISSUES AND FINANCIAL REPORTING TRENDS

A SURVEY IN THE CHEMICAL AND OIL & GAS INDUSTRIES

The author of paragraph 2 is Giulia Galluccio, the author of paragraph 3 is Roberta Salomone; paragraphs 1 and 4 have been elaborated by Roberta Salomone and Giulia Galluccio.

1. Introduction

Corporate environmental reporting as a recognized subset of corporate reporting is now nearly a decade old.

The so called environmental reporting covers the preparation and provision, by management, for the use of different stakeholder groups, on the environmental status and performance of their organization. This information is often provided in a separate environmental report, but it may be also/or included within other forms of reporting, such as the Annual/Financial Reports, or the Sustainability Reports (which include the economic, environmental and social issues).
In this paper we focus only on the environmental disclosure within the companies' Annual/Financial Reports.

Conventional financial reporting has been premised on the notion that, although a number of identifiable user group exists, the primary consumers of financial statements are shareholders, perspective investors and financial intermediaries (FEE, 2000). As environmental performance is increasingly seen to have an influence over financial performance and financial risk assessment, disclosure of environmental issues in the Annual Report is a fundamental requirement for a company in order to satisfy the information needs of its stakeholders.

Given this pressure there is a definite trend among leading companies to report their environmental performance within the financial statements, but the way companies disclose environmental-related information varies from company to company and from country to country, since there is no standard way for presenting and interpreting these issues.

Besides the qualitative level of this kind of disclosure, in terms of relevance, reliability, clarity, comparability, timelines and credibility, is not generally very high.

Even if the stakeholders use this information in order to orient their choices, companies do not seem to pay a great attention to guidelines specifically related to the disclosure of environmental information in annual financial reports: this is surprising considering the types of decisions which potentially could be undertaken following the companies disclosure on this issue.

More and more voluntary and regulatory guidelines are emerging to encourage companies to disclose environmental issues in the Annual Report.

In this context, the aim of this paper is to examine literature relating to environmental disclosures in the Annual Report and to identify environmental disclosures in this financial document, but also their location and typology, thereby defining current practice on environmental reporting in Annual Reports of selected companies in the chemical and oil &gas industries.

2. Literature Review

2.1. Studies on Environmental Accounting and Reporting Issues

In 1991 a transnational research of the United Nation (UNCTAD-ISAR, 1991) highlighted that 85% of the considered Annual Financial Reports already disclosed some kind of environmental data.

The research showed the low quality of such information, a lack of quantified data, and a different location of the same information varying from annual report to annual report and from country to country. These are important issues since first of all the differences in environmental disclosures influence the comparability of the annual reports (among companies and years), and secondly the location strongly impacts the responsibility of the company. The value of the same data is different if these are disclosed in the financial statement or in the narrative part of the annual report.

To overcome these problems many expert groups, accounting organisations and standard-setting bodies developed guidelines and position statements.

One of the first comprehensive studies in this area was the CICA (Canadian Institute of Certified Accountants) paper *"Environmental Costs and Liabilities: Accounting and Financial Reporting Issues"* published in 1993.

Other European relevant sources include, in a chronological order:

- a paper on environmental issues in financial reporting issued in 1995 by the EC Accounting Advisory Forum (AAF), a consultative Commission set up by the European Commission in 1990, comprising representatives of the accounting standard setting bodies in the member States and of interested profession,
- the document "*Environmental Issues in Financial Reporting"* prepared by ICAEW, the Institute of Chartered Accountants of England and Wales, in October 1996,
- the study "*Information Financière et Environnement*" edited by the French standard setting body in 1996.

In 1998 the Italian accounting standard-setting body established an environmental task force and undertook a study on the environmental disclosure in annual and financial reports, published in October 1998, in this way recognising the importance of the environmental issues also for the accountancy profession.

This statement of position follows, from a chronological point of view, the first Communication of the European Commission on environmental accounting.

In fact, on 20th January 1998, an Interpretative Communication on a number of issues dealt within the main EU Accounting Directives was adopted by the European Commission.

The Communication reflects conclusions and discussions in the Accounting Advisory Forum and aims to give guidance to bodies responsible for setting accounting standards in the Member States, to accounting professionals and to investors and other users of company accounts. The Communication also specified that the Commission intends to issue, at a later date, a separate Recommendation on environmental matters in financial reporting.

The EU document includes some clarifications on the inclusion of environmental issues in the financial statements, in particular on:

- recognition of provisions for environmental liabilities and risks
- definition and treatment of environmental expenditures
- environmental information that ought to be included in the notes on the accounts
- environmental information that could be usefully be given in the annual report

The other above mentioned studies and reports offer a broader explanation of the environmental issues on financial accounting and disclosure, which can be generally summarized under the following headings:

- definitions of environment
- definition of environmental expenditures
- recognition and measurement of provisions for environmental costs and liabilities
- criteria for capitalizing environmental expenditures
- offsetting of liabilities and expected recoveries
- impairment of assets, including damage to own property
- disclosure in the balance sheet
- disclosure in the notes on the accounts
- disclosure outside the financial statement (i.e. Management's Discussion & Analysis)

According to Italian Law, the Companies Incorporated as S.p.A (Società per Azioni) and some Companies Incorporated as Srl (Società a responsabilità limitata), shall have a Board of Statutory Auditors. For this reason, the document of the Italian standard-setting body includes a final part regarding how environmental issues should influence the activity of the Board of Statutory Auditors.

A very useful document to synthesize and compare the current guidance provided by governmental and non-governmental organizations on environmental accounting issues is the United Nation Background Report entitled *"Accounting and Reporting for Environmental Liabilities and Costs within the existing Financial Reporting Framework"*. Moreover this Report aimed at identifying best practices that may be considered by national standard setters in the development of their accounting standards, rules or regulations.

This Report was revised and published as a position paper entitled "*Accounting and Financial Reporting for Environmental Costs and Liabilities*" in 1998, and forms the first of the two sections of the UN interim statement of best practice guidance entitled *"Environmental Financial Accounting and Reporting at the Corporate Level*" released in 1998. The second section based on the background paper *"Linking Environmental and Financial Performance: A Survey of Best Practice Techniques"* went on to identify key environmental indicators (EPI's) and examined their relation to financial performance recommending improvements in the disclosure of EPI's.

Referring to the disclosure of environmental information in Annual and Financial Reports, finally we shall mention a recent EU report entitled *"Study on Environmental Reporting by Companies"* published in October 1999.

In fact in August 1998, the European Union launched a study with the objective of assessing the feasibility of, and the benefit/costs associated with, the disclosure of environmental information by companies.

The study has been carried out by the Centre of Environmental Informatics (CEI) of the University of Sunderland (UK).

The report surveys the Annual/Financial reports and the Environmental reports of a large number of companies with a view to identify best practice and to evaluate the relevance and comparability of the environmental information that is disclosed.

Companies (88) that participated in this study were chosen on the prerequisites that they are based in the EU; operate in the EU; based or operate outside the EU but offer best practice example; produce an Environmental Report. Some expert organisations (18) and report user organisations (11) that utilise Annual/Financial Reports as part of their daily business also participated. Furthermore, all participants were invited to take part in an online discussion relating to the disclosure of environmental information in the Annual/Financial Report and asked to complete a questionnaire.

The report also contains twenty recommendations for improving the reliability, comparability and usefulness of the disclosures. It shall be noted that the views of the authors and the recommendations given do not necessarily reflect the views of the European Commission.

2.2. Accounting Standards Related to Environmental Issues

The documents discussed above represent only contributions to the debate on environmental accounting and the views expressed should not, in themselves, impose any obligation on them.

Recently both the International Accounting Standards Committee (IASC) and the UK's own Accounting Standards Board (ASB) have issued standards that are of particular relevance to environmental issues, in particular IAS 36 on Impairment of Assets, IAS 37 and FRS 12 on Provisions, contingent liabilities and contingent assets, and, to a lesser extent, IAS 38 on intangible assets.

Looking at guidance for provisions and contingent liabilities, IAS 37 and FRS 12 have been developed in parallel by the respective standard setting bodies, IASC and ASB. The IASC and ASB standards have been effective since 1st July 1999 and since 23rd March 1999 respectively.

Although the technical parts of the standards do not refer explicitly to environmental issues, there are sufficient examples and illustrations provided elsewhere in the documents enabling to guide through the core areas of environmental liabilities and provisions. For example, Appendix C to IAS 37 contains, among others, examples dealing with:

- contaminated land – legislation virtually certain to be enacted;
- contaminated land – constructive obligation;
- offshore oilfields – decommissioning costs;

- a legal requirement to fit smoke filters;
- a court case – deaths from food poisoning;
- repair and maintenance.

Now that IASC has completed its "core set of standards", including the above mentioned IAS 36, IAS 37, IAS 38, the Fédération des Experts Comptables Européens (FEE) has updated its earlier Memorandum to IASC, pushing for better accounting rules on green issues. The paper, published in May 1999, and entitled *"Review on international accounting standards for environmental issues"*, deals with six main issues, identifying areas where individual standards would benefit by the inclusion of additional requirements on implementation guidance:

- disclosure of environmental costs and liabilities
- criteria for capitalizing environmental expenditures
- recognizing provisions for environmental costs
- disclosure of environmental risk and uncertainties
- impairments of assets, including damage to own property
- fines and penalties, pollution permits and emission rights

Following its earlier Memorandum, FEE was informed that the IASC Executive Committee would recommend to the Board that a project on environmental issues should be undertaken.

3. The Disclosure of Environmental Information in Annual Reports

3.1. Aim of the Study

Corporations are recognizing the benefits to their long term corporate profitability of reducing environmental impacts. Both the accounting and the environmental areas are concerned about how to identify, measure, report and manage environmental impacts (Epstein M.J., 1996). In particular, the assessment of environmental impacts on company's financial situation requires improvement in external reporting of environmental data.

The 1989 (the year in which the Exxon Valdez incident took place and also the year of the publication of the 1st Environmental Report by Norsk Hydro, one of the largest Norwegian industrial groups) was the year of the crossroad in environmental reporting. While over the years the number of companies that made environmental disclosures has increased (Tilt C.A., 1998), even within the Annual Report, not always has this increase been accompanied by an equal increase in the quality of the information published (Salomone R. - Ciraolo L., 1999). In fact, it should be noted that although a company may have increased the quantity of environmental information disclosed in the Annual Report, they may not be useful to the reader. In order to satisfy the growing needs of the stakeholders it is not sufficient to include little and concise environmental information within the financial document; the data must in fact be clear, identifiable, significant and inserted in the most suitable context (of the document) (Borghini S. – Salomone R., 1998).

In order to better understand the typologies and methods of expressing these items, we have considered it useful and necessary to carry out an analysis of the main environmental information found in Annual Reports in order to be able to draw a "map" of the environmental disclosures that today are most commonly included in this company financial document.

The purpose of the present research paper is in fact to carry out a critical and comparative survey of the current practice of environmental disclosure in Annual Reports through the content analysis. The analysis is based on companies which belong to production sectors with a strong environmental impact, in order to highlight any possible gaps and the major difficulties, still existing at present, in reporting practices.

In this context, we consider environmental information any information, expressed in qualitative terms (only descriptive) or in quantitative terms, physical or financial, connected to the impact that the company's activity has on the natural environment, and that can have consequences on the financial and economic structure of the company. Therefore, environmental information is any information that makes the managerial context described in the Annual Report more understandable and complete.

The financial documents taken into consideration in the analysis are both the balance sheets drawn up according to the EEC's IV regulations, and the Annual Report. Even though there are some differences between the two accounting documents, the environmental information was analyzed according to the typical structure of the Annual Report. Consequently, in the present research paper, we will always refer to the structure of the Annual Report, since the sections of the balance sheets according to EEC's regulation have been assimilated to similar sections of the Annual Report by analogy of the financial information contained.

We consider strong environmental impact sectors, those industrial sectors that cause significant environmental pollution (real or potential). The disclosure of environmental information is in fact considered more important (because seen as a necessity) in high polluting companies, rather than in those that do not have relevant environmental problems (information as reaction).

In particular, this research paper highlights, through "content analysis" as well as through the presentation of examples of environmental disclosures:

- the presence of environmental disclosures in the Annual Reports;
- the type of such information, that is, if it is the case of qualitative or quantitative data; the information contained in the Annual Report can in fact be simply descriptive or can also report the monetary quantification (or physical in the case of polluting emissions of the events described). Moreover, we want underline the possible differences and/or preferences between disclosure of descriptive information and disclosure of financial information;
- the location of the information;
- the existence of significant differences among the countries surveyed; there are in fact countries that can consider themselves in the van as far as the quality of environmental reporting goes (Canada, Finland, Denmark).

3.2. Methodology

3.2.1. The Sample

The survey looked at 156 Annual Reports, from 1993 to 1998 (Appendix 1), of 82 companies of the chemical and energy sectors (mainly oil).

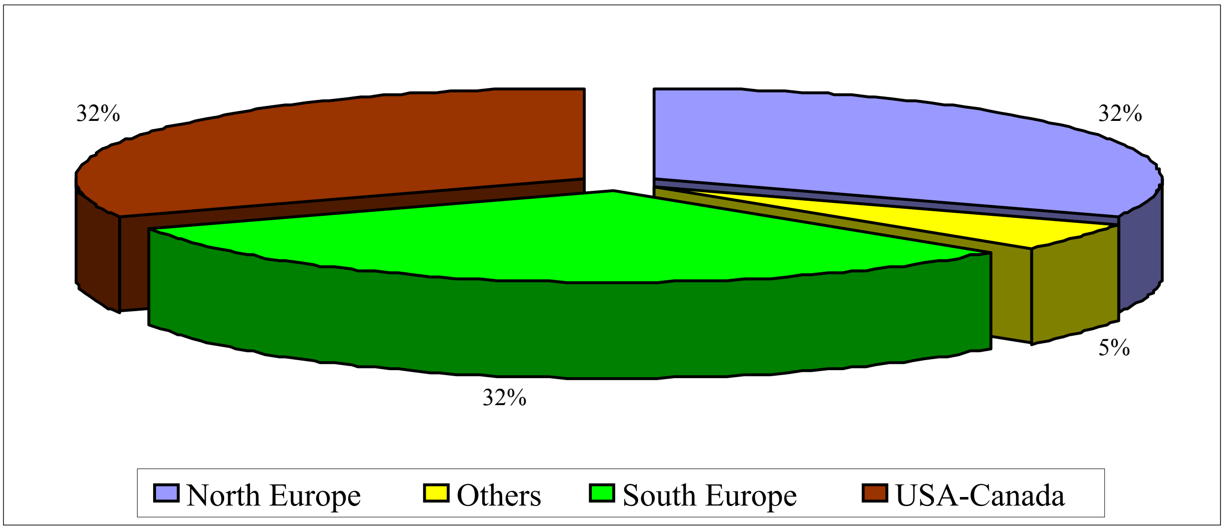
The companies were chosen and selected among the most representative ones of the sector in each of the countries where they operate. They were chosen on the basis that it is probably a category of companies that make greater environmental disclosures, as they undoubtedly have greater environmental problems to face (compared with other industrial sectors).

To avoid double information, we have limited the majority of the analysis to a narrower sample (82 documents) made up of the most recent annual reports available for each company (Appendix 2).

As already mentioned, the companies were classified by country and by sector. Since some companies operate in both sectors analyzed, the assignment to a specific one was determined on the basis of the main activity carried out by the company (as underscored by the Annual Report). In any case it must be specified that, from the extraction by sectors, no discriminating element of any note was noticed.

Furthermore, in order to simplify the investigation by country, the documents were put together according to the country of origin so that the final sample was subdivided as follows: 26 companies from the U.S.A. and Canada, 26 from the Northern European group, 26 from the Southern European group and 4 from a residual group concerning the remaining countries.

Graph 1 – Composition of the Cluster by Countries' Aggregates



This aggregate of countries was decided on the basis of a criteria of similarity in the legislative imposition and in the companies' awareness with regards to environmental problems.

3.2.2 Data Collection

The collection of environmental information was carried out throughout a checklist, structured in such a way as to capture all the environmental disclosures contained in the Annual Reports, that are considered relevant as far as this research paper goes and drawn up on the basis of guidelines predetermined by the most important international organizations of decreeing accounting principles. The checklist in fact remarks the presence or absence of a particular environmental information, specifying if the data are expressed in purely descriptive or also in quantitative terms.

Obviously the extent of the information presented varies considerably from document to document: some companies report only a general remark connected to their own environmental commitment, while others extensively discuss their own conduct and environmental responsibilities, even with the help of environmental performance data. In our analysis we will not always take note of said different extent of information. In fact, it is our opinion that the checklist, that differs from preceding experiences of "content analysis" (Milne M.J. – Adler

R.W., 1998), being structured in such a way as to attribute neither an evaluation (for example the assignment of points on the basis of the quality of the data collected), nor a numerical quantification of the information (for example the count of the number of words and/or sentences dealing with environmental topics), but being designed to capture the simple presence of the information, assures that the analysis not be "polluted" by the researcher's subjective evaluations or by the difficulty in numbering, that could invert the meaning of the very information gathered.

With regard to the check-list's structure it is possible to identify three different thematic areas. The first part of the check-list focuses on demographic and financial information that allow us to identify the nature and the dimension of the firm. The second part of the check-list underlines all qualitative or better said non financial environmental information. The third part underscores strictly financial data of an environmental nature.

Each type of environmental information was gathered using a code that can assume three different values:

- 0, if the information is missing;
- 1, if only one piece of qualitative information is present and is expressed in purely descriptive terms;
- 2, if one piece of quantitative information is also present (physical or monetary according to the typology of the information gathered).

Moreover, the location of each type of information is also specified, that is where it can be found in the Annual Report, with the possibility of taking note of more than one placement if the same information is repeated in different sections of the document.

