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GRADUATE SCHOOL OF MANAGEMENT
St. Petersburg State University
Master in International Technology and Innovation Management

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CORPORATE SOCIAL RESPONSIBIILITY IN THE OIL AND GAS INDUSTRY: ENVRIONMENTAL MANAGEMENT SYSTEMS AS A SOURCE OF SUSTAINABLE DEVELOPMENT

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Lappeenranta - Saint-Petersburg
2012

ABSTRACT

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Title of thesis: Corporate Social Responsibility in the Oil and Gas Industry: Environmental

Management Systems as a Source of Sustainable Development

Faculty: School of Business;

Graduate School of Management

Major subject: Master in International Technology and Innovation Management

Year: 2012

Master's Thesis: Lappeenranta University of Technology;

St. Petersburg State University

Content: 93 pages, 20 figures, 10 tables, and 2 appendices

Examiner: Karl-Erik Michelsen

Keywords: corporate social responsibility, sustainable development, environmental

management systems, environmental management, oil and gas industry

The environmental aspect of corporate social responsibility (CSR) expressed through the process of the EMS implementation in the oil and gas companies is identified as the main subject of this research. In the theoretical part, the basic attention is paid to justification of a link between CSR and environmental management. The achievement of sustainable competitive advantage as a result of environmental capital growth and inclusion of the socially responsible activities in the corporate strategy is another issue that is of special significance here. Besides, two basic forms of environmental management systems (environmental decision support systems and environmental information management systems) are explored and their role in effective stakeholder interaction is tackled. The most crucial benefits of EMS are also analyzed to underline its importance as a source of sustainable development.

Further research is based on the survey of 51 sampled oil and gas companies (both publicly owned and state owned ones) originated from different countries all over the world and providing reports on sustainability issues in the open access. To analyze their approach to sustainable development, a specifically designed evaluation matrix with 37 indicators developed in accordance with the General Reporting Initiative (GRI) guidelines for non-financial reporting was prepared. Additionally, the quality of environmental information disclosure was measured on the basis of a quality – quantity matrix. According to results of research, oil and gas companies prefer implementing reactive measures to the costly and knowledge-intensive

proactive techniques for elimination of the negative environmental impacts. Besides, it was identified that the environmental performance disclosure is mostly rather limited, so that the quality of non-financial reporting can be judged as quite insufficient. In spite of the fact that most of the oil and gas companies in the sample claim the EMS to be embedded currently in their structure, they often do not provide any details for the process of their implementation. As a potential for the further development of EMS, author mentions possible integration of their different forms in a single entity, extension of existing structure on the basis of consolidation of the structural and strategic precautions as well as development of a unified certification standard instead of several ones that exist today in order to enhance control on the EMS implementation.

РЕФЕРАТ

Основным предметом настоящего исследования является экологический аспект корпоративной социальной ответственности (КСО), выраженный через установку систем экологического менеджмента (СЭМ) на предприятиях компаний нефтегазовой отрасли. В теоретической части основное внимание уделяется обоснованию связи между КСО и экологическим менеджментом, а также достижению устойчивого конкурентного преимущества в результате роста экологического капитала и включения социально-ориентированных программ в существующую корпоративную стратегию. Кроме того, анализируется функции двух основных видов СЭМ – систем поддержки экологических решений и информационно-аналитических систем экологического контроля, их роль в поддержании взаимовыгодных отношений с различными заинтересованными сторонами, а также преимущества СЭМ в качестве источника устойчивого развития.

Дальнейшее исследование базируется на основе выборки из более 50 нефтегазовых компаний, имеющих различную форму собственности, ведущих свою деятельность в разных странах по всему миру и предоставляющих нефинансовую отчетность в открытом доступе. Для анализа применяющихся ими подходов к устойчивому развитию была

разработана специальная измерительная матрица с 37 индикаторами, подготовленными на основе рекомендаций международного стандарта GRI для нефинансовой отчетности. Помимо этого, качество раскрытия экологической информации было измерено на основе качественно-количественной матрицы. Согласно результатам исследования, нефтегазовые компании предпочитают реактивные меры для борьбы с негативными экологическими последствиями своей деятельности более затратным и наукоемким проактивным методам. Кроме того, раскрытие многих существенных вопросов экологического менеджмента носит, как правило, ограниченный характер, что говорит о недостаточном качестве нефинансовой отчетности. Несмотря на то, что большинство компаний в выборке заявляют о включении СЭМ в свою структуру, подробности их применения в основном не приводятся. В качестве потенциала для будущего развития СЭМ автор отмечает возможную интеграцию их различных видов в единое целое, расширение сущесвующей структуры на базе объединения стратегических и структурных мер предосторожности для одновременного мониторинга различных процессов, районов добычи и производств, а также разработку единого сертификата вместо нескользкизх существующих сегодня с более существенными возможностями для контроля над применением СЭМ.