According to the indicator areas identified as key indicator area by the World Business Council for Sustainable Development and by the Global Reporting Initiative, the most relevant types of environmental information, are:

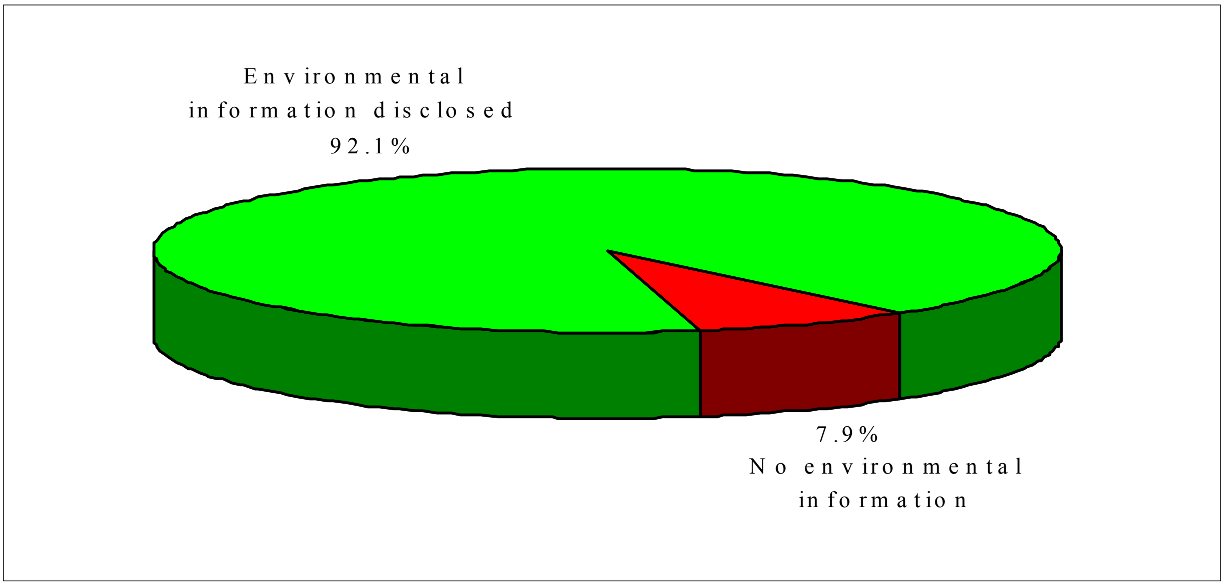
- environmental policy;
- environmental impacts;
- environmental management systems;
- environmental targets;
- ecological products;
- reference and/or cross reference to the Environmental Report;

- environmental financial information, such as operative expenses and environmental investments; extraordinary environmental costs; environmental liabilities; accounting policies of environmental items; environmental commitments and contingencies; environmental insurance; tangible and intangible environmental assets.

3.3. Data Analysis and Results

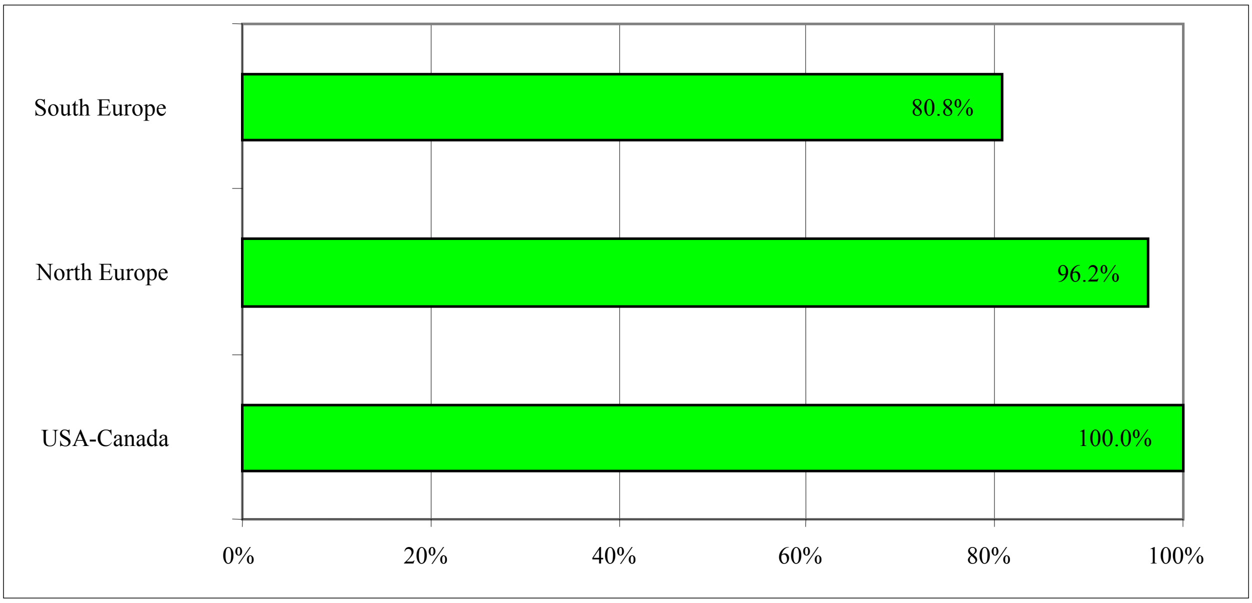
It is interesting to note as first element of investigation, that generic information relating to environmental issues was found in almost the entirety of the sample. In fact, environmental problems are relevant 92.1% of the companies which have chosen to include a certain level of environmental disclosures in the Annual Report.

Graph 2 – Environmental Disclosure noted



With relevance to the aggregates of nations, even though the level of environmental disclosure remains high, differences can be noted. The fact that almost all the companies in our sample from the U.S. or Canada contain some type of environmental information is surely due to the more stringent environmental legislation they are subjected to. But it is however interesting to note that, even though Southern Europe is subjected to less severe environmental regulations with respect to Northern Europe, U.S.A. and Canada, the percentage we surveyed is still quite high. Consequently there is a certain awareness towards the issues of environmental communications at least in the sectors we analyzed.

Graph 3 – Environmental Disclosure According to Nation Aggregates



For analytical purposes we divided the environmental disclosures found within the Annual Report into two categories:

- non-financial environmental information;
- financial environmental information.

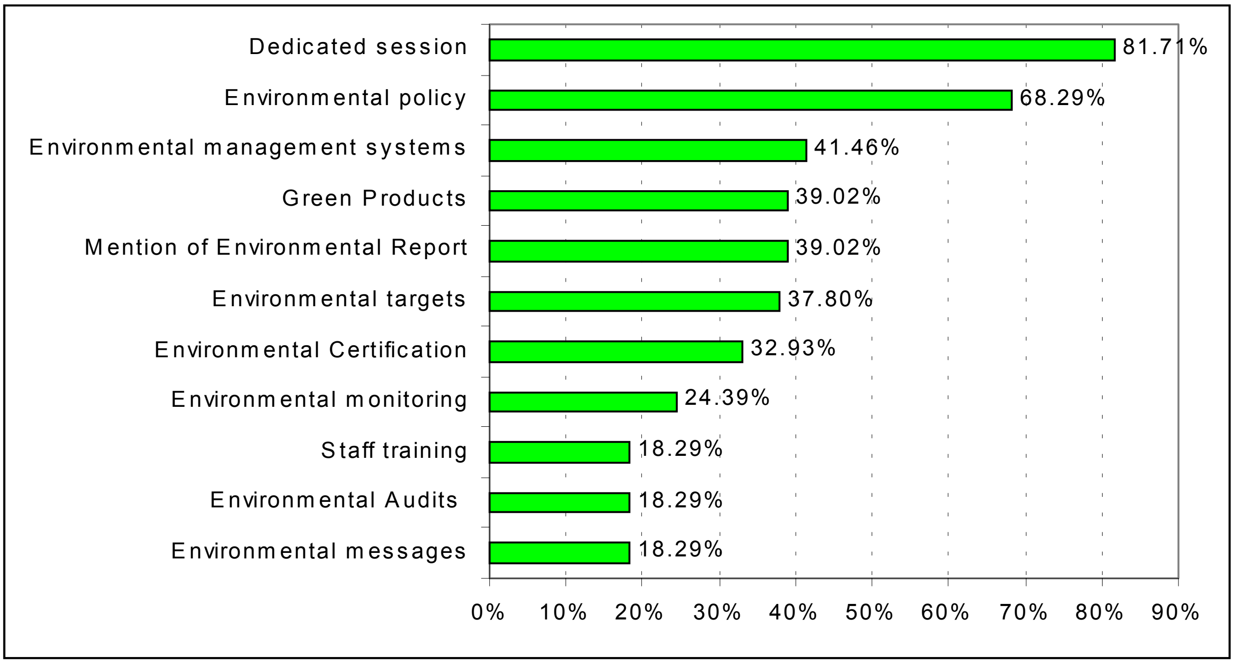
For each category, the types of environmental information are now analysed more in detail, illustrating percentages of disclosures, locations, differences among countries and presenting examples of environment-related information contained in the documents surveyed.

3.3.1. Non-financial Environmental Information

In the following graph (Graph 4) we show the percentage of non-financial environmental information that we surveyed. In this respect we took account of the particular awareness towards the environmental issues shown by the analysed sectors.

Non-financial information is almost a qualitative information, except for the environmental impact when described using quantitative data. As a matter of fact, it should be given to inform stakeholders of the existence of environmental policies, environmental management systems, environmental targets, environmental friendly products and processes and other environmental-related information which may be useful to the reader. This category of disclosure is utilized primarily for publicity reasons and to increase the awareness that environment is one of the company's key risk areas. The extent and the variety of such disclosures varies considerably from company to company and the following analysis, according to each single category of information surveyed, allows us to evaluate the possible range of variation, even on the basis of the information among the aggregates of nations.

Graph 4 – Non-financial Environmental Information



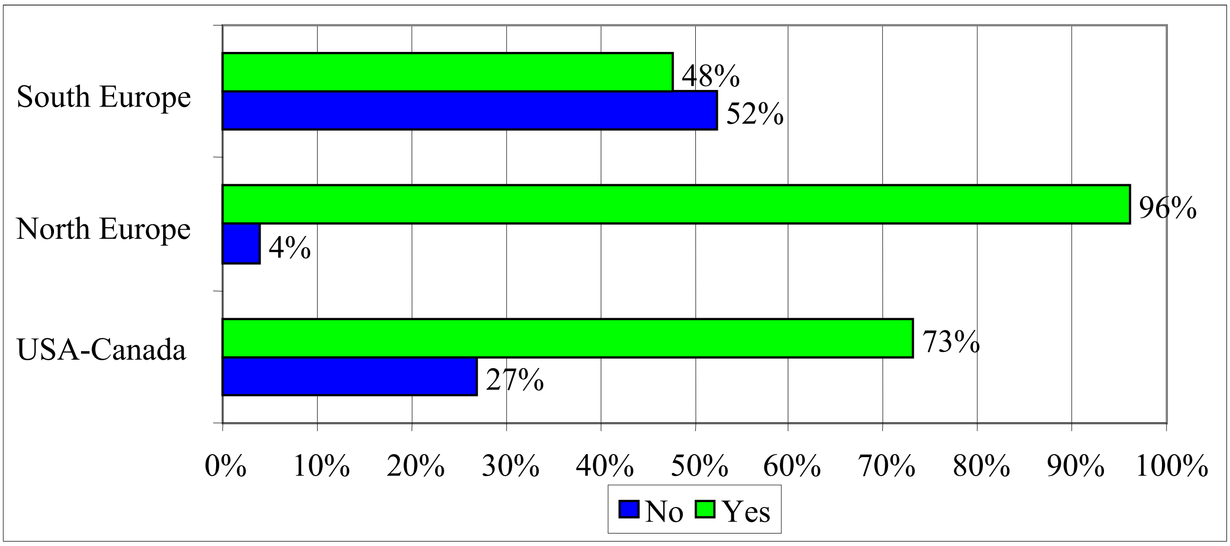
It can be seen that the existence of a dedicated section is of primary importance for the companies surveyed and that environmental policy is the most common environmental qualitative disclosure.

Environmental Policy

One of the most interesting qualitative disclosures is undoubtedly the one concerning to company environmental policy. Many companies choose to carry out this typology of disclosure (68.29%). In fact, they now feel the necessity to include in the document general information on how environmental problems can have consequences on company management and on what is the impact of their activities and products on the environment. All this makes, it necessary to include politics, targets and environmental impacts within the Annual Report.

As far as the aggregates of nations goes, as seen in Graph 5, this is the type of information that the companies generally include in the document and that is strongly favored in Northern Europe.

Graph 5 – Mention and Reference to Environmental Policy



Rarely environmental policy is entirely published in the Annual Report (as it happens instead in the Environmental Report), but more frequently it can be found expressed in a few words trying to briefly summarize the company's point of view on environmental issues and its commitment to best manage it. Often brief remarks on environmental policies are primarily located in the Chairman's Statement/Manager's Letter (33%), closely followed by the Dedicated Section and the Review of operations (28%). Since the manager's letter, in the opening of the document, generally puts forth the objectives and the operative strategies that the company intends to pursue, it is useful that the strategy the company implemented for the protection of the environment be briefly described. In absence of the aforementioned it would however be

Box 1 - NESTE Annual Report 1994

Chief executive's letter ***Environmental awareness translate into environmental demand*** *(Omissis)... We are Europe's leading producter of reformulated, low environmental impact traffic fuel... (omissis) We revised and updated our environmental, health and safety policy and our quality policy during 1994 to meet today's and tomorrow's demands. Neste's goal is to operate without causing adverse effects on either man or the environment, and to actively promote environmental protection, safety and the health of its personnel...(omissis). A separate report on Neste and the environment during 1994 will be available...(omissis).»*

necessary to even briefly underline the company's commitment to environmental issues.

Even references to environmental commitment are to be considered as reference to the company's environmental policy, these being inserted between the mission and the strategic company line (that is generally found at the beginning or at the end of the document), as is in the case of Amoco and Solvay.

Box 2 - AMOCO Annual Report 1994

Our Mission	***Our Values***
(Omissis)...We conduct our business responsibly ...(omissis) to benefit shareholders and fulfil our commitment to the community and the environment. *(Omissis)*	*Integrity* *People* *Technology* *Environment, Health and Safety* *Business Relationship* *Progress*

Box 3 - SOLVAY Annual Report 1997

Strategy of the Solvay Group
- *To be first choice supplier for customer in a wide range of major industries;*
- *(Omissis)...*
- *To continuously improve our health, safety and environmental performance worldwide;*
- *To cinduct our business ethically and legally at all times and to be a responsible neighbor in the communities in which we operate;*
- *(Omissis)*

Dedicated Section

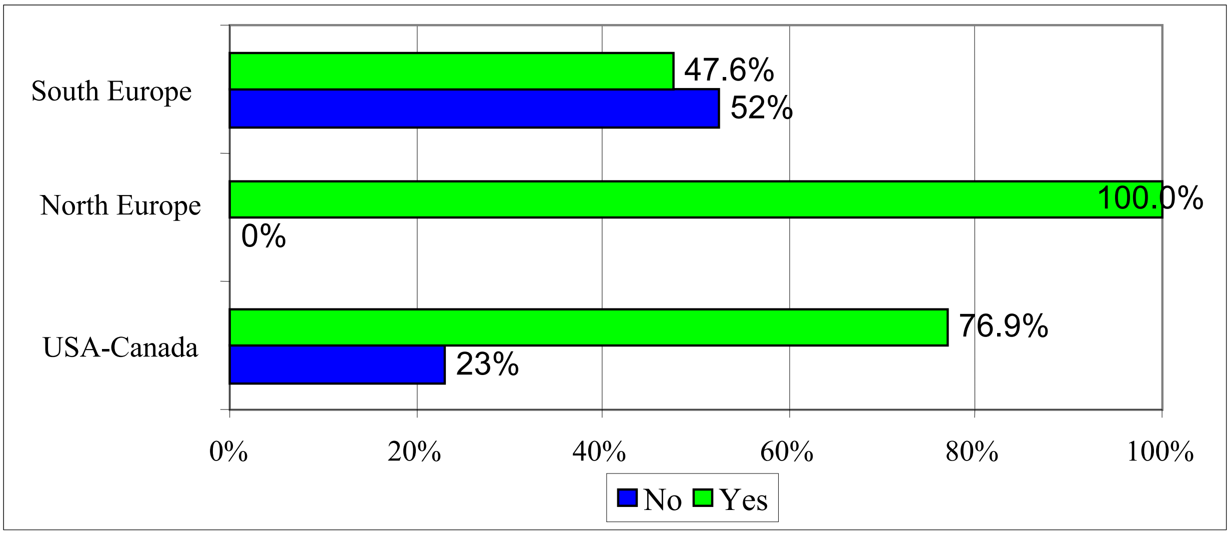
In many Annual Reports it is possible to find a dedicated section (81.71%), i.e. a section, a subsection, a page or a paragraph specifically dedicated to the environment or to environment, health and safety; however, many are the cases in which they are diversely entitled, although pertaining to environmental problems, as for example, “Sustainable Development” by Wacker-Chemie.

Generally this dedicated space is a specific section of the Annual Report, separately identifiable in the index of the document (33%); but environmental sections are also located within other sections, primarily the Review of the operations (27%). The contents of this separate environmental section is quite varied: the companies concentrate all types of environmental information connected to production activities in it, both of a descriptive and a financial nature. But, the companies which choose to include this section in their own Annual Reports, rarely limit the environmental disclosure to this section, preferring to go on with it by means of an extensive disclosure in other descriptive and financial sections of the document.

It should be highlighted that for our analytical purposes “Dedicated Section” is considered both as a particular typology of environmental disclosure (because we consider it as an aggregate of environmental information that is easily identifiable by the reader and that could be analysed separately from other environmental data) and as one of the sections of the Annual Report in which companies disclose environmental information (relevant for the analysis of data location).

The amount of space given to the dedicated section varies from half a page to six pages. Among the various documents we analysed, Fortum’s Annual Report 1998 (a Finnish petro-chemical company born from the merger of NESTE and IVO) is the best example for its completeness, clarity, exposition and extent (six pages).

Graph 6 – Insertion of Dedicated Section in the Annual Reports

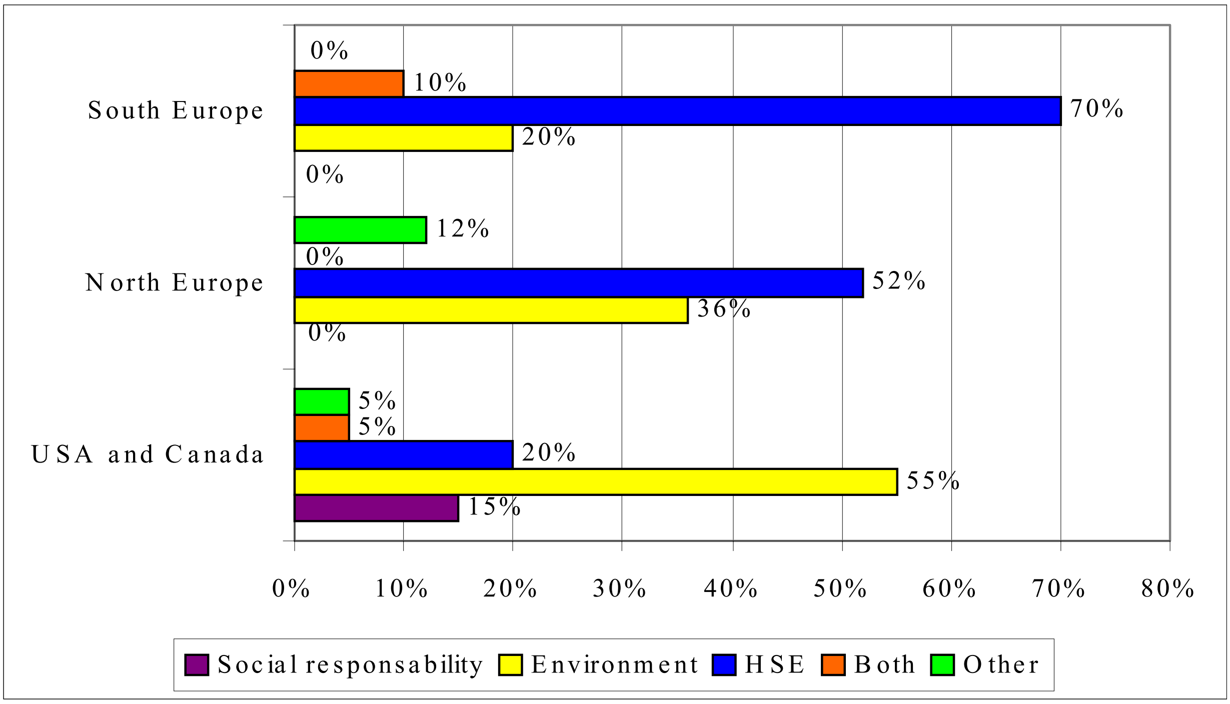


From the analysis we noted that this practice is commonly followed in all the countries; above all in Northern Europe, where all documents analysed show a dedicated section.