Acknowledgments

Table of Contents

Figures and Tables

Abbreviations

3P – Triple Bottom Line

Bcf – billion cubic feet

Bn – billion

BBOE – billion barrel of oil equivalent

CG – Corporate Governance

CS – Corporate Sustainability

CSA – Corporate Societal Accountability

CSD – Corporate Sustainable Development

CSP – Corporate Social Performance

CSR – Corporate Social Responsibility

CSR_1 – Corporate Social Responsiveness

EDSS – Environmental Decision Support System

EI – Environmental Indicator

EMI – Environmental Management Indicator

EMIS – Environmental Management Information System

EMS – Environmental Management System

EPE – Environmental Performance Evaluation

EPI – Environmental Performance Indicator

GRI – General Reporting Initiative

IEMSS – International Environmental Management System Standard

MMBbls – millions of barrels

MNC – Multi-National Corporation

NGO – Non-Governmental Organization

OO&G – Offshore Oil and Gas

SRI – Socially Responsible Investment

SRSCM – Socially Responsible Supply Chain Management

TR – Technical Report

VOC – Volatile Organic Compound

WBCSD – World Business Council for Sustainable Development

Introduction

Corporate social responsibility (CSR) is a rather broad concept which has a number of definitions and implications. As a field of managerial science, it emerged in the early 1950s in the United States but in fact its roots can be traced in traditions of the medieval charity done by churches and nobles as well as ideas of moral responsibility expressed by some illuminators in the 18th century (Banerjee 2007, 5 – 6; Keinert 2008, 2). Today CSR is commonly understood as a business approach for addressing the social and environmental impact of company activities but in fact its notion is significantly deeper. Taking into account the peculiarities of business practitioners, academic researchers and a civil society, one can conclude that CSR is likely to be interpreted differently by these three groups. Besides, these contradictions are even exacerbated in developing countries where local traditions as well as national and religious patterns usually have a strong impact on the understanding of CSR sense (Frynas 2009, 2 – 6).

A growing concern of many large enterprises in the possibilities of improving their corporate image spoiled by unethical treatment of local communities, bribery of government officials, white-collar crimes and lack of environment control is rather evident nowadays (Keinert 2008, 14 – 17). Some researchers are even inclined to say that different CSR theories proliferated at the second half of the 20th century are likely to merge with the concept of corporate sustainability in a single entity which consists in a union of social and environmental goals as well as emergence and development of a stakeholder oriented issue management (Hansen 2010, 8).

One can be amazed at the fact that many companies announced their adherence to CSR, though it is not prescribed by law and considered as a voluntary action. According to the liberal legal theory, states are treated as the only proper subjects responsible for the social and environmental aspects of economic development, while businesses are officially exempted of this duty. But the process-oriented theories of law suggest that a legal framework can be understood not only as a set of rules requiring certain actions; additionally, it can be applied for the more detailed formalization of norms of conduct thus providing valuable insights for the further development of CSR standards. The concept of reflexive law which gained currency in the 1980s sets a reasonable substantiation of the public-private law-making as it offers a regulatory system with many various actors (e.g. economic, political and legal ones) involved in a common process, with a strong potential to exchange their needs and expectations effectively. This approach

permits companies to establish their own norms of control, so that the state intervenes only by defining procedural order of self-reflection (such as e.g. environmental reporting). Besides, it enables public institutions to initiate self-regulation actions that provide wide possibilities for enhancing communication with companies, so that these ones could consider multiple societal aspects in their managerial decisions. To sum up, the reflexive law approach amplifies the formal law with a number of valuable insights, thus enriching it and forming a larger forum for understanding and cooperation between business and society (Buhmann et al. 2011, 7 – 8, 18 – 20).

Institutional theory also provides a wide theoretical framework to explain why companies engage in CSR in spite of the fact that it is not legally binding. According to this one, business enterprises are subjected to "isomorphism", which means that they are inclined to take on similar forms of corporate internal structure and subscribe the same ideas in order to be perceived as legitimate actors in society. Therefore, signaling their conformity with social norms and ideals through the lively engagement in CSR activities can be a very useful tool for business, as these ones provide sufficient ground for further legitimacy and social acceptance. From the managerial perspective, promoting CSR within a certain company can become an important link to a more motivated and loyal workforce. Thus, defining employee welfare as one of the focal points of CSR policy is especially significant for it to be successfully developed and implemented (Buhmann et al. 2011, 15 – 16).

A theoretical framework implies that there is a positive relationship between CSR activities and consumer reactions to the company and its products. But actually it is often rather difficult to understand when, how and why consumers react to CSR, what are the key indicators of their responses and mechanisms forming their attitude (Sen and Bhattacharya 2001, 225). An ambiguity in this question even increases when we deal with multinationals as the level to which social responsibility has been developed can differ significantly in various countries. Taking this into account, it does not seem strange that current CSR programs implemented in developing countries are often criticized as inefficient in mitigating such issues as poverty reduction and human capital maintenance. In order to ascertain what is the real role of CSR for emerging economies it would be better to carry out a micro level analysis, looking at what particular companies or initiatives are doing (in this case, oil and gas companies). Here, a number of related problems can be considered (Blowfield & Frynas 2005, 500 – 502):

- Existing linkage between CSR and national competitive advantage

- Effect of intercompany activities on improvement of social and environmental indicators
- Stakeholder involvement as a critical measure of CSR success, etc.

Practical application of CSR techniques is of special significance for companies working in the oil and gas sector due to the highly visible negative effects of their operations. Being reported by the media these events hit the companies' reputation badly. Therefore, in order to improve their image among people they have to invest more in CSR managing relationships with wider society, initiating community development programs in collaboration with established international agencies and installing new progressive innovative technologies on their facilities to prevent harmful emissions, oil spills and enhance efficiency as well (Frynas 2009, 4).

Taking this into account, it is likely to assume that implementation of the dedicated environmental management systems (EMS) that are widely recognized as an effective tool for continuous improvement of environmental impact have a visible potential to improve environmental performance of the whole industry.

As the analysis of socially responsible behavior in the oil and gas industry is limited with the application of innovative technologies and procedures on producing wells, production facilities and transmission lines in this thesis, it seems to be reasonable to define its *objective* as a way to determine the influence of EMS implementation on sustainable performance of the oil and gas companies. Besides, the *aim* consists in providing a detailed perspective of the issue through a thorough analysis of non-financial reporting and suggesting potentials for further improvement of the companies' environmental performance.

The thesis consists of three main chapters. After introduction, discussion on theoretical implications of CSR and environmental management systems (EMS) takes place. A deeper analysis of the most popular approaches and conceptual models is proposed together with historical overview in order to outline existing trends and opinions presented in the literature. The main objective of this chapter consists in finding a link between the concept of CSR and environmental management of a company. Besides, the focus is on theoretical justification of a process of environmental innovation and creation of an ideal EMS model.

In the second chapter, a transition from theory to practice takes place: research methods are explained and delimitations of the study are proposed. Practical implications on the benefits and purpose of environmental management systems in the oil and gas industry are provided in the

next chapter. It analyzes different principles of environmental reporting and auditing emphasizing the role of innovative technologies and procedures in this process. Ultimately, the conclusions of the study are joined together for the final discussion and a list of suggestions for further research is adduced.

1. Providing a Link between Corporate Social Responsibility and Environmental Management

The growing interest to the issues of Corporate Social Responsibility (CSR) from various governmental organizations and commercial enterprises in the second half of the 20th century has triggered a steady concern in the field from a large body of academic researchers in the universities all over the world. It is not surprising of course that a wide number of theories and approaches which often clash and thwart with each other had been developed by now. The controversial nature of these ones, complexity and uncertainty of some statements made it a rather actual task for the business researchers and practitioners alike to design an integrated classification of various CSR concepts. However in spite of several attempts undertaken in the last decade, this goal has not been achieved yet remaining an arduous problem to be solved by academic community in the future (Garriga and Mele 2004, 65 – 67).

In the current work, the focus on continuing initiatives of oil and gas MNCs in the field of CSR along with an intention to concentrate mainly on innovative devices and techniques applied to deal with environmental issues place some restrictions on the number of theoretical concepts to be involved in analytical framework. Oil and gas sector is undoubtedly one of the most prominent areas where possible negative effects of operations are highly visible due to the periodical oil spills, air pollution resulted from refineries as well as signs of unrest shown by indigenous groups of people in some developing countries. Therefore most of the oil companies have recognized long ago the need of increasing investments in CSR in order to improve their corporate image among the customers throughout the world. However it is worthwhile to note that CSR initiatives are distributed very unevenly through the industry. There is a considerable difference between state-owned companies which production is largely domestic and corporations such as BP and Shell implementing their operations in many different countries. The latter ones are more inclined to invest in CSR as they are more dependent on international reputations while the social and environmental records of national oil companies remain mostly undisclosed to general public. Actually the situation is even more complicated taking into

account that the attitude to CSR differs significantly within these two groups. For example Exxon – a company of a similar size to Shell – demonstrated just sporadic and insufficient attempts to improve its social and environmental performance; at the same time some oil companies from developing countries such as e.g. Brazil's Petrobras have already recognized the growing importance of the impact that social and environmental programs have on corporate image (Frynas 2009, 6 – 9).