Various titles can be attributed to this section depending on its content. In particular we identified "Dedicated Sections":

- exclusively devoted to environmental issues;
- devoted to Safety, Health and the Environment;
- devoted to social issues;
- with various titles, referring to various issues and environmental ones as well.

Graph 7 – Titles of Dedicated Section



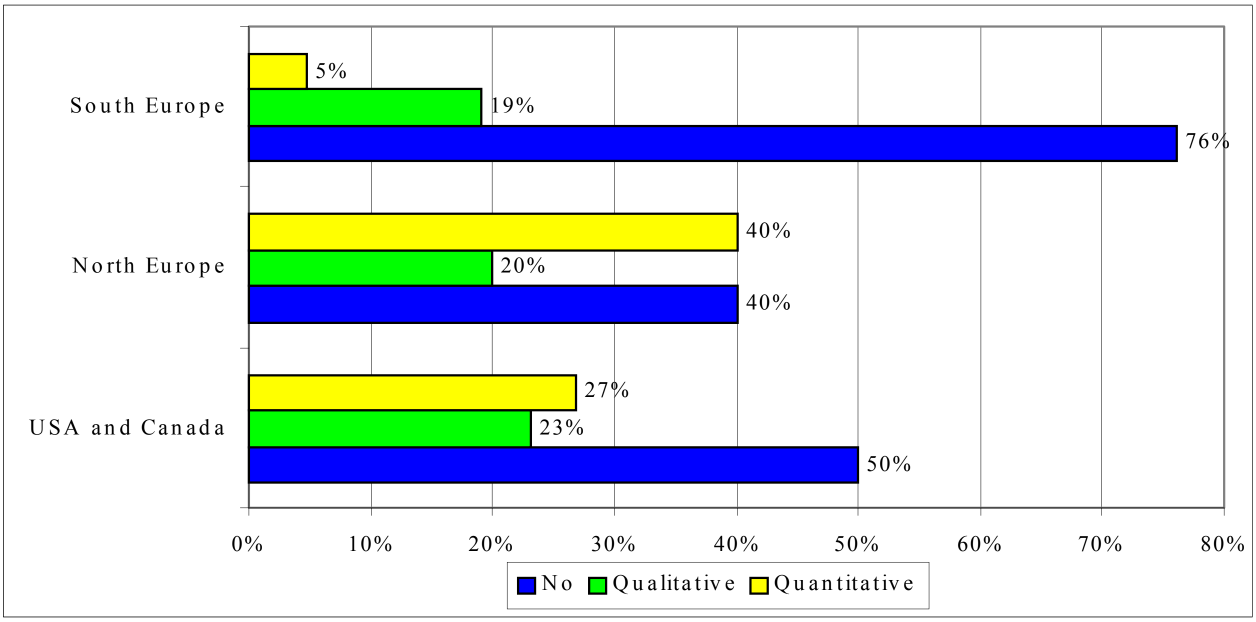
A recent tendency (which however on the base of analysed data at present seems to attract attention in North America) is the general interest not only for social issues such as environmental, health, safety but also for further social and ethical aspects (child labour, support for the needy, etc.) in which the stakeholders are increasingly interested. Surely this trend will catch on in Europe as well, given the scandals that during 1999 have shocked public opinion (the Benetton case is an example).

Environmental Impact

Even though this is a typical disclosure of Environmental Reports, it is possible to find information in the Annual Reports related to the environmental impact that the company has on the environment, even if the companies that make this type of disclosure are still few in number (21.95%). This type of environmental disclosure is generally located (42%) in the Dedicated Section, closely followed by the Review of Operations (34%) and it is a clear signal of how much even the financial community is interested in the company's environmental performance.

This type of disclosure is particularly applied in Northern Europe (mainly the representation of physical data), whilst it is seldom applied in Southern Europe.

Graph 8 – Description of Environmental Impacts



The companies choosing to include this information, generally, tend towards a disclosure related to the improvement of emissions in water, air and land; but some include negative news as well, as the incidental spilling of crude or other types of accidents which happened during the year, as in the Neste case (definitely rare), that even includes this data together with very brief, strictly financial information, used by the shareholders to evaluate the company from a financial point of view (capital employed; investments, net profit, etc.).

Box 4 - NESTE Annual Report 1996

Neste in brief			
	Base year	*Achieved in 1996*	*Target for the year 2000*
Volatile organic compounds (VOC)	*1988*	*-44%*	*-55%*
SO_2 emissions	*1980*	*-84%*	*-80%*
Waste to final disposal	*1990*	*-24%*	*-50%*
Lost workday injuries	*1992*	*-50%*	*-80%*
*Energy efficiency**	*1990*	*+8%*	*+15%*
Fires	*1995*	*-13%*	*-50%*
*Uncontained spills***	*1995*	*11 incidents*	*0*

**Result reported for 1994. The Solomon Associates' Energy Intensity Index (Ell) report on refinery performance for 1996 will be completed during 1997.*
***Two spills from Neste ships of which some 2 cubic metres of fuel oil remained in the sea.*

The NESTE case can probably be explained by the fact that in Norway, the Enterprise Act, published in 1989, expressly requests the companies to include in their "board of directors' report", information on the levels of pollution emissions, on contamination and details on the measures undertaken or planned in the pollution prevention activity (Roberts, 1992).

There is a further case which is of particular interest, for each sector of activity, the description of specific environmental impacts and of possible intervention undertaken by the company to protect the environment. A good example is British Petroleum that, in its "Review of Operations", describing its own principle industrial activity, (exploration, oil producing, chemical) also includes the specifics of the environmental impact per sector and of the objectives that the company sets to achieve.

Box 5 - BP Annual Report 1994

Review of operations

BP Exploration

(Omissis)

Health, safety & environment

BP Exploration is committed to achieving high HSE standards in all its operations, and to this end launched a set of new goals in 1994 ...(omissis).

As part of our commitment to high environmental standards, we have been installing improved water treatement and disposal equipment on our North Sea platforms to deal with the rising volumes of reservoir water being produced...(omissis).

BP Oil

(Omissis)

Health, safety & environment

Maintaining high HSE standards is a concerstone of all BP Oil's operations. In 1994 its environmental and safety performance was recognised by many external awards...(omissis). We are still on course to meet our goal on cutting refinery emissions. By the end of 1995, we expect to have riduced, from a 1990-base, discharges to water by 50% and emissions to air by 25%...(omissis).

BP Chemical

(Omissis)

Technology and environment

(Omissis)...BP Chemical continues to make progress in the field of environmental protection. Since 1990 it has reduced emissions from its major sites by almost 25% and is on course to achieve tough, self-imposed targets in 1997. Since 1992, it has published each year the results of progress on meeting these targets. With partners, it is operating a pilot plant at Grangemouth for «polymer cracking» technology, a process for recycling plastic waste back to petrochemical feedstock...(omissis).»

Speaking again of British Petroleum, the company includes an interesting synthesis of their improvements in the year's environmental performances. It is a brief piece of information that at the same time is highly effective because it has a great capability to be immediately perceived by the interested stakeholders.

Box 6 - BP Annual Report 1995

«BP's environmental and safety performance in 1995 improved strongly

+ 20% improvement in safety performance

+ 10% drop in emissions to air

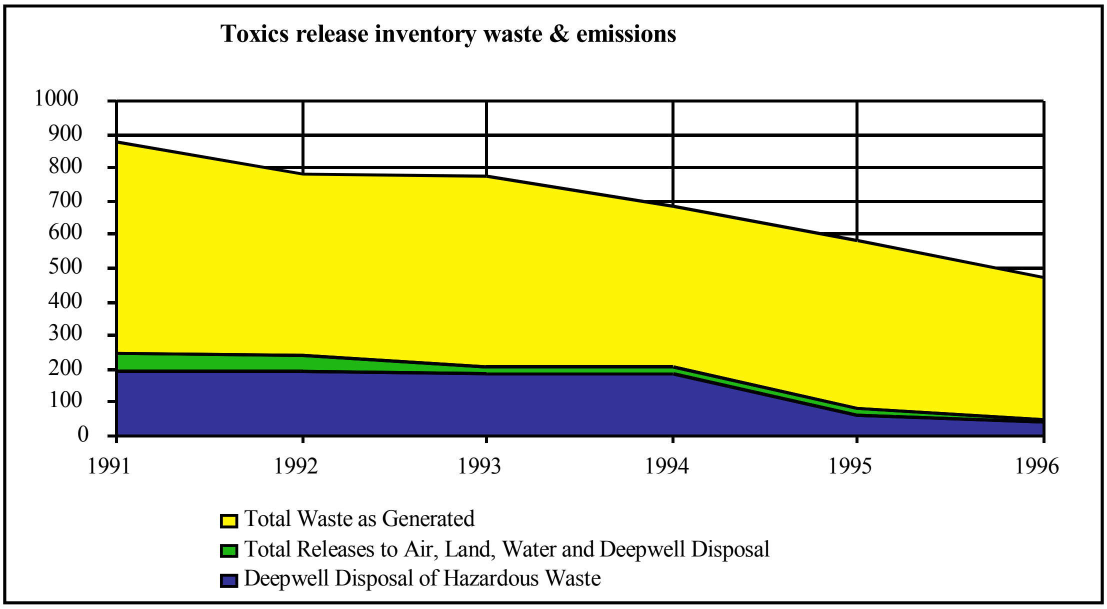
+ 10% reduction in discharges to water»

The use of graphs and figures is surely an effective way of representing environmental impacts in the document. Notwithstanding this is a common practice and above all consolidated in the drafting of the Environmental Report, the Annual Reports that use it are few: a good example is DUPONT, that even includes the graph in the chairman's letter to the shareholders (more specifically an interview with the Chairman), that is in the opening of the document.

Box 7 - DU PONT Annual Report 1997

To our shareholders

(Omissis)

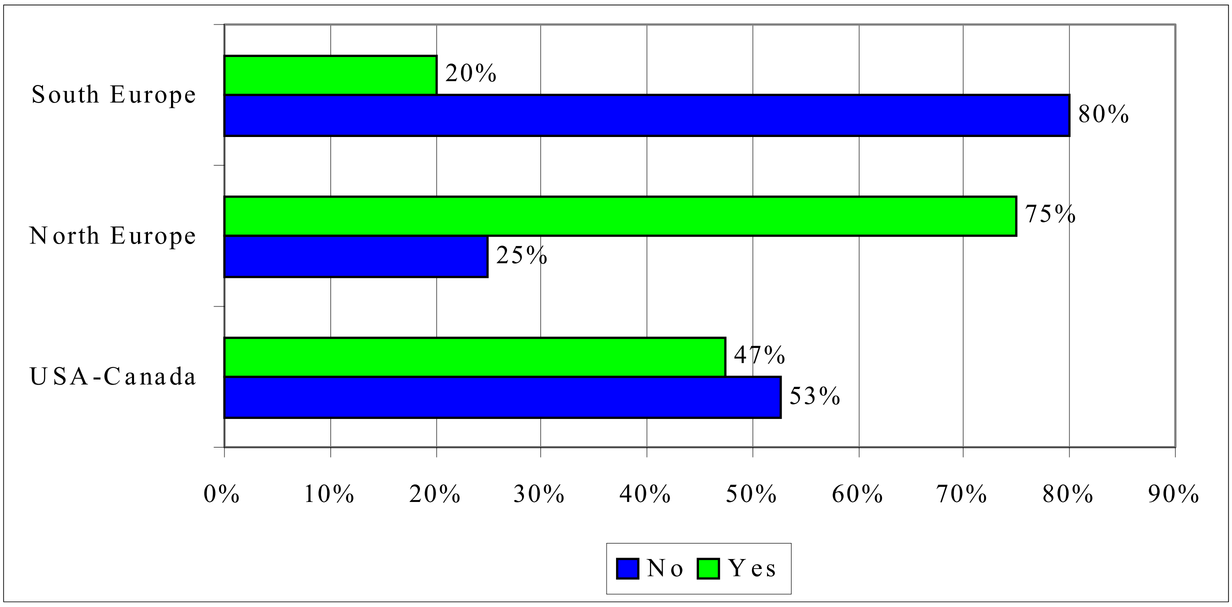


Environmental Targets

Information connected to the definition of precise goals and environmental targets is closely related to information about environmental impact. 37.80% of the analysed budgets contains this kind of information which is very useful to stakeholders allowing them to understand the company's direction and above all the company's position and its attitude with respect to environmental issues imposed by law.

In fact, companies make this type of disclosure in order to inform about actions undertaken (or that are to be undertaken) for the purpose of reaching the "ecological goal" set. The "ecological goal set" is the concrete implementation of the generic environmental commitment expressed by the company through the definition of the environmental policy.

Graph 9 – Description of Environmental Targets



Once again the analysis by aggregates shows that the percentage of disclosure made in Southern Europe is definitely minimal with respect to other aggregates, especially if compared to the 75% with the Northern Europe 75% rate.

A good example of disclosure of environmental objectives is supplied to us by ICI. ICI delimits the time barriers within which certain environmental targets must be reached.

Box 8 - ICI Annual Report and account 1998

Description of business

(Omissis)

- *exemplary performance in safety and health*

The Group's goal is to have an exemplary performance in safety and health and become the world leader.

- *responsible care for environment*

Tough targets for the Group's environmental performance have been set. The guiding principle is Responsible Care, the internatiional chemical industry's programme for continuous improvement in safety, health and environmental performance. The Group applies its standards with consistency around the world. The roll-out of new and improved products which are designed to have less impact on the environment will be a key feature.

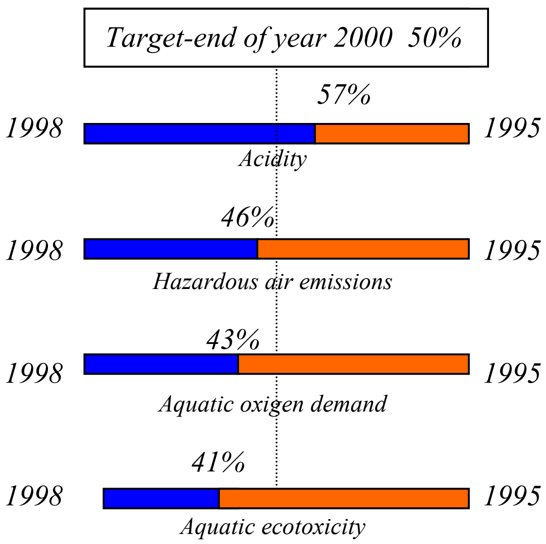
(Omissis)

Safety, health and environment (SHE).

(Omissis)

Reduction in environmental burden

1998 relative to1995



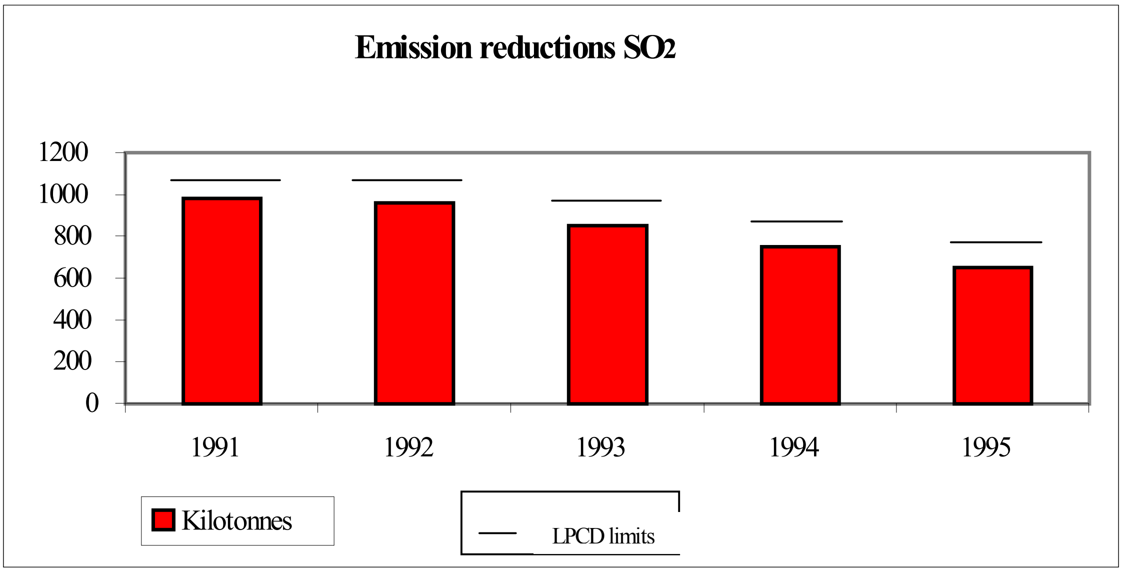
(Omissis)

In general, those who report this type of information limit themselves to a definition of what a company sets out to achieve. Though, it is extremely rare to find cases in which such a goal is related to the environmental obligations set by the law and to the regulatory targets connected thereto. Powergen is a good example.