This chapter provides an outline of the most significant stages and directions in the history of CSR as well as analysis of current trends including the classification of accepted definitions and conceptualization applied in the field. In a broader context, it gives the key to understanding how companies in Europe and America came to the idea of becoming full partners in their communities. Instead of concentration on the short-term maximization of shareholder value businessmen find it reasonable now to integrate more actively in the process of building sustainable relations with stakeholders assuming a number of responsibilities toward their employees, suppliers or society as a whole in order to be successful in the long run (Hennigfeld, Pohl, and Tolhurst 2006, XXIX – XXX).

Proponents of CSR argue that close adherence to its strategies is likely to result in certain benefits for the companies that might overweigh its cost and bring the business up to an absolutely new level. Nevertheless they are still subjected to sharp criticism from some practitioners contending that firm's assets spent on other than economic goals are no more than inappropriate waste of resources, because they prevent business from realizing its responsibility to shareholders thus undermining its major function in modern societies. This point of view is strengthened by the fact that results of empirical studies taken in the last twenty years have been very mixed. Most researchers were not able to prove that engagement in CSR unconditionally results in a win – win situation (Schreck 2009, 1 – 2).

However it is impossible for businessmen to act in the changed environment as they used to do sixty or seventy years ago. The scandals of power abuse, continually increasing concern of people in social and environmental issues contributed to the rising role of CSR which is now considered as the most credible and widespread suggestion to prevent societies from social unrest and natural resources from further devastation. Besides it should not be forgotten that the social responsibility of the powerful and wealthy is deeply enrooted in the Western culture originating from the ideals of medieval chivalry, charity done by churches and abbeys as well as philanthropic societies of the 19th century. In other words, the old provision "noblesse oblige"

was rethought by modern corporations into idea of bringing some social responsibility to wide sections of the population in order to legitimize their power and justify dominating position in a modern society (Keinert 2008, 1 – 2).

To trace the way of CSR from a somewhat eccentric novelty to its current stage in managerial sciences, let us proceed with historical overview and conceptual analysis of the term. But before getting down to these issues, it seems to be important to define the central question and sub-questions of research.

1.1. Research Question and Sub-Questions

As it follows from the title, the *subject* of this thesis is the environmental aspect of CSR in relation to oil and gas companies expressed through the process of environmental management systems (EMS) adoption. Consequently, the *research question* can be defined in the following way: how the implementation of environmental management systems (EMS) can contribute to sustainable development of the oil and gas companies.

To answer this question, the following sub-questions were designed for the theoretical part:

- What is the link between CSR and environmental management? How the environmental dimension can be embedded in a CSR definition?
- What are the possible benefits, objectives and structure of EMS in an international perspective?

The second group of sub-questions designed for the empirical part relates directly to the company-specific activities:

- How does the current approach of the oil and gas companies to environmental sustainability look like?
- What are the potentials for improvement in environmental performance and EMS in the petroleum industry?

1.2. Previous Studies and Literature

According to an established tradition, the first ideas of socially responsible behavior and its relation to business world were pronounced distinctly by 18th century English philosopher Adam Smith in his work "The wealth of nations". Since then, the attitude to CSR from the public, business and academic society has changed repeatedly filling with numerous theories and approaches and acquiring currency in the course of time. Its historical development can be divided into three consecutive stages (Banerjee 2007, 5 – 7):

- 18 – 19 centuries – discussion on the forms and legitimacy of the social contract between business and society became a central issue in the works by many considerable economists and philosophers of that time;
- 1920s – 1960s – the ideas of early twentieth century theologians and religious thinkers in accordance with the wave of regulation after the Great Depression contributed to emergence of scientific writing on CSR as well as growing concern of business in ethical issues and its impact on natural environment;
- 1970s – nowadays – during this period a number of new theories and approaches proliferated in the CSR area along with the steep increase in legal liability for top executives and raising popularity of sustainable growth concept.