Box 9 – POWERGEN Annual Report 1995

Business Review

(Omissis)



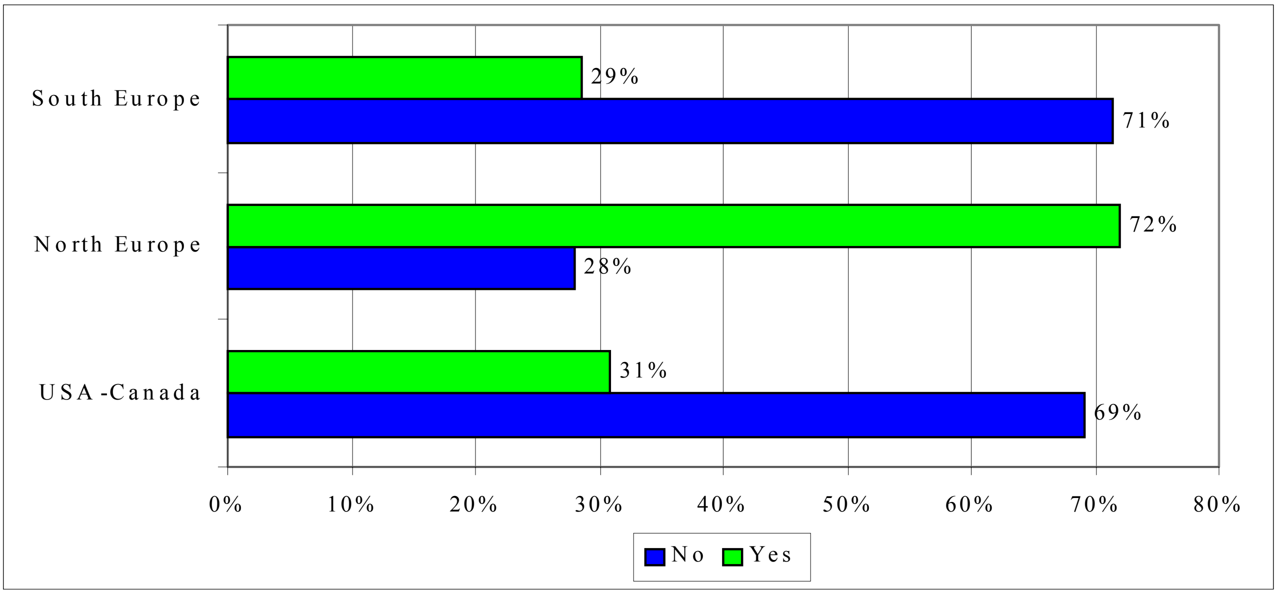
Environmental Management System (EMS)

A description of the environmental management system in the Annual Report contributes in giving stakeholders a greater sense of security that the company really does take care of environmental problems in the best possible way. 41.46% of the surveyed companies make this type of disclosure. This is a quite lean rate, given the importance this kind of information can have for stakeholders. The most common location of this disclosure is the dedicated section (49%).

Specifics that accompany the information regarding the existence of an environmental management system are those relative to the presence of information on the auditing process (18.29%), on the organisation of the EMS (15.85%), on the activity pertaining to personnel training (18.29%), on environmental monitoring activity (24.39%), on the specifics of possible certification (ISO 9000, ISO 14000 and/or EMAS) of one or more company's productive sites

(32.93%) and to the generality, composition and tasks (or even a simple mention) of an "Environment, Health and Safety" direction (16%).

Graph 10 – Description of the Environmental Management System



From the aggregate analysis, Northern Europe again confirms that it is in the forefront as far as environmental disclosure goes, while it is surprising that the United States and Canada are substantially on the same line as the less "sensitive" Southern Europe.

As already mentioned, an important detail of the Environmental Management System is the one specifying if there is an Environmental or Safety, Health and Environmental Committee and who are its members. For this purpose some companies simply mention it in listing the steering committee.

Box 10 - BP Annual Report 1995

Corporate Governance
Board committees
The Audit Committee ...(omissis)
The Remuneration Committee ...(omissis)
The HSE Audit Committee monitors BP's Health, Safety and Environmental policies and compliance with those policies.
The External Affairs Committee ...(omissis)
The Nominations Committee ... (omissis).»

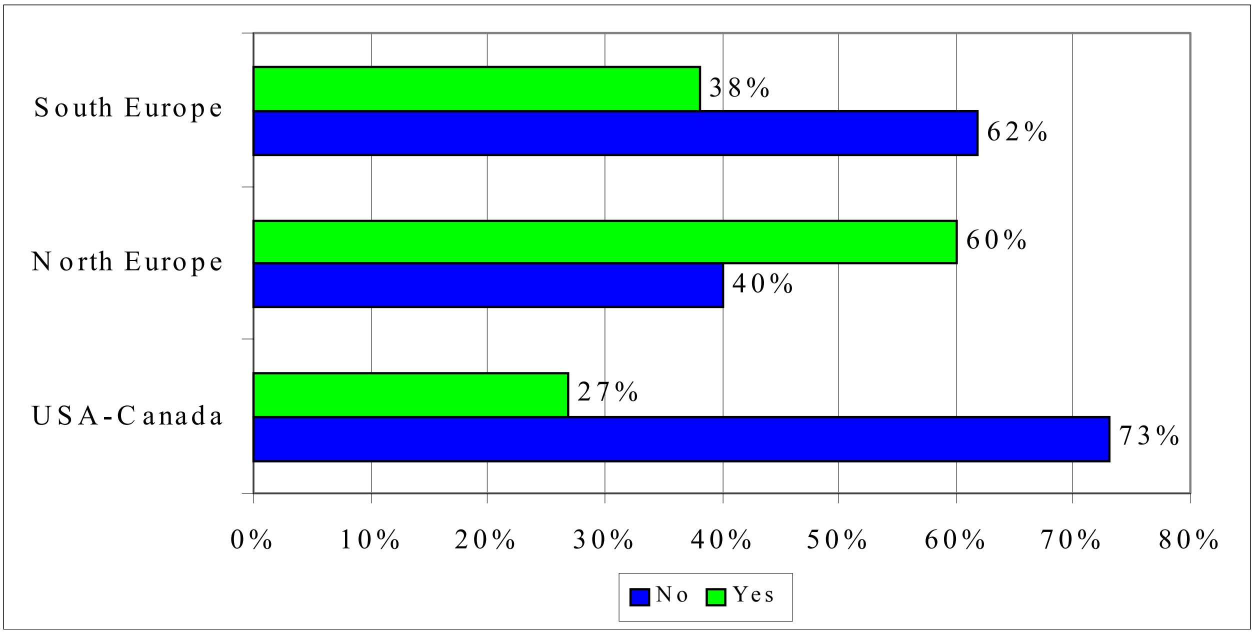
Box 11 - UNOCAL Corporation Annual Report 1997

Corporate Governance
(omissis)
3. The Accounting, Auditing and Ethics Commitee; the Health, Environment and Safety Committee; and the Management Development and Compensation Committee consist entirely of non-employee directors.
(Omissis).»

Ecological Products

Disclosures related to environmental products (or processes) are of great interest for stakeholders, but only 39.02% of the companies surveyed supply information on the production of possible eco-compatible or low environmental impact products. The location of the description of eco-products is highly concentrated in the Review of Operation. Northern Europe though, seems to prefer this type of information and Southern Europe (the only case found) presents a greater disclosure than the United States and Canada. This is probably due to the fact that in Europe as regards petroleum products certain requisites are requested by law (for example the EU Regulation 93/12 on gasoline and diesel fuel sulphur contents).

Graph 11 – Description of Green Products



In general companies that make this disclosure limit themselves to saying that the product in question is "compatible from an environmental point of view" ("environmentally friendly"), meanwhile it is quite rare to find those who specify the improvements in environmental performance thanks to the use of these so called "green products".

Box 12 - CHEVRON Corporation Annual Report 1996

Report on the environment *(Omissis)... <u>Cleaner-burning gasoline debut</u>. By June 1, 1996, all of Chevron's California service stations were selling reformulated gasolines mandated by the state. The cleaner-burning gasolines have cut car and light truck emissions by 15%, a statewide reduction of 3 million pounds of pollutants a day...(omissis).*

Box 13 - CIBA Business Review and Financial Review 1998

Management's Discussion and Analysis *(Omissis)...* *Focusing on high value-added and environmentally friendly products, services and tecnology. The Company continues to focus on high value-added and environmentally friendly products, services and tecnologies. The most decisive move during 1998 was the Company's entry into the water treatments business through the acquisition of Allied Colloids. This business concentrates on products and services whose prime objective is to minimise environmental harm created by industry and consumers to the world's irreplaceable water supply. In the Colors division, the new Cibacron cotton dyes facilitate an environmentally friendly dyeing process. In Consumer Care, the division launched Dicrylan WSR, a promising finish for wool that prevents machine-washable wool garments from losing their shape, thereby, eliminating, and products like Tinopal CBS-X, which create low temperature detergent whiteners ...(omissis)*

Box 14 -NESTE Annual Report 1994

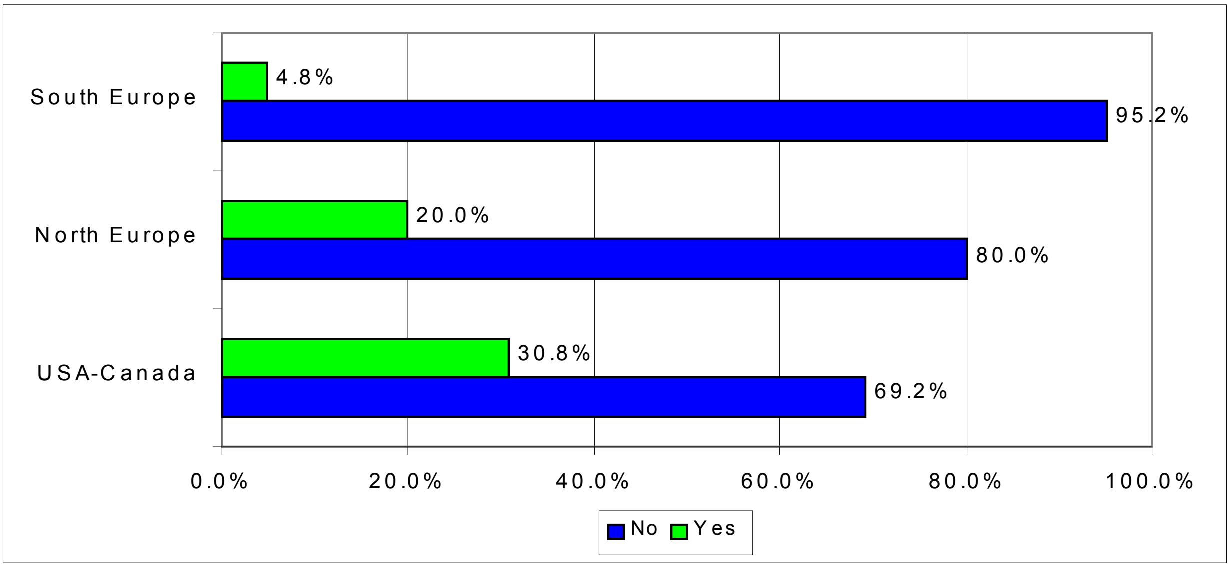
Divisional Review ***Environmental responsability is a competitive factor*** *(Omissis)...* *More environmentally compatible products are an asset* *(Omissis)...With the approach of the 1990s, Neste decided to focus on environmental factors in creating competitive edge. Neste introduced fuel oils and diesel fuels with increasingly lower sulphur contents and improved the quality of its gasoline, thereby reducing tailpipe emissions....(omissis). Neste was the first oil company in Europe to launch reformulated gasoline ...(omissis). The use of cleaner fuels has resulted in reductions in some of the most harmful emissions generated by road traffic. In the Helsinki area alone, these reductions totalled over 7,000 tonnes annualy...(omissis).»*

Promotional Messages

Speaking of promotional messages, we mean all those sentences that are generally accompanied by so called "ecologist images". Such phrases underline the company's commitment in environmental protection activities, though not necessarily connected to their productive activity. It is a real advertising vehicle which allows the company to quickly give the reader a positive image of its environmental and social commitment.

Companies making such disclosure are not many (18.29%). The most common location of such disclosure is in the Review of Operation (69%); the Unites States and Canada show a certain preference for this type of "ecological advertising".

Graph 12 – Inclusion of Environmental Messages



Box 15 - AMOCO Annual Report 1995

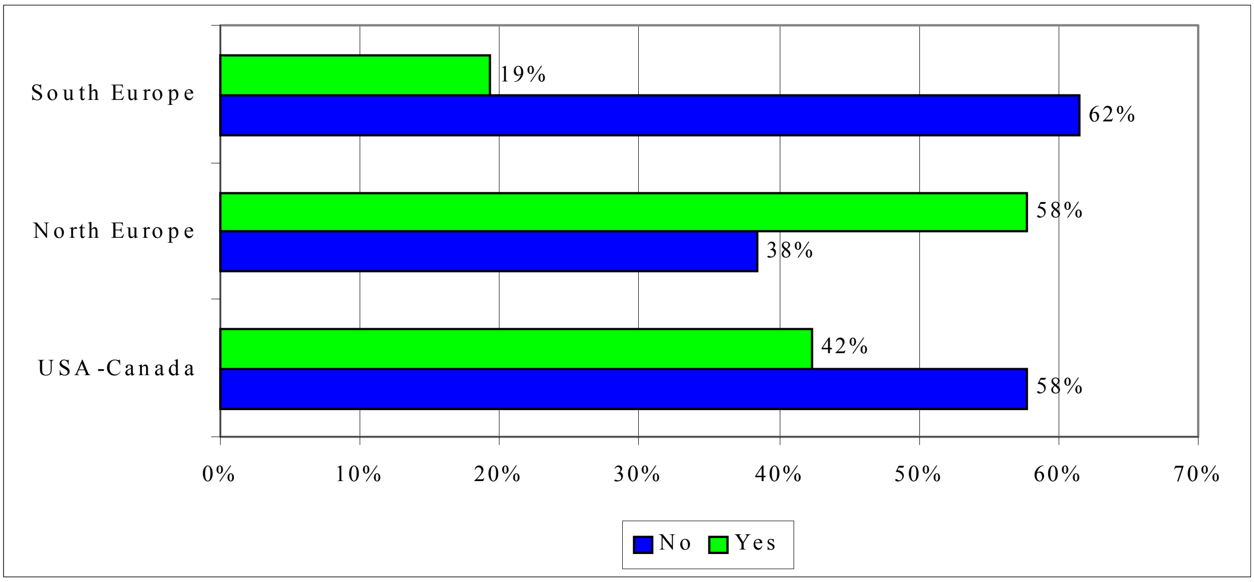
Environment, Health and Safety *(Omissis)* *A Sanctuary for Nature.* *Rich Harris, solid waste coordinator at our Whiting Ind. refinery, checks the nesting material of a wood duck nesting box at the nearby Lost Marsh. The 10-acre preserve was established by employees on undeveloped company land and reclaimed from litter, overgrowth and invasive plants. Today it is a refuge for more than 23 bird and 59 plant species.* *Environmental Leadership* *Amoco was a main sponsor of the 1995 Environmental Northern Seas Conference and exhibiting our worlwide environmental experience helps in obtaining exploration rights, especially in environmentally sensitive areas.*

Reference to the Environmental Report

When the company publishes a separate Environmental Report it is advisable to mention it in the Annual Report. In fact even the European Commission holds that, in the balance sheet, in case further information of a quantitative and qualitative nature, concerning environmental topics is contained in a separate, specific report, a cross-reference to this report would be useful (EEC Commission 1998).

Generally the Environmental Report deals in greater detail with environmental problem and the managerial repercussions related thereto. It is for this reason that the reference to the Environmental Report is an important disclosure: the reader is generally interested in having further environmental information. In our sample, 39.02% of the companies give this cross-reference and again it is common practice mainly in Northern Europe. Generally the location of this information is the Dedicated Section (30%), closely followed by the Review of Operation and the Supplementary Information/Corporate Citizenship (23%).

Graph 13 – Reference to and/or Cross-reference to the Environmental Report



Box 16 - ICI Annual Report and Account 1998

Corporate Governance *(Omissis)...* *Communications* *Communications with shareholders are given a high priority. There is a succint Annual Review and a separate Safety, Health and Environmental Report both of which are sent to shareholder; ...(omissis)..*

Next to the cross-reference to the Environmental Report, some companies include a toll-free number for further information, the address to write to for a copy and/or an Internet site where it is possible to screen it.

Box 17 - AMOCO Annual Report 1994

Environment, Health and Safety *(Omissis)...* *Amoco's annual Environment, Health and Safety Report provides additional details of our environmental activities. To request a copy, write Jeanne Yermakoff, Mail Code 4904, Amoco Corporation, P.O. Box 87703, Chicago, IL 60680-0703.*

Box 18 - MONSANTO Annual Report 1998

Shareowner Information *(Omissis)...* *Monsanto's Sustainable Development Report* *You can read Monsanto's sustainable development report on the Internet at* http://www.monsanto.com. *(Omissis)*

3.3.2 Environmental Financial Information.

Notwithstanding its great capacity to give an ample description of the commitment and of environmental issues, the company deals with, qualitative information by itself is not sufficient to give the reader an exact idea of the total impact of the company. Descriptive, non financial information cannot help the reader to understand the interactions between the company and the environment in quantitative and financial terms. Qualitative disclosure must be accompanied by the same type of precise and clear financial information, that is useful to reconstruct the economic consequences deriving from environmental problems. Proactive companies abandoned the idea that the disclosure of environmental financial performances could damage the company and agreed that it would pay off in the long term, by improving the management system.

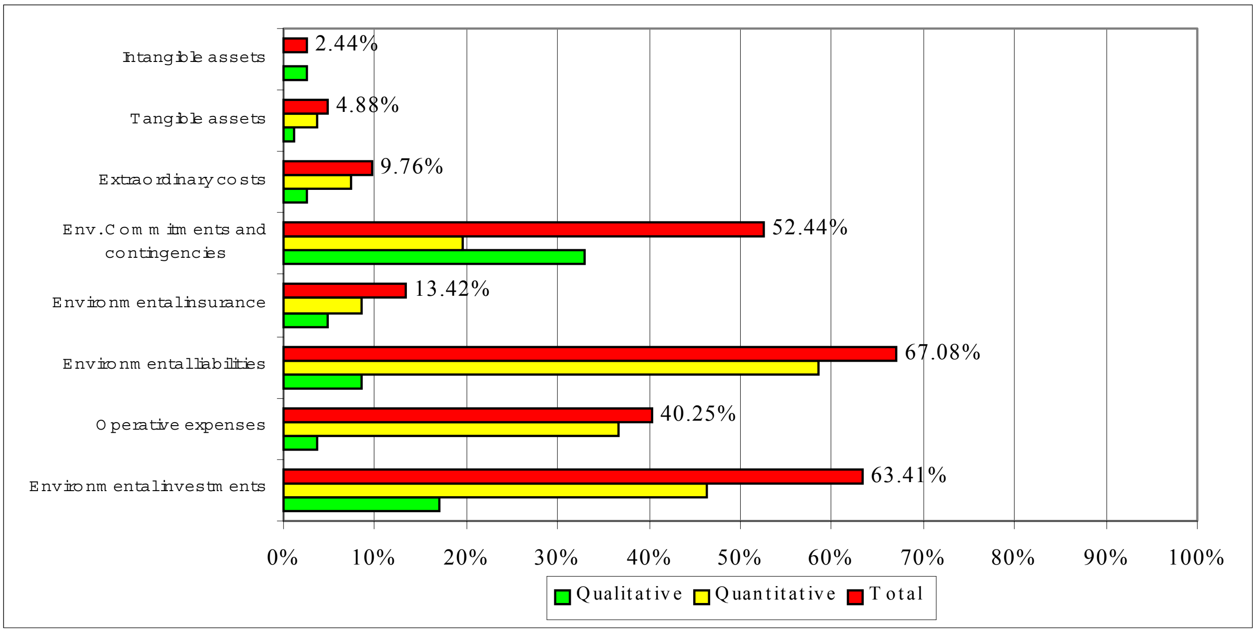
When the financial information is disclosed in the Annual Report only in descriptive terms, that is, with a simple reference to the existence of such a heading dedicated to the environment, the information will be classified as qualitative, meanwhile, if their monetary values are also specified, the information is classified as quantitative.

To give significance and to compare data across companies the financial environmental disclosure should be quantified and accompanied by additional information that qualify the financial data presented. Financial disclosure in quantitative terms, especially if located in the financial report, provide an added value to the stakeholder because it increases their awareness of the company’s environmental financial performance. Environmental information can be found within other company’s publications (Environmental Report, Social Report, website, press releases, etc.), but for the financial reader only the Annual Report allows for more reliable and valuable environmental financial information. The difficult aspect is that information presented in the Annual Report has to be based on acceptable and justifiable accounting criteria and there are few standards relating to environmental data, in particular for environmental expenditure disclosures.

The most frequent disclosure of financial information is in relation to environmental liabilities, in fact the majority of the disclosures relate to quantified environmental provisions (these reflect the fact that almost all national and international accounting standards require the disclosure of environmental liabilities). However environmental expenditures (current and capital) is another topic considered relevant in the environmental financial disclosure.

The following graph briefly summarises each single financial environmental heading we analysed, which in due course will be distinguished by groups of nations.

Graph 14 – Environmental Financial Information



Environmental Expenses

Not all the companies that include information on their environmental expenses use quantitative data; many limit themselves to providing information in a descriptive way without disclosing the amount of operating expenses and environmental investments made in its financial year.

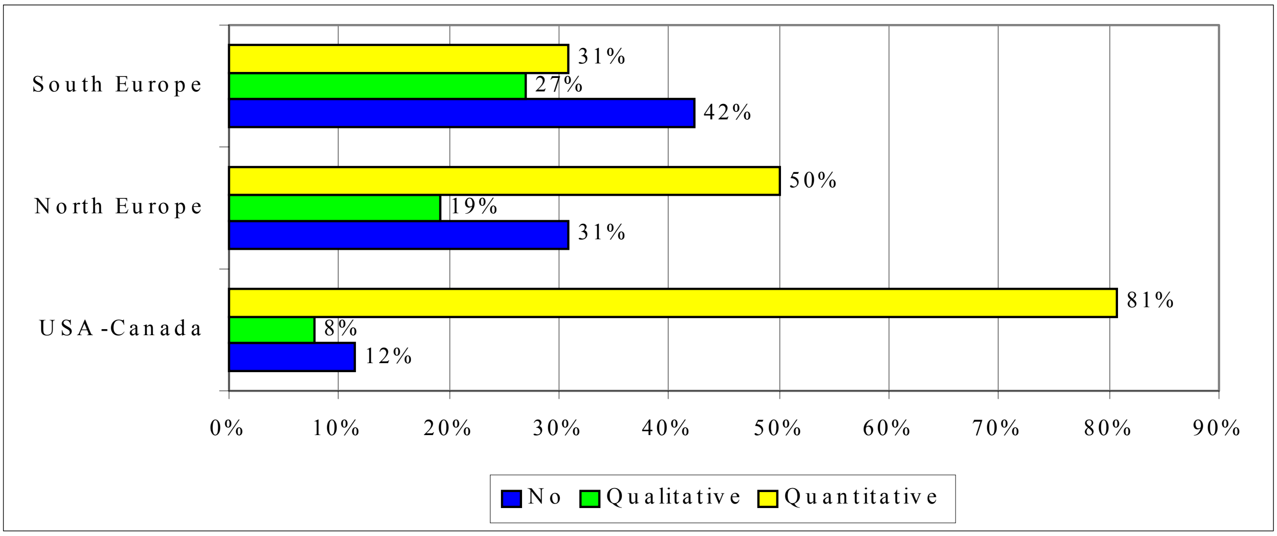
The companies that report information on environmental investments in purely descriptive terms (20.73%) merely state that this topic exists specifying that the company has undertaken investment projects related to environmental protection activities or that it has invested in eco-compatible projects. Some briefly describe even the type of the process undertaken and the foreseen results in terms of emissions reduction and/or energy consumption.

Even if environmental expenditures are difficult to define, companies that choose to make this type of disclosure, do so in quantitative monetary terms (51.22%), moreover distinguishing between operating expenses (36,59%) and environmental investments (46.34%). Furthermore, there are some cases in which companies include other quantitative details regarding environmental expenses, for example the specifics of spending trends in the last financial year

(28.05%) and the estimate spending for the next accounting period (28%). The percentage of companies that include this information is very high in the United States and Canada and reflects a tendency we will find throughout this analysis concerning aggregates of financial environmental information.

This type of environmental financial disclosure is generally located in the Management's Discussion & Analysis (44%), in the Review of Operations (23%) and in the Dedicated Section (21%), while only 7% of the information gathered is located in the Notes to the account.

Graph 15 – Qualitative and Quantitative Specifics of Total Environmental Expenses



We report as follows some of the more interesting examples of the disclosure of environmental expenses.

Box 19 - Monsanto Annual Report 1996

Review of cash Flow Monsanto maintains strong Environmental Commitment (Omissis)...Expenditures in 1996 were approximately ***$ 48 million for environmental capital projects*** and approximately $203 million for the management of environmental programs, including the operation and maintenance of facilities for environmental control. Monsanto estimates that durind 1997 and 1998 approximately $40 million to $50 million per year ***will be spent on additional capital projects for environmental protection***...(omissis)..

Box 20 - ROHM & HAAS Company Annual Report 1996

Management's Discussion & Analysis ***"Environmental expenses and capital spending.*** *(Omissis)...Capital spending for new environmental protection equipment was $ 32 million in 1996. Spending for 1997 and 1998 is expected to be approximately $ 22 million and $ 19 million, respectively. Capital expenditures in this category include projects whose primary purpose in pollution control and safety...(omissis). Capital spending does not include the cost of environmental remediation of waste disposal sites. Cash expenditures for waste disposal site remediation were $ 58 million in 1996, $ 51 million in 1995 and $ 46 million in 1994. The expenditures for remediation are charged against accrued remediation reserves. The cost of operating and maintaining environmental facilities was $ 104 million, $ 96 million and $ 107 million in 1996, 1995 and 1994 respectively, and was charged against current-year earnings...(omissis)."*

Box 21 - CHEVRON Annual Report 1995

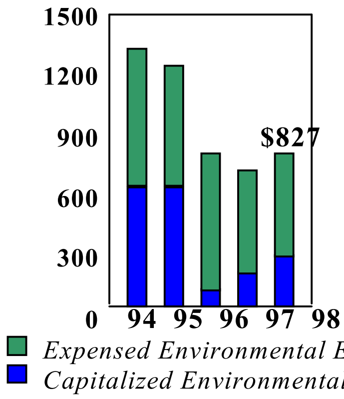
Management's Discussion & Analysis (Omissis) Environmental Matters (Omissis)...Using definitions and guidelines established by the American Petroleum Institute, Chevron estimates its worl-wide environmental spending in 1995 was about $ 1.442 billion for its consolidated companies. Included in these expenditures were ***$ 663 million of environmental capital expenditures*** and $779 million of costs associated with the control and abatement of hazardous substances and pollutants from ongoing operations. The total amount also includes spending charged against reserves established in prior years for environmental cleanup programs (but not non-cash provisions to increase these reserves or establish new ones during the year)...(omissis).

As it can be seen by reading the preceding boxes, many companies include an estimate of the environmental expenses, using words like "approximately" to underline the uncertainty of the calculation of these headings; others, in order to try to overcome this uncertainty in determining these estimates, refer to guidelines recognised at an international level, as the Chevron case that refers to those of the American Petroleum Institute (Box 21).

Box 22 - CHEVRON Corporation 1998 Annual Report

Operating Highlights

U.S. Environmental Capital Expenditures & Expenses
(Millions of dollars)



With the completion of major refinery clean-air projects in 1995, capital spending has stabilized at about $ 800 million per year.

It is interesting to remark that while the in preceding running Chevron used to include this explicative graph of the environmental expenses, within the section dedicated to the environment, in 1998 the company thought best to include this brief information in the "Operating Highlights": evidently, environmental expenses have become a piece of concise information to be put at the beginning of the document with other financial information useful to the shareholders.

Excellent examples of clarity and immediacy in communication are those of Mobil and of British Petroleum, accompanied by an exhaustive explanation of each single item and of the problems generally associated to the management of the environment, these companies, as a matter of fact, include in the MD&A the first and in the Financial Review the second, also a table that summarises the operating and the capital expenses of the last accounting periods.

Box 23 - MOBIL Annual Report 1998

"Management's Discussion and Analysis"

Environmental Expenditures	***U.S.***			***International***		
(millions)	*1996*	*1997*	***1998***	*1996*	*1997*	***1998***
Capital	*$ 149*	*$ 105*	***$ 88***	*$ 108*	*$ 105*	***$ 125***
Protection and Compliance						
- Ongoing operations	*$ 212*	*$ 213*	***$ 208***	*$ 171*	*$ 128*	***$ 114***
- Remediation	*$ 46*	*$ 46*	***$ 45***	*$ 27*	*$ 28*	***$ 22***
Total Environmental Expenditures	*$ 407*	*$ 364*	***$ 341***	*$ 306*	*$ 261*	***$ 261***

Box 24 - BP Annual Report 1996

Financial Review

(Omissis)

Environmental Expenditure

Operating and ***capital expenditure*** *on the prevention, control, abatement or elimination of air, water and solid waste pollution is often not incurred as a separately identifiable transaction. Instead it forms part of a larger transaction which includes, for example, normal maintenance expenditure. The figure for environmental operating and capital expenditures in the table below are therefore estimates, based on the definitions and guidelines of the American Petroleum Institute.*

Environmental expenditure (£million)	***1996***	***1995***
Operating expenditure	*137*	*146*
Capital expenditure	*156*	*160*
Charge for environmental remediation	*21*	*360*
Charge for decomissioning	*65*	*62*

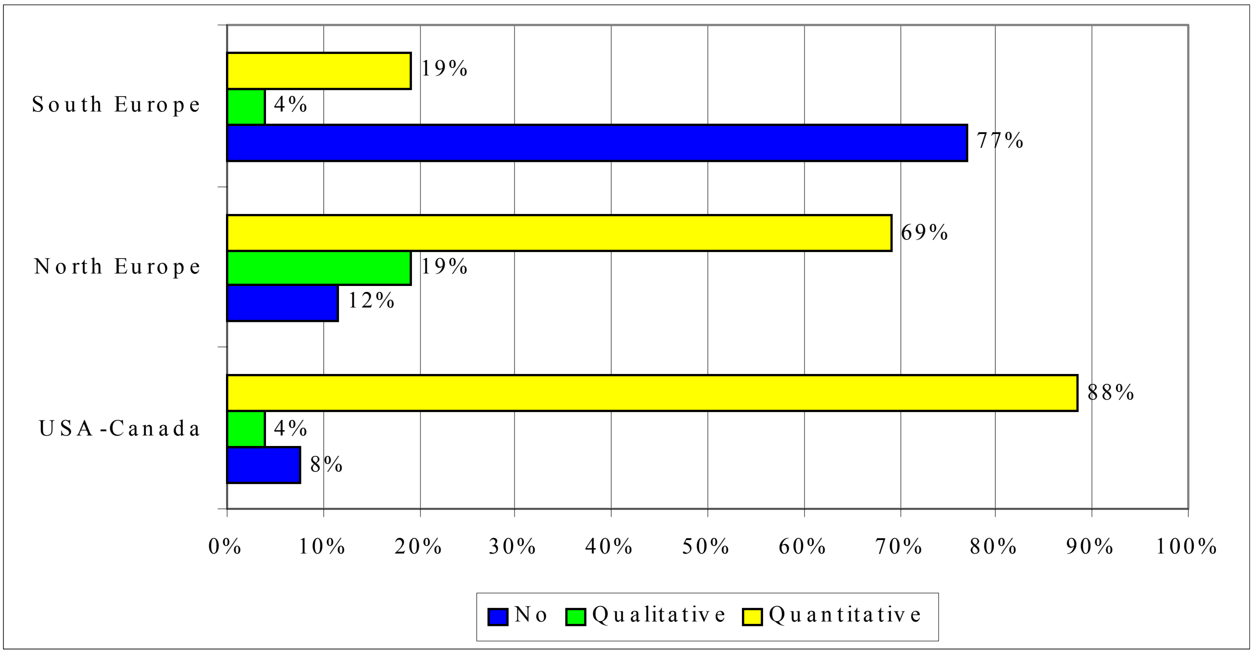
Environmental Liabilities

Among the financial environmental items of greater interest, surely environmental liabilities can be included and in particular, a mention of the reserves of an environmental nature is considered very useful in order to evaluate the financial impact of environmental risks.

The environmental reserves must be set up each and every time the company is subject to a legal obligation, deriving from past or present activities, which can be estimated and, if it is necessary, economic resources might be used to honour such obligations (costs of environmental remediation, costs of compensation for damages, etc.).

Environmental provisions and environmental contingent liabilities are generally aggregated with other provisions, so that it is very difficult to have a separate disclosure of these items, but companies now realise the strong necessity of such disclosure. The importance of this disclosure corresponds to the percentage we surveyed, that includes this information in quantitative terms: 58.54%. Also with respect to environmental liability as found for environmental expenses, a very high percentage of companies (88%) from the United States and Canada include this quantitative disclosure.

Graph 16 – Qualitative and/or Quantitative Specifics of Environmental Liabilities



It is possible to find various degrees of disclosure in this type of information as well: it goes from a simple mention of the existence of these reserves (qualitative information) (8.54%), to the specifics of the provisions made for environmental liabilities (quantitative information) (58.54%), with details of the progress of reserves (amount added to the provisions or cancelled during the current year) (28.05%) and the reserves' trend in the last accounting periods (34.15%). In fact some companies add a more lengthy explanatory part concerning the settlement of the reserves specifying:

- the performance of the reserves in the last three years;
- the year's specific accrues to the reserves;
- the basis on which that data has been prepared;
- the difficulties of estimation and calculation;
- other useful information necessary to understand the nature and the progress of the reserves.

Generally this information is located in the "Notes to the accounts" (62%), while only 20% of the information gathered is located in the MD&A. Furthermore, both sections and the majority of the statements state that environmental provisions are accrued when it is probable that a liability has been incurred and the amount of the "possible" loss can reasonably be estimated.

Some companies create two different types of environmental reserves (32%): the reserves destined to cover future costs of dismantlement, abandonment, and restoration of industrial sites; the reserves destined to the restoration and/or remediation following activities which can be attributed to the company's liability.

Box 25 - AMOCO Annual Report 1994

Management's Discussion & Analysis
Liquidity and capital resources
*(Omissis)...The corporation has provided in its accounts for the reasonable future costs of probable environmental remediation obligations. These amounts relate to various refining and marketing sites, chemical locations and oil and gas operations, including multiparty sites, chemical locations, and oil and gas operations, including multiparty sites at which Amoco has been identified as a potentially responsible party by the U.S. Environmental Protection Agency. Such estimated costs will be refined over time as remedial requirements and regulations become better defined. However, any additional costs cannot be reasonably estimated at this time due to uncertainty of timing, the magnitude of contamination, future technology, regulatory changes and other factors. Althought future costs could be significant, they are not to be material in relation to Amoco's liquidity or consolidated financial position...(omissis). At december 31, 1994 the corporation's **reserve for future remediation costs** totaled $ 725 million of which $ 467 million related to refining and marketing sites. The corporation also maintains **reserves associated with dismantelament, restoration and abandonment of oil and gas properties**, which totaled $ 627 million at December 31, 1994.*

Box 26 - MOBIL Annual Report 1998

Notes ro Financial Statements
(Omissis)
11. Restoration, Removal and Environmental Liabilities
Exploration and producing properties must generally be restored to their original condition when the oil gas reserves are depleted and/or operations cease. At December 31, 1997 and 1998, $780 million and $760 million, respectively, had been accrued for restoration and removal costs, mainly related for restoration and removal facilities.
Mobil acrrues for its best estimate of the future costs associated with known environmental remediation requirements as its service stations, marketing terminals, refineries and plants, and at certain Superfund sites. At December 31, 1997 and 1998, the accumulated reserve for environmental remediation costs was $372 million and $328 million, respectively. Of these amounts, $80 million and $77 million, were included in current accrued liabilities in the Consolidated Balance Sheet. Amount accrued with respect to Superfund waste disposal sites are based on the company's best estimate of its portion of the costs of remediating such sites. This amounts are not material. (Omissis)

Box 27 - BG plc Annual Report and Accounts 1998

Notes to the accounts

(Omissis)

20. Provision for liabilities and charges *8m*

Group	*As at 1 January 1998 (as restated)*	*Profit and loss charge /(credit)*	*Paid*	*Transfers and other adjustments*	***As at 31 December 1998***
Decomissioning costs	*197*	*-*	*-*	*8*	***205***
Pension costs	*589*	*(45)*	*(25)*	*-*	***519***
Environmental costs	*342*	*-*	*(49)*	*20*	***313***
Property restructuring costs	*101*	*-*	*(18)*	*-*	***83***
Long-term gas sales contract loss provisions	*205*	*-*	*(5)*	*22*	***222***
Deferred petroleum revenue tax	*72*	*4*	*-*	*-*	***76***
Deferred corporation tax	*110*	*33*	*-*	*-*	***143***
Other	*43*	*12*	*-*	*3*	***58***
	1659	*4*	*(97)*	*53*	***1619***

(Omissis).

Other companies, on the other hand, prefer to create a single generic, environmental reserve to cover both types of costs.

Box 28 - HOECHST Annual Report 1997

Notes to the consolidated financial statements

(Omissis)...

28. Other provision

	Dec. 31, 1997	DM million Dec. 31, 1996
Taxes		
Current taxes	*1319*	*1231*
Deferred taxes	*1030*	*879*
Restructuring	*1109*	*1406*
Damage and product liability claims	*553*	*774*
Environmental protection	*814*	*749*
Self insurance loss provisions	*870*	*735*
Employee-related commitments	*666*	*718*
Discounts, bonuses, sales commissions	*406*	*437*
Anniversary allowances	*171*	*236*
Purchase and sales contracts	*38*	*65*
Forward exchange contracts	*5*	*13*
Other	*2495*	*2192*
	9476	***9435***

We highlighted that generally environmental reserves are specified in the "Notes to the accounts", while it is quite rare to have environmental liabilities that are identified separately with a direct reference in the Balance Sheet (5%). An example is given to us by TOSCO.

Box 29 - TOSCO Corporation Annual Report 1998

Consolidated Balance Sheet	*1998*	*1997*
(Omissis)	…	…
Liabilities and Shareholders' Equity		
Current liabilities		
Accounts payable	*$ 651,408*	*$786,575*
Accrued expenses and other current liabilities	*728,352*	*754,292*
Current maturities of long-term debt	*1,608*	*11,908*
Deferred income taxes	*23,334*	
Total current liabilities	*1,404,702*	*1,552,775*
Revolving credit facilities	*196,000*	*166,000*
Long-term debt	*1,358,553*	*1,415,257*
Accrued environmental costs	*253,691*	*252,964*
Deferred income taxes	*179,453*	*140,435*
Other liabilities	*237,427*	*203,366*
Total liabilities	*3,629,826*	*3,730,797*
(Omissis)	…	…

Another interesting case worth mentioning is the one of Chevron, which subdivides by sectors of activity (including the distinction between the U.S. and International) some provisions to the reserve for environmental restoration.