Table 1. Literature reviews on CSR

Author	Approach	Number of sources viewed
Wood (1991)	Corporate Social Performance (CSP) model as a cornerstone	~200
Gray, Kouhy & Lavers (1995)	Focus on social and environmental reporting	~150
Carroll (1999)	Historical analysis (1950s – 1980s)	~50
Garriga & Mele (2004)	Classification of theories in four groups (instrumental, political, integrative, ethical)	~160
Salzmann, Ionescu-Somers & Steger (2005)	Classification based on research methods; business case of CSR as a central	~80

	approach	
Lockett, Moon & Visser (2006)	Citation analysis (1992 – 2002)	176
Lee (2008)	Historical analysis (1950s – 1990s)	~110
Schwartz & Carroll (2008)	Various theoretical concepts	~180
Carroll & Shabana (2010)	Historical analysis (1950s – 2000s), theoretical review, detailed business case of CSR	~100
Maon, Lindgreen & Swaen (2010)	Stakeholder-oriented conceptualization of CSR	~100
Taneja, Taneja & Gupta (2011)	Different paradigmatic and methodological approaches to review CSR and CSP literature	~110

Derived from Hansen (2010) and updated

In the table above, you can see some of the most prominent literature reviews on CSR and CSR-related concepts listed. Different authors used various approaches to compile a holistic view on the process of CSR conceptualization and development in academic literature. In this thesis, historical approach is employed as the most appropriate one to trace the origins of the concept and show how the study trends and theoretical models changed over time.

Modern discussion on CSR was started by Howard R. Bowen in 1953 when he published his landmark book "Social Responsibilities of the Businessman". In this work, he defined the largest businesses of the country as important sources of powerful decisions touching the lives of citizens at many aspects and thus responsible before the society for their actions. Besides, he set an initial definition of social responsibilities of businessmen and made an attempt to design the first doctrine of CSR (Carroll 1999, 269 - 270).

But in spite of the fact that Bowen is generally treated as the "Father of Corporate Social Responsibility", it is worthwhile to note that some moves in this direction were made even earlier. As mentioned by Carroll (1999, 269), there were several studies that noted an outlined concern for social responsibility during the 1930s and 1940s. Besides, shortly before Bowen's publication an article in the Harvard Business Review was issued by Frank Abrams, Chairman of the Board of Standard Oil (now Exxon), where the author suggested top managers to become

"good citizens" taking on higher responsibility for their actions before society and contributing to the "solution of the many complex social problems of our times" (Banerjee 2007, 5).

Though this trend for further involvement of CSR in business practices was supported by a wide range of authors including economists, philosophers, sociologists, and business practitioners alike, the first critics on this concept did not take long to appear. In 1958, Theodore Levitt published an article where he called social responsibility "a happy new orthodoxy, a prevailing vogue, a new tyranny of fad and fancy" which is likely to harm business activities. A famous apologist of monetarism, Milton Friedman expressed the same idea in his book "Capitalism and Freedom" (1962). According to him, social responsibility was a "fundamentally subversive doctrine in a free society" arguing that maximizing shareholder value is the best contribution which business can make to society (Banerjee 2007, 5 – 6).

However, CSR definitions and theories proliferated rapidly during the next two decades when a number of new studies appeared in Great Britain and the USA. In the 1960s, researchers focused mainly on finding dimensions of social responsibility and its relation to business and society. At first, it was rather difficult to derive any practical implications due to insufficient number of empirical information. Authors just noted that successful businesses should use their resources for broader social goals (Frederick 1960, 60) and assume responsibilities that go beyond their economic interests and legal liabilities (McGuire 1963, 128). Besides, Lee (2008, 58) mentions that researchers were not inclined to provide a link between CSR and firm's financial performance at this time. Charitable donations were considered as a principal tool to contribute to social issues, so that the companies did not pretend to get definite economic returns from their socially conscious activities.

Nevertheless, McGuire (1963, 144) has already provided the first glance on categories of CSR, which were later expanded by Carroll's four-part definition of the concept. Although he has not distinguished the philanthropic and ethical dimensions exactly, his work referred these ones as the central objectives of corporate social policy.

The 1970s showed a remarkable trend towards further exploration of the CSR-related concepts such as Corporate Social Responsiveness (CSR_1) and Corporate Social Performance (CSP). At first, Ackerman (1973) suggested that the companies should not just assume some fuzzy responsibilities but act in a more flexible way responding to changes in a social environment efficiently. This idea was elaborated by Frederick (1978) by differentiating CSR_1 from CSR: if

the latter one was inherent in companies assuming socially responsible behavior, than the first concept referred to businesses achieving in development process the stage of responsive attitude to the needs of society. In his study on CSR_1, Wilson