Box 30 - CHEVRON Annual Report 1994

Management's Discussion and Analysis
Environmental remediation provisions
(Omissis)...provisions for environmental remediation amounted to $304 million in 1994...(omissis)

Environmental Remediation Provision	1994	1993	1992
U.S. exploration and production	51	13	2
U.S. refining and marketing	249	77	42
Chemicals	4	-	-
Totale	304	90	44

Accounting Policies

In general the guidelines call for a separate presentation of the environmental costs and liabilities, in case the above-mentioned could be significant for the company (Langford R., 1998). In the same way the information related to environmental expenses (operating and capital) must not be lacking. In any case, if these accounting topics are included in the Annual Report, it is necessary that the accounting criteria be clarified: statements of how environmental expenditures and environmental provisions are accounted were primarily made in the accounting policy or principles, i.e. the way in which such environmental data have been identified and measured, to avoid accounting uncertainties and to assure the comparison among companies. As a matter of fact, the disclosures relative to the environmental expenses and liabilities risk not being exhaustive and comprehensible for the stakeholders, if they are not accompanied by the specification of the criteria of estimate used for their calculations.

The 63.41% of the sample presents this typology of disclosure, obviously primary located in the Notes to the Accounts (76%). Of these, in greater detail, the operating expenses and the environmental investments are objects of evaluation criteria in 7.7% of the Annual Reports, the environmental liabilities in 51.9% while both items are dealt with 40.4% of cases.

We shall also underline those cases in which a company even if it includes environmental expenses and liabilities in its Annual Report, it does not include the evaluation criteria of said items neither among the rules nor elsewhere (see Statoil annual report 1994 and Bayer annual report 1994, 1995 and 1996). In fact, if we compare the evaluation criteria and the environmental financial items (expenses and liabilities) (Tables 1 and 2) there are cases in which, though including the environmental, financial items in quantitative terms, relative evaluation criteria are lacking; it is a major oversight because the reader does not have the possibility to reconstruct the company's exact financial exposure to environmental risks. In order to correctly "read" the financial items included in the Annual Report, we need all the necessary data to know which accounting principles and evaluation criteria were used for the gather this item.

Correlation Table 1 – Accounting Policies vs. Environmental Expenses

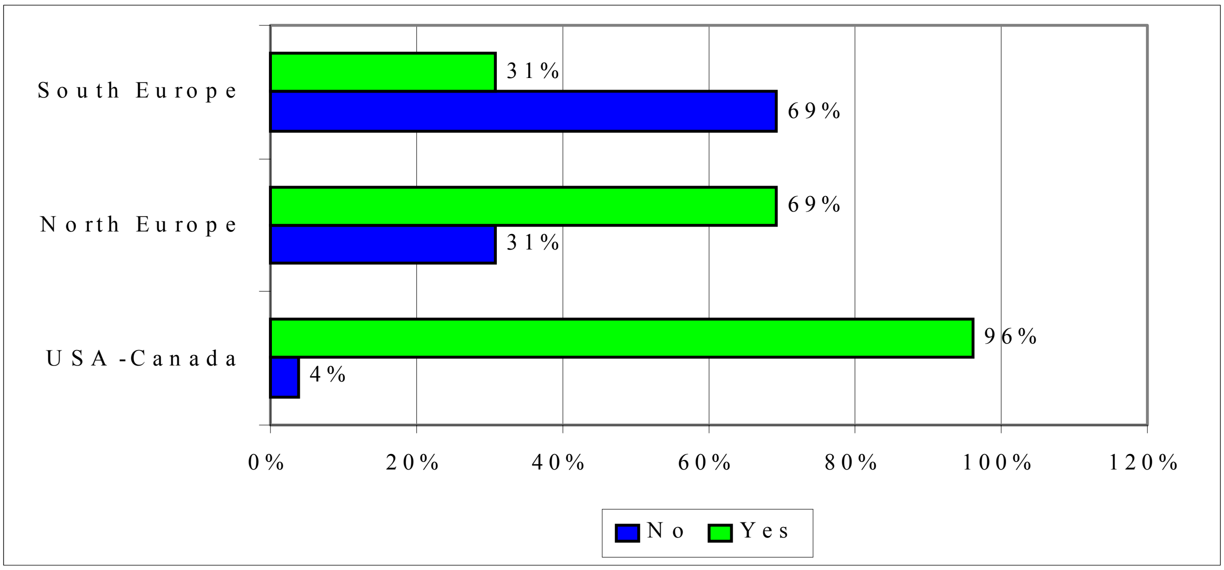
	Environmental expenses			
Accounting policies	***No***	***Qualitative***	***Quantitative***	**Total**
No	15	7	8	**30**
Yes	8	10	34	**52**
Total	**23**	**17**	**42**	**82**

Correlation Table 2 – Accounting Policies vs. Environmental Liabilities

	Environmental liabilities			
Accounting policies	***No***	***Qualitative***	***Quantitative***	**Total**
No	21	2	7	**30**
Yes	6	5	41	**52**
Total	**27**	**7**	**48**	**82**

Referring to the analysis of the nations' aggregates, the data remain in line with our findings: the United States and Canada are the nations that make the greater number of disclosures regarding expenses and liabilities, it stands to reason that they are also those nations with the highest percentage of disclosure of accounting criteria.

Graph 17 – Specifics of the Accounting Policies of the Environmental Items



Few of the surveyed companies disclosed accounting standards and guidelines. Some examples of accounting policies for environmental expenditures and liabilities follow:

Box 31 - BRITISH PETROLEUM Annual Report 1996

Accounting policies
(Omissis)...
"Decommissioning
Provision is made for the decommissioning of production facilities in accordance with local conditions and requirements on the basis of costs estimated as at the balance sheet date. The provision is allocated over accounting periods using a unit-of-production method based on estimated proved reserves.
Environmental liabilities
Environmental expenditures that relate to current or future revenues are expensed or capitalised as appropriate. Expenditures that relate to an existing condition caused by past operations and that do not contribute to current or future earnings are expensed. Liabilities for environmental assessments or clean-ups are probable and the associated costs can be reasonably estimated. Generally, the timing of these provisions coincides with the commitment to a formal plan of action or, if earlier, on divestment or on closure of inactive sites.
...(omissis)."

Box 32 - ROHM & HAAS Company Annual Report 1996

Management's Discussion & Analysis
"*In October 1996, the American Institute of Certified Public Accountants issued Statement of position 96-1 (SOP 96-1), Environmental Remediation Liabilities, which is effective beginning in 1997. The statement provides authoritative guidance regerding the ricognition, measurement, display and disclosure of environmental remediation liabilities. The company is evaluating this guidance and believes that its current policies and practices are substantially in agreement with the requirements of the SOP. The company does not expect the adoption of this accounting guidance in 1997 to have a material impact on the company's financial position or results of operations...(omissis)."*

Box 33 - CHEVRON Annual Report 1998

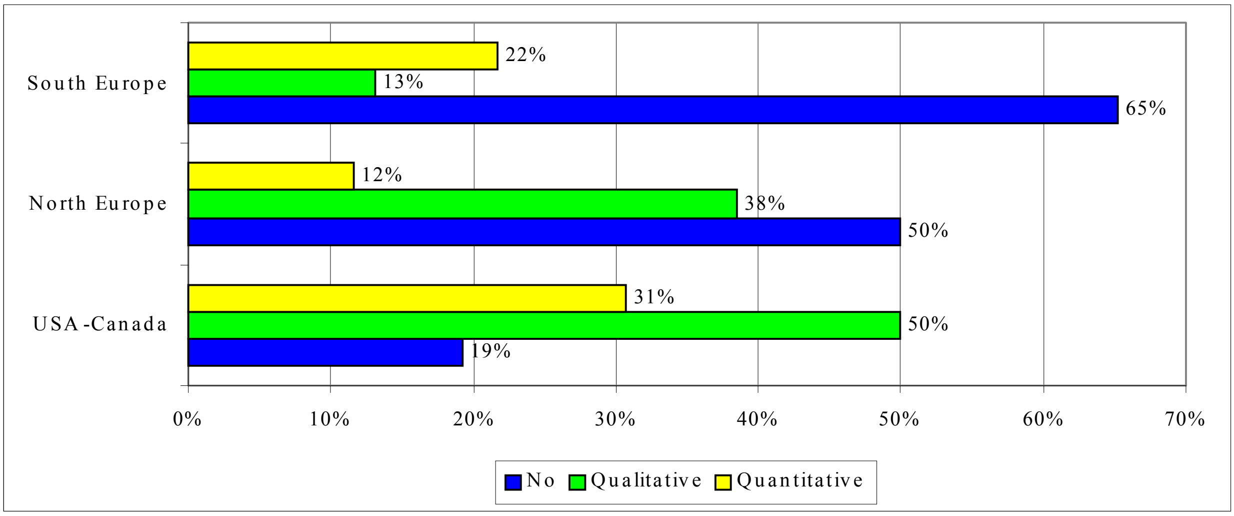
Management's Discussion & Analysis ***Environmental matters*** *"(Omissis)..Using definitions and guidelines established by the American Petroleum Institute, Chevron estimate its worldwide spending...(omissis)* *(Omissis)...Environmental remediation provisions pertain to estimated future costs for environmental cleanup programs at certain of the company's service stations, marketing terminals, refineries, chemical locations, and oil and gas properties; divested operations in which Chevron has liability for future cleanup cost; and sites, commonly referred to as Superfund sites, for which the company has been designated a PRP by the EPA...(omissis).* ***Notes to Consolidated Financial Statements*** ***Summary of significant accounting policies*** *(Omissis)* ***Environmental Expenditures*** *Environmental Expenditures that relate to current ongoing operations or to conditions caused by past operations are expensed. Expendiutres that create future benefits or contribute to future revenue generation are capitalized. Liabilities relate to future remediation costs are recorded when environmental assessments and/or cleanips are probable, and the costs can be reasonably estimated.Other than assessments, the timing and magnitude of these accruals are generally based on the company's commitment to a formal plan of action, such as an approved remediation plan or the sale or disposal of an asset. For the company's U:S: and Canadian marketing facilities, the accrual is based on the probability that a future remediation commitment will be required. For oil and gas and coal producing properties, a provision is made throught depreciation expense for anticipated abandonment and restoration costs at the end of the property's useful life.* *For Superfund sites, the company records a liability for its share of costs when it has been named as a Potentially Responsible Party (PRP) and when an assessment or cleanup plan has been developed. This liability includes the company's own portion of the costs and also the company's portion of amounts for other PRPs when it is probable that they will not be able to pay their share of the cleanup obligation.* *The company records the gross amount of its liability based on its best estimate of future costs in current dollars and using currently available technology and applying current regulations as well as the company's own internal environmental policies. Future amounts are not discounted. Recoveries or reimbursements are recorded as an asset when receipt is reasonably assured.*

Environmental Contingencies and Commitments

We deem it necessary to make a narrative description of the environmental commitments and risks the company may find itself up against, in particular in relation to environmental legislation and compliance and involvement in legal proceedings.

All those environmental risks and commitments do not figure in the statement of assets and liabilities, because their realisation is uncertain, and they are specified in an integrating note. When environmental related contingent liabilities and legal proceedings can be considered as material, they should be quantified. Although only 19.51% of the Annual Reports analysed contains the quantification of such risks, while 32.43% only gives a qualitative description. Their most common location is the Notes to the Accounts (80%).

Graph 18 – Specifics of the Environmental Contingencies and Commitments



Generally in Northern Europe as in the U.S. and Canada, the companies prefer to carry out a simple descriptive disclosure. In fact, often, the companies that include this type of information use standard phrases to recognise the possibility of coming up against environmental liabilities deriving from uncertain and unpredictable future events, but making clear that even such risks and commitments will not have a material impact on the economic and financial position or results of the company's operations in future periods.

In some cases it is possible to find a description of each legal proceedings and of the possible financial exposure if the proceedings are lost.

Box 34 - DU PONT Annual Report 1996

> ***Notes to Financial Statements***
> ***Commitments and Contingent Liabilities***
> *(Omissis)...The company is also subject to contingencies pursuant to environmental laws and regulations that in the future may require the company to take further action to correct the effects on the environment of prior disposal practices or releases of chemical or petroleum substances by the company or other parties. The company has accrued for certain environmental remediation activities consistent with the policy set forth in Note 1. At December 31, 1996, such accrual amounted to $ 586 million and, in management's opinion, was appropriate based on existing fact and circumstances. Under adverse changes in circumstances, potential liability may exceed amounts accrued. In the event that future remediation expenditures are in excess of amounts accrued, management does not anticipate that they will have a material adverse effect on the consolidated financial position of the company....(omissis).*

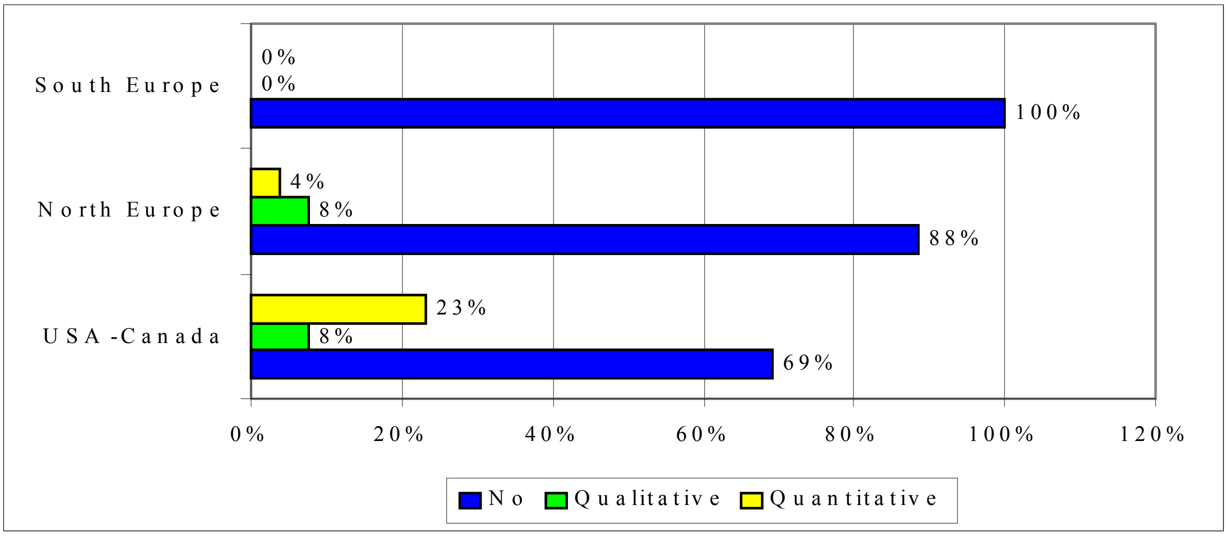
Box 35 - AMOCO Annual Report 1996

> ***Notes to Financial Statements***
> *(Omissis)*
> ***Other Contingencies***
> *Amoco is subject to federal, state and local environmental laws and regulations. Amoco is currently participating in the cleanup od numerous sites pursuant to such laws and regulations. The reasonably estimable future costs of probable environmental obligations, including Amoco's probable costs for obligations for which Amoco is jointly and severally liable, and for assets or businesses that were previously disposed, have been provided for in the corporation's results of operations. These estimated costs represent the amount of expenditures expected to be incurred in the future to remediate sites with known environmental obligations. The accrued liability represents a reasonable best estimate of Amoco's remediation liability. As the scope of the obligations becomes better defined, there may be changes in the estimated future costs, which could result in charges against the company's future results of operations. The ultimate amount of any such future costs, and the range within which such costs can be expected to fall, cannot be determined. Although the costs could be significant in relationship to the results of operations in any one period, they are not expected to have a material effect on Amoco's liquidity or consolidated financial position. (Omissis).*

Environmental Insurance

Environmental insurance minimise the potential financial impact associated with environmental risks connected with industrial activities. Even though the information relative to environmental insurance is extremely useful for the purpose of making known up to what level the environmental liabilities are covered by the appropriate insurance, the companies that make this type of disclosure are still few (8.54% in quantitative terms and 4.88% only in descriptive terms).

Graph 19 Specifics of Environmental Insurance Coverage



From the analysis of the data per aggregates, once again the United States and Canada reflect a greater tendency to make this quantitative disclosure.

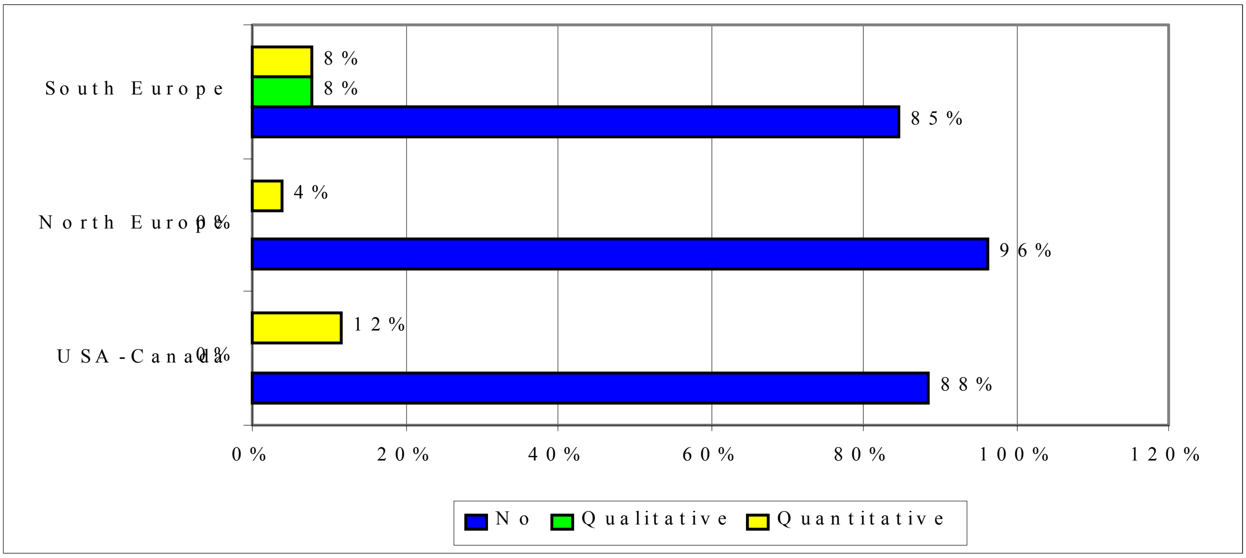
Box 36 – RHOM & HAAS Annual Report 1996

Management Discussion & Analysis
Environmental Exspenses and capital spending
(Omissis)…The reserves for remediation were $139 million and $170 million at December 1996 and 1995 respectively and are recorded as "other liabilities" (current and long term). Probable insurance recoveries where 48$ millions at december 31 1996 and $72 million at December 31 1995. The reduction in 1996 was due to collections from certain insurance carriers regarding the company's claims for environmental remediation costs and related legal exspenses. Late in 1996 and early 1997, the company negotiated settlements with additional insurers totaling $61 million; $56 million will be collected in 1997 and $ 5 million totaling $61 million ; $56 million will be collected in 1997 and $5 million will be collected in 1998 and 1999. The excess of the settlements over the probable insurance recovery asset of $48 million will be recognized as income. Other insurance carriers have denied coverage in most cases and the company has initiated legal action in New Jersey and Pennsylvania. The trial in the Pennsylvania case started January 22 1997, and the company is hopefull of receiving additional recoveries.

Extraordinary Costs and Environmental Assets

If single environmental items take on a certain relevance and consistency they must be separately specified in the notes to the accounts; it is in fact a case of extraordinary environmental costs and of environmental tangible and intangible assets. Rarely are the environmental costs pointed out separately (7.32%): as the following graph shows, the disclosure of extraordinary cost headings of an environmental nature is very limited in all the aggregates of nations.

Graph 20 – Specifics of Extraordinary Environmental Costs



In the same way, it is extremely rare that the specifics are found separately in an integrating note (only 3.66% limited to the tangible assets), even when plants, machinery or research and development activities are acquired exclusively for environmental purposes and the capitalisation of such expenses is considered capable of generating future economic benefits for the company.

3.3.3 The Location of Environmental Information

As previously mentioned, the location of environment-related information within the Annual Report is of outstanding importance both for reasons of comparability and for reasons of significance. In terms of comparability, this is quite relevant because the uniformity of the ordering is fundamental to allow for a significant comparison among the various Annual Reports. In terms of significance, the location is relevant because it is unquestionable that placing financial information in the descriptive part of the document will not have the same value as it would if placed in the financial report. It is reasonable to assume that environmental information included within the audited section of the annual report is produced in accordance with relevant accounting standards. Although financial statement auditors have a duty to ensure that data included elsewhere in the annual report package are not in conflict with the audited financial statements themselves.

This type of analysis showed notable difficulties mainly for two reasons:

- documents drafted according to the IV EEC Regulation and Annual Reports were compared; in order to overcome the differences between these two accounting documents we try to find sections common to both the typologies of documents;
- often the same type of information can find more than one location within the various sections of the document; in these cases, in the location research, it was necessary to gather the information every time it was present in more than one section of the document while in the analysis by typology, the information was gathered only once.

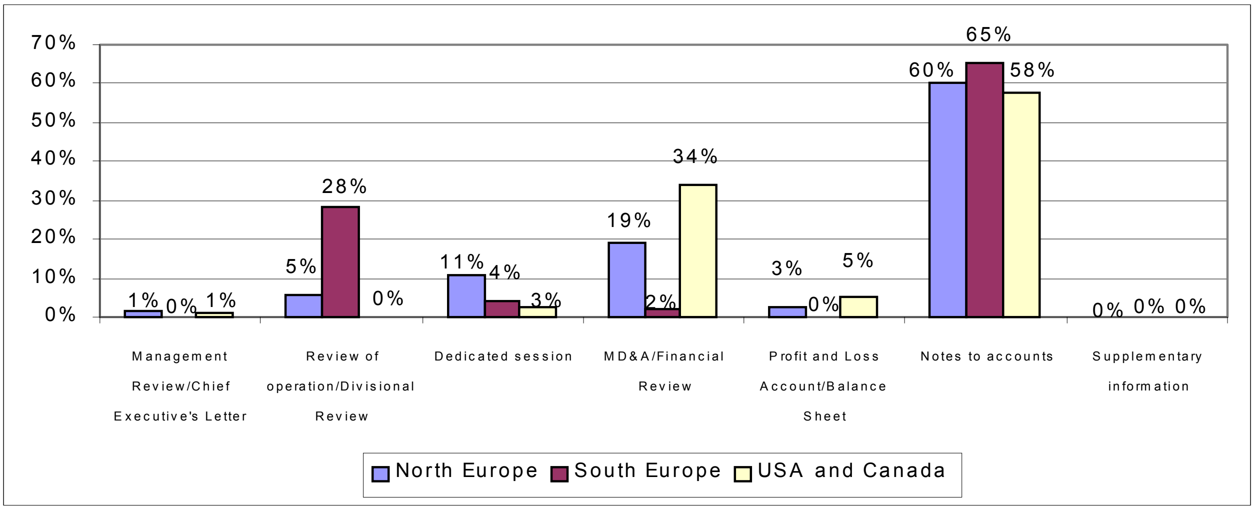
From the analysis of the overall ordering of the environmental information carried out on the entire sample, it can be seen that the most common location for environmental information was the Notes to the Accounts (28.5%), followed by the Operative Review (or Review of operations) (21.8%), the dedicated section (19.8%) and the Management's Discussion & Analysis/Financial Review (17.1%). If we take only the environmental financial information (expenses, investments, liabilities, contingencies and commitments extraordinary costs, insurance, assets) into consideration, it is obvious that the companies prefer by far to disclose such information in the Notes to the Accounts (59.9%), which is in effect the most natural and obvious placing for such accounting items.

Table 1 – Location of Environmental Information in the Annual Report

Annual report's sessions	Total environmental information	Financial environmental information
Management Review/Chief Executive's Letter/etc	8.6%	0.8%
Review of operation/Divisional Review/etc	21.8%	7.2%
MD&A/Financial Review/etc	19.8%	5.5%
Profit and Loss Account/Balance Sheet/etc	17.1%	23.2%
Report on the environment/HSE/etc	1.6%	3.4%
Notes to the accounts	28.5%	59.9%
Supplementary information/Sharehowner information/etc	2.6%	//

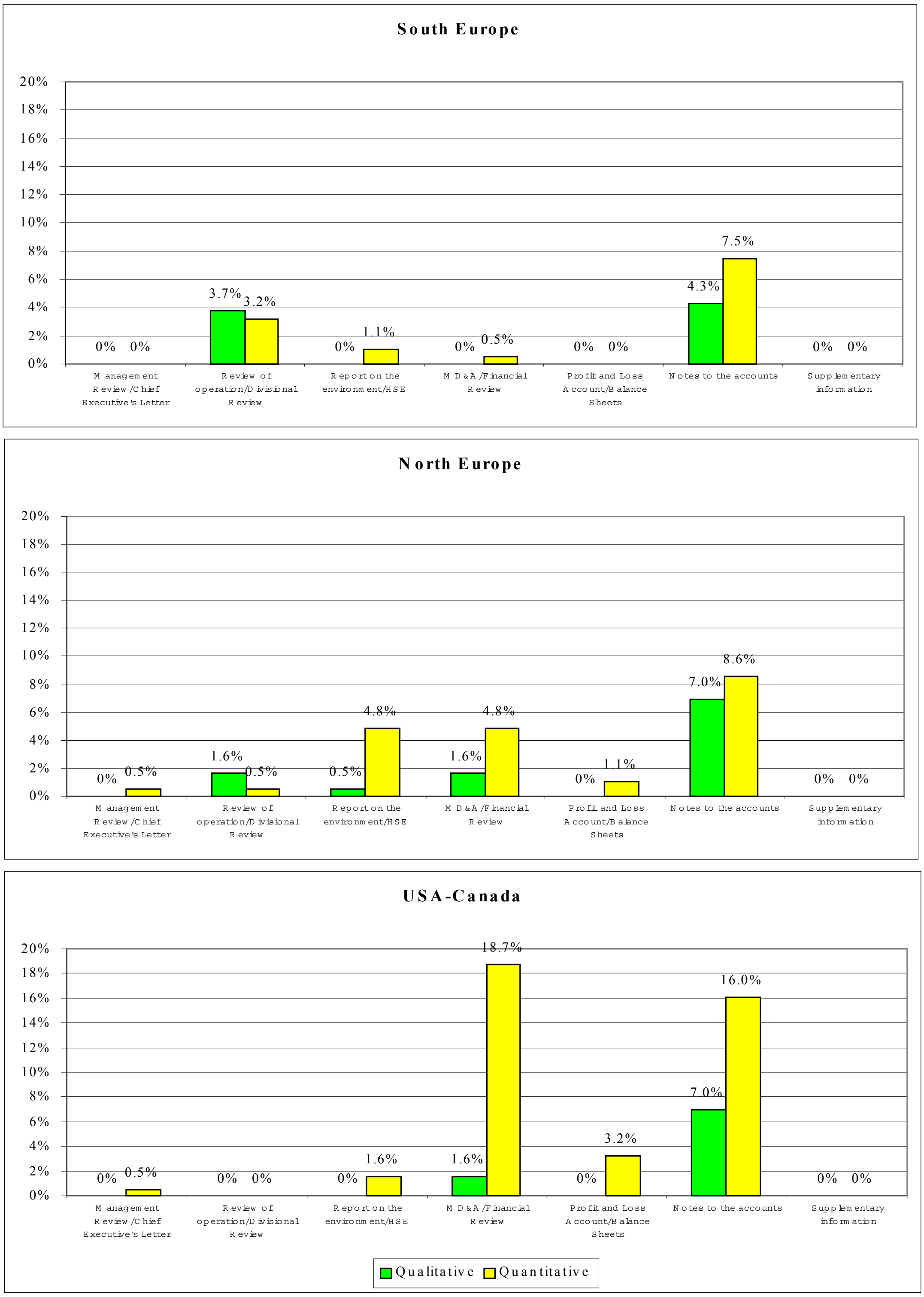
The location of environmental financial information by country is highlighted in Graph 21 which shows how environmental financial disclosures is most located in the Notes to the accounts in each aggregate of nations.

Graph 21- Location of Environmental Financial Information by Country



If we analyze the location of the environmental financial information, per aggregates of nations, discriminating between qualitative data (simple mention of the existence of the accounting heading) and quantitative (specifics of monetary entity of the accounting item) (see Graph 22) it is possible to note a certain generic preference for the quantitative information: this reflects, at least partially the abandonment of the reluctance of the company to show quantitatively their own financial environmental exposition. An excellent example is given by the United States and Canada which have the highest percentage of quantitative disclosure, whose placing is localized above all in the MD&A (in fact, even if it has many aspects in common with the “Financial Statement” it cannot be easily added to any other section of the balance sheet according to the IV EEC Regulation).

Graph 22–Location of Qualitative and Quantitative Financial Data according to Aggregates



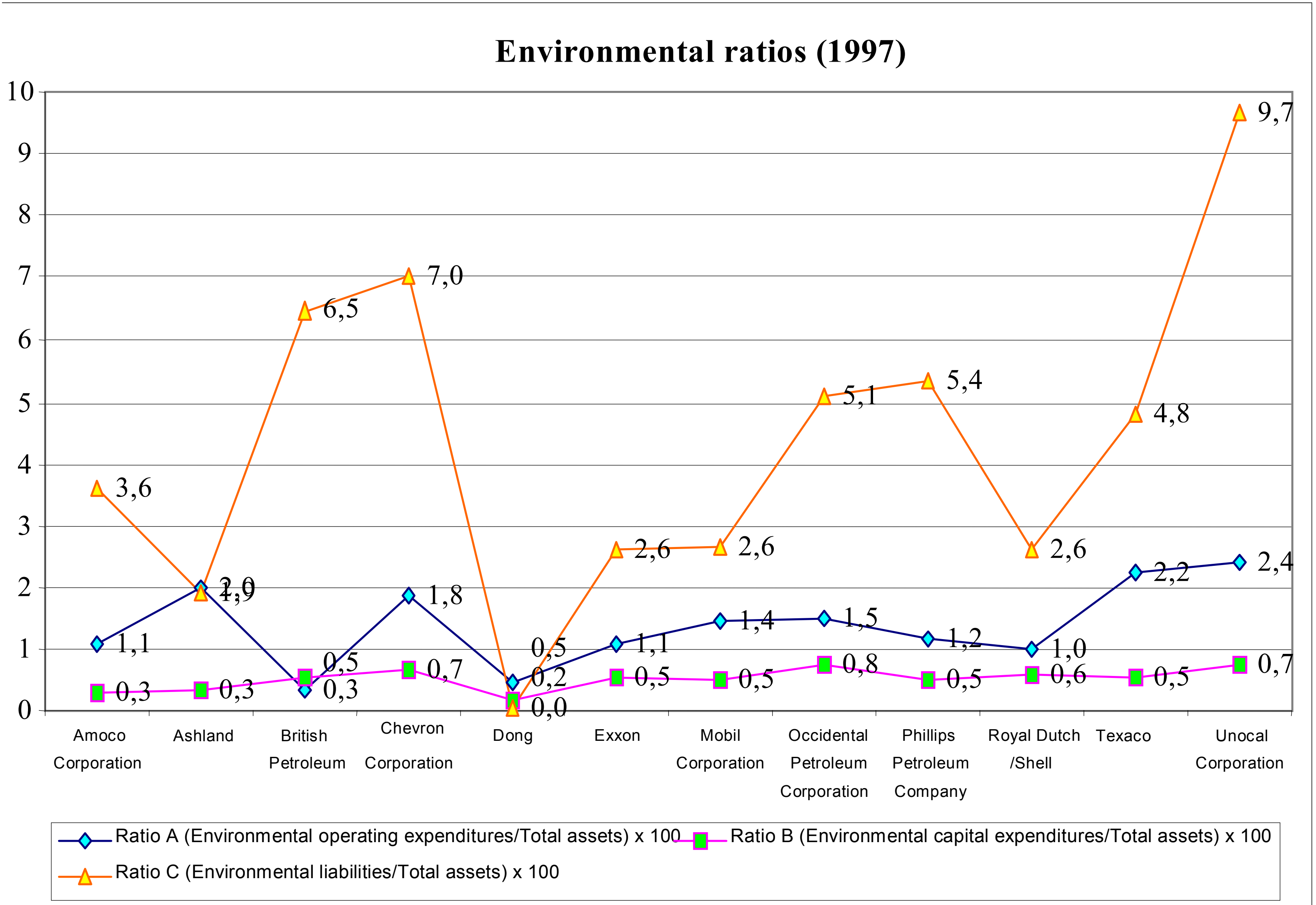
3.3.4 Quantitative Comparisons of the Financial Environmental Information.

In order to compare some financial information among companies, we selected 12 companies. These are the surveyed companies which disclosed all three types of financial information: operative environmental expenses, environmental investments, environmental liabilities. We carried out a comparison of the most interesting financial environmental information contained in the Annual Reports of these selected companies, the year we referred to is 1997.

For the purpose of rendering such a comparison significant the environmental items have been reported at the total net assets. It was therefore possible to establish brief indicators that, once they are isolated from the firm's dimensions and from the variation of time, allow to carry out a significant comparison. Choosing 1997 as the base year, the monetary efforts of some of the companies belonging to the oil sector were compared.

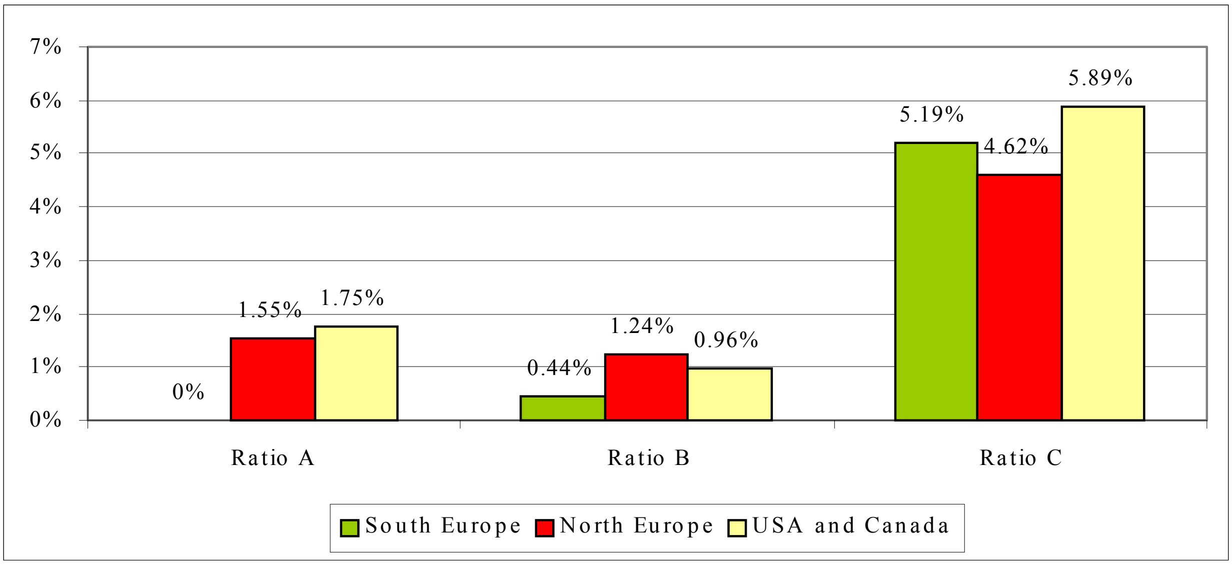
The indicators of financial losses appear to be, obviously, by far superior to that of the expenses and of the investments (except for Ashland and Dong), given that the amount of the liabilities (above all potential) is greatly superior to the financial efforts that a company can undertake, while the indicator of the operational expenses is always superior to that of environmental investments. This last survey element could be considered as a negative factor because it means that the companies spend more than what they invest in prevention to make up for the damages to the environment.

Graph 23 – Indicators of the Financial Environmental Items of some Oil Companies (from Annual Reports 1997)



Finally, if we make an average of the financial environmental indicators thereby distinguishing among the three aggregates of nations in order to note the possible differences with respect to the financial efforts made by companies, no major discrepancies can be seen. The only element to be highlighted is that the United States and Canada have the highest average of liability indicators, while Southern Europe does not have any environmental operating expenses and invests very little in the environment.

Graph 24 – Average of the Financial Environmental Indicators



4. Conclusions

The demands upon companies to behave in a responsible manner are felt in the chemical and oil & gas industries, perhaps as much as in any other industrial sector. This certainly explains the high percentage of environmental disclosures addressed by the companies surveyed. Furthermore, most companies produce a separate section dedicated to the environmental issues within their Annual Reports.

Quantified financial information on environment is still less common. In particular, the survey showed that Northern Europe is in the van in the disclosure of non-financial information, while the United States and Canada are the nations with the greatest number of quantitative disclosures of financial environmental information.

Information on corporate environmental policy is largely provided by the Northern Europe's companies, while more than half of the Southern Europe's companies does not include this information in their financial reports.

Formal Health Safety and Environmental (HSE) management systems are not yet prevalent in Southern Europe and Canada and the US as well. If we take disclosure as an indicator, HSE audits are still relatively uncommon, and show the same percentage distribution among the three nations aggregates.

The disclosure of environmental targets is justified by the implementation of a formal HSE management system since target identification is one of its most important requirements. Where HSE management systems are being implemented, recognized standards (ISO 14001, EMAS) are being used.

Reporting on environmental financial information, especially for expenditures, seems to be a practice followed by the majority of the surveyed companies. Whose capital expenditures are generally the most disclosed information in our three nations' aggregates. The survey showed that information on contingent liabilities, provisions and accounting policies are disclosed above all in the US and Canada while Southern European companies seem to be less aware of these financial details.

Separate reporting of environmental information appears to be still low in Southern European Companies.

The next table summarizes these main findings and observations:

Table of Findings *(Percentages indicate the number of affirmative responses)*

	South Europe	North Europe	USA and Canada
1. Do the annual reports disclose anything regarding Environment?			
	81%	96%	100%
2. Do the reports include a dedicated section on Environment?			
	48%	100%	77%
3. Is there any quantitative non-financial disclosure on Environment?			
	5%	40%	27%
4. Do the reports disclose the environmental policy?			
	48%	96%	73%
5. Do the reports disclose environmental targets?			
	20%	75%	47%
6. Do the reports mention whether there is a Committee entrusted with HSE responsibilities?			
	33%	35%	5%
7. Is mention made of a formal HSE management system?			
	29%	72%	31%
8. Do the annual reports mention HSE audits?			
	5%	32%	19%
9. Do the companies disclose any information regarding standards?			
	33%	56%	12%
ISO 14000	*57%*	*79%*	*33%*
EMAS	*14%*	*29%*	*33%*
10.Do the annual report contain any financial disclosure on Environment?			
Environmental expenditure	58%	69%	89%
- Operating expenditure	*13%*	*60%*	*76%*
- Capital expenditure	*100%*	*70%*	*84%*
Provisions	23%	88%	92%
Accounting policies	31%	69%	96%
Contingent liabilities	35%	50%	81%
11. Is mention made of a separate environmental report?			
	19%	58%	42%

In conclusion, despite the fact that our survey focused on those industrial sectors particularly sensitive to environmental problems and despite the fact that the percentages show that it is now common practice to include environmental information within the Annual Reports, it is our opinion that the level of detail of such data is unsatisfactory. Stakeholders not always succeed in drawing from environmental disclosures precise and comprehensive information which may be useful for the purpose of decision-making. Above all, the attempt to make a comparison among the various companies and nations is arduous: there are differences between national and international accounting standards affecting environmental financial information. Environmental disclosure can be misleading if the information is not comparable. These obstacles will be overcome only when generally accepted standards will be issued. Standardization could in effect reduce differences in the types and location of environmental topics.

Over 100 years of experience with financial reporting, have shown that qualitative characteristics, such as relevance, understandability, usefulness and comparability, are just as important as the basic (performance oriented) content in establishing the credibility of reported data (FEE, 2000).

While it is good to see more companies reporting explicitly on these issues, there is still more to be done. Without an established measuring system for environmental performance, a company may not attain its “social license” to operate: companies need to be able to demonstrate their performances.

References

1. AAF, European Accounting Advisory Forum, *"Environmental Issues in Financial Reporting"*, December 1995
2. ASB, Accounting Standards Board , *"Financial Reporting Standard (FRS) 12 - Provisions, Contingent Liabilities and Contingent Assets"*, UK
3. Borghini S., Salomone R.; "*Environmental Costs and Liabilities in Annual Reports: Current Trends and Future Perspective";* 7th International Conference of The Greening of Industry; Rome 15-18 November 1998.
4. CICA, Canadian Institute of Certified Accountants, *"Environmental Costs and Liabilities: Accounting and Financial Reporting Issues"*, 1993
5. Epstein M.J.; *"Measuring corporate environmental performance"*; Institute of management accountants; McGraw-Hill; USA 1996.
6. European Union, "*Interpretative communication concerning certain articles of the fourth and seventh council directives on accounting"*, Official Journal 20th January 1998
7. European Commission, *"Study on Environmental Reporting by Companies"*, October 1999
8. FEE, Fédération des Experts Comptables Européens, "*Memorandum to IASC Based on a Review on International Accounting Standards for Environmental Issues"*, February 1998
9. FEE, Fédération des Experts Comptables Européens, *"Review on International Accounting Standards for Environmental Issues*", May 1999
10. FEE, Fédération des Experts Comptables Européens, *"Towards a generally accepted framework for environmental reporting"*, July 2000
11. IASC, International Accounting Standards Committee, *"International Accounting Standard (IAS) 36 - Impairment of Assets",* USA
12. IASC, International Accounting Standards Committee, "*International Accounting Standard (IAS) 37 - Provisions, Contingent Liabilities and Contingent Assets"*, USA
13. IASC, International Accounting Standards Committee, *"International Accounting Standard (IAS) 38 - Intangible Assets",* USA
14. ICAEW, Institute of Chartered Accountants of England and Wales, *"Environmental Issues in Financial Reporting",* October 1996

15. Langford R. - ICAEW; *"Global accounting rules on green issues – Review of International Accounting Standards for environmental issues",* 7th International Conference of The Greening of Industry; Rome 15-18 November 1998
16. Milne M.J. - Adler R.W., "*Exploring the reliability of social and environmental disclosures content analysis",* Paper n.07, http://www3.osaka-cu.ac.jp/apira98/archives/htmls/07.htm
17. ODEC, Ordre des Experts Comptables, *"Information Financière et Environnement",* Paris 1996
18. Roberts C., *"Environmental Disclosures in Corporate Annual Reports in Western Europe"* in Owen D. *"Green Reporting. Accountancy and the Challenge of the Nineties",* Chapman & Hall, 1992
19. Salomone R. - Ciraolo L., "*The quality of environmental information in Company Communication",* 12th IGWT Symposium, Poznan – Gdynia, Poland 5-11 September 1999
20. Task Force Ambientale del Consiglio Nazionale dei Dottori Commercialisti e del Consiglio Nazionale dei Ragionieri e Periti Commerciali, *"Aspetti ambientali nell'informativa del bilancio di esercizio"*, October 1998
21. Tilt C.A., School of Commerce – The Flinders University of South Australia, *The content and disclosure of Corporate Environmental Policies: an Australian study",* http://www3.bus.osaka-cu.ac.jp/apira98/archives/htmls/06.htm, APIRA98 Paper n.06, 1998
22. UNCTAD, *Environmental Financial Accounting* - *Accounting and reporting for environmental liabilities and costs within the existing financial reporting framework,* UNCTAD-ISAR Report, July 1997
23. UNCTAD-ISAR, *Review of International Accounting and Reporting Issues,*1991

Appendix 1 – List of Annual Reports Surveyed

Company	Document	Year
Agip Petroli	Bilancio	31/12/97
Agip Petroli	Relazioni e Bilancio	31/12/95
Agip Petroli	Bilancio	31/12/96
Akzo Nobel	Annual Report	31/12/95
Amoco Corporation	Annual Report	31/12/96
Amoco Corporation	Annual Report	31/12/97
Amoco Corporation	Annual Report	31/12/95
Amoco Corporation	Annual Report	31/12/94
ARCO Chemical Company	Annual Report	31/12/96
Ashland	Annual Report	31/12/96
Ashland	Annual Report	31/12/97
BASF	Annual Report	31/12/97
Bayer	Annual Report	31/12/94
Bayer	Annual Report	31/12/96
Bayer	Annual Report	31/12/95
Bayer SpA	Relazioni e Bilancio	31/12/96
BP Italia spa	Bilancio	31/12/96
Bristol-Myers Squibb	Relazioni e Bilancio	31/12/95
British Gas plc	Annual Report and accounts	31/12/94
British Gas plc	Annual Report and accounts	31/12/96
British Gas plc	Annual Report and Accounts	31/12/98
British Gas plc	Annual Report and accounts	31/12/95
British Petroleum	Annual Report and accounts	31/12/93
British Petroleum	Annual Report and accounts	31/12/94
British Petroleum	Annual Report and accounts	31/12/95
British Petroleum	Annual Report and accounts	31/12/96
British Petroleum	Annual Report	31/12/97
Caffaro SpA	Relazione e Bilancio - Bilancio consolidato	31/12/96
Caffaro SpA	Relazione e Bilancio - Bilancio consolidato	31/12/95
Chevron Corporation	Annual Report	31/12/97
Chevron Corporation	Annual Report	31/12/98
Chevron Corporation	Annual Report	31/12/95
Chevron Corporation	Annual Report	31/12/96
Chevron Corporation	Annual Report	31/12/94
CIBA Group	Summary Report and Financial Review	31/12/94
CIBA Group	Summary Report and Financial Review	31/12/95
CIBA Group	Business Review - Financial Review	31/12/98
CIBA-GEIGY SpA	Relazioni e Bilancio	31/12/96
CIBA-GEIGY SpA	Bilancio e Rapporto di gestione	31/12/95
Corange	Annual Report	31/12/95
Delhi Group	Annual Report	31/12/96
Dong	Annual Report	31/12/97
Dow Chemical Company	Annual Report	31/12/97
Dow Chemical Company	Annual Report	31/12/96
Dow Italia Spa	Relazioni e Bilancio	31/12/96
Du Pont	Annual Report	31/12/96

Du Pont	Annual Report	31/12/95
Du Pont	Annual Report	31/12/94
Du Pont	Annual Report	31/12/93
Du Pont	Annual Report	31/12/97
DU PONT DE NEMOURS ITALIANA SPA	Bilancio	31/12/96
Edison Spa	Relazioni e bilancio	31/12/96
ELF Aquitaine	Annual Report	31/12/96
ELF idrocarburi italia spa	Bilancio	31/12/96
ENEL SpA	Relazioni e Bilancio	31/12/95
ENI	Bilancio	31/12/97
ENI	Bilancio	31/12/95
ENI	Bilancio	31/12/96
ENI	Rapporto Annuale	31/12/94
Enichem	Annual Report	31/12/96
EniChem	Relazioni e Bilancio	31/12/95
Enirisorse	Bilancio	31/12/96
Enterprise Oil	Annual Report and accounts	31/12/98
ERG Petroli SpA	Relazioni e Bilancio Consolidato	31/12/96
ERG Petroli SpA	Relazioni e Bilancio	31/12/95
Eskom	Annual Report	31/12/95
Esso Italiana SpA	Relazioni e Bilancio	31/12/96
Exxon	Annual Report	31/12/96
Exxon	Annual Report	31/12/95
Exxon	Annual Report	31/12/94
Exxon	Annual Report	31/12/97
FINA	Annual Report	31/12/97
FINA Italiana spa	Bilancio	31/12/96
FINA, Inc.	Annual Report	31/12/97
Fortum	Annual Report	31/12/98
GULF Canada Resources Lim.	Annual Report	31/12/96
Henkel	Annual Report	31/12/96
Hoechst	Annual Report	31/12/97
ICI	Annual Report and Accounts	31/12/98
ICI	Annual Review-Summary Financial Statemen	31/12/93
Italgas	Bilancio e relazioni	31/12/96
Italiana Petroli	Relazioni e Bilanci0	31/12/96
Italiana Petroli	Relazioni e Bilancio	31/12/94
Italiana Petroli	Relazioni e Bilancio	31/12/95
Kuwait Petroleum Italia SpA	Relazioni e Bilancio	31/12/96
Lonza SpA	Bilancio	31/12/96
Marathon Group	Annual Report	31/12/96
Mobil Corporation	Annual Report	31/12/96
Mobil Corporation	Annual Report	31/12/95
Mobil Corporation	Annual Report	31/12/98
Mobil Corporation	Annual Report	31/12/97
Mobil Corporation	Annual Report	31/12/94
Monsanto	Annual Report to Shareowners	31/12/96
Monsanto	Annual Report	31/12/98
Montedison	Relazioni e bilancio	31/12/96

Neste	Annual Report	31/12/97
Neste	Annual Report	31/12/93
Neste	Annual Report	31/12/94
Neste	Annual Report	31/12/95
Neste	Annual Report	31/12/96
New Cache Petroleums Ltd	Annual Report	31/12/96
Nippon Oil Company Limited	Annual Report	31/12/94
Nippon Oil Company Limited	Annual Report	31/12/96
Nippon Oil Company Limited	Annual Report	31/12/95
Nippon Oil Company Limited	Annual Report	31/03/98
Noranda Inc.	Annual Report	31/12/93
Noranda Minerals Inc.	Annual Report	31/12/93
Novartis	Annual Report	31/12/97
Occidental Petroleum Corporation	Annual Report	31/12/97
Occidental Petroleum Corporation	Annual Report	31/12/96
Oryx Energy Company	Annual Report	31/12/96
Oryx Energy Company	Annual Report	31/12/95
Oryx Energy Company	Annual Report	31/12/97
Pemex	Annual Report	31/12/96
Phillips Petroleum Company	Annual Report	31/12/97
Phillips Petroleum Company	Annual Report	31/12/96
PowerGen plc	Annual Report and Accounts	31/12/96
Repsol	Annual Report	31/12/97
Rhone-Poulenc	Annual Report	31/12/96
Roche	Annual Report	31/12/98
Roche	Annual Report	31/12/97
Rohm &Haas Company	Annual Report	31/12/93
Rohm &Haas Company	Annual Report	31/12/96
Royal Dutch / Shell	Annual Report	31/12/97
Royal Dutch Petroleum Company	Annual Report	31/12/95
Royal Dutch Petroleum Company	Annual Report	31/12/96
Royal Dutch Petroleum Company	Annual Report	31/12/93
Royal Dutch Petroleum Company	Annual Report	31/12/94
Saipem	Relazioni e Bilancio	31/12/94
Saipem	Annual Report	31/12/96
Shell Italia SpA	Bilancio	31/12/96
Snam	Bilancio	31/12/95
Snam	Bilancio	31/12/96
Solvay	Annual Report	31/12/96
Solvay	Annual Report	31/12/97
Solvay	Annual Report	31/12/95
Statoil	Annual Report and Accounts	31/12/94
Sunoco	Annual Report	31/12/98
Texaco Inc.	Annual Report	31/12/97
Texaco Inc.	Annual Report	31/12/96
Texaco Inc.	Annual Report	31/12/95
Texaco Inc.	Annual Report	31/12/94
Texaco Inc.	Annual Report	31/12/93
Tosco Corporation	Annual Report	31/12/98

Total	Annual Report	31/12/97
Total	Annual Report	31/12/94
Total	Annual Report	31/12/95
Unocal Corporation	Annual Report	31/12/97
US Steel Group	Annual Report	31/12/96
USX	Annual Report	31/12/96
Wacker-Chemie GmbH	Annual Report	31/12/93
Wacker-Chemie GmbH	Annual Report	31/12/96
Wacker-Chemie GmbH	Annual Report	31/12/94
Wacker-Chemie GmbH	Annual Report	31/12/95
Wacker-Chemie GmbH	Annual Report	31/12/97
Xenova Group plc	Annual Report	31/12/95

Appendix 2 - Latest Annual Reports Surveyed for Each Companies (Narrow Sample)

Company	Country	Year
Agip Petroli	Italy	31/12/97
Akzo Nobel	Norway	31/12/95
Amoco Corporation	USA	31/12/97
ARCO Chemical Company	USA	31/12/96
Ashland	USA	31/12/97
BASF	Germany	31/12/97
Bayer	Germany	31/12/96
Bayer SpA	Italy	31/12/96
BP Italia spa	Italy	31/12/96
Bristol-Myers Squibb	Italy	31/12/95
British Gas plc	Great Britain	31/12/98
British Petroleum	Great Britain	31/12/97
Caffaro SpA	Italy	31/12/96
Chevron Corporation	USA	31/12/98
CIBA Group	Switzerland	31/12/98
CIBA-GEIGY SpA	Italy	31/12/96
Corange	Bermuda	31/12/95
Delhi Group	USA	31/12/96
Dong	Denmark	31/12/97
Dow Chemical Company	USA	31/12/97
Dow Italy Spa	Italy	31/12/96
Du Pont	USA	31/12/97
DU PONT DE NEMOURS ITALIANA SPA	Italy	31/12/96
Edison Spa	Italy	31/12/96
ELF Aquitaine	France	31/12/96
ELF Idrocarburi Italy spa	Italy	31/12/96
ENEL SpA	Italy	31/12/95
ENI	Italy	31/12/97
Enichem	Italy	31/12/96
Enirisorse	Italy	31/12/96
Enterprise Oil	Great Britain	31/12/98
ERG Petroli SpA	Italy	31/12/96
Eskom	South Africa	31/12/95
Esso Italyna SpA	Italy	31/12/96
Exxon	USA	31/12/97
FINA	Belgium	31/12/97
FINA Italiana spa	Italy	31/12/96
FINA, Inc.	USA	31/12/97
Fortum	Finland	31/12/98
GULF Canada Resources Lim.	Canada	31/12/96
Henkel	Germany	31/12/96
Hoechst	Germany	31/12/97
ICI	Great Britain	31/12/98
Italgas	Italy	31/12/96
Italiana Petroli	Italy	31/12/96

Kuwait Petroleum Italia SpA	Italy	31/12/96
Lonza SpA	Italy	31/12/96
Marathon Group	USA	31/12/96
Mobil Corporation	USA	31/12/98
Monsanto	USA	31/12/98
Montedison	Italy	31/12/96
Neste	Finland	31/12/97
New Cache Petroleums Ltd	Canada	31/12/96
Nippon Oil Company Limited	Japan	31/03/98
Noranda Inc.	Canada	31/12/93
Noranda Minerals Inc.	Canada	31/12/93
Novartis	Switzerland	31/12/97
Occidental Petroleum Corporation	USA	31/12/97
Oryx Energy Company	USA	31/12/97
Pemex	Mexico	31/12/96
Phillips Petroleum Company	USA	31/12/97
PowerGen plc	Great Britain	31/12/96
Repsol	Spain	31/12/97
Rhone-Poulenc	France	31/12/96
Roche	Switzerland	31/12/98
Rohm &Haas Company	USA	31/12/96
Royal Dutch / Shell	Holland	31/12/97
Royal Dutch Petroleum Company	Holland	31/12/96
Saipem	Italy	31/12/96
Shell Italia SpA	Italy	31/12/96
Snam	Italy	31/12/96
Solvay	Holland	31/12/97
Statoil	Norway	31/12/94
Sunoco	USA	31/12/98
Texaco Inc.	USA	31/12/97
Tosco Corporation	USA	31/12/98
Total	France	31/12/97
Unocal Corporation	USA	31/12/97
US Steel Group	USA	31/12/96
USX	USA	31/12/96
Wacker-Chemie GmbH	Germany	31/12/97
Xenova Group plc	Great Britain	31/12/95

Contents

Roberta Salomone is researcher on Commodity Science - University of Messina, Faculty of Economics, Department of Commodity Science. roberta.salomone@unime.it
Giulia Galluccio has been researcher at the Fondazione Eni Enrico Mattei in the Corporate Sustainable Management Research Unit. She is currently working at KPMG Sustainability Advisory Services. ggalluccio@KPMG.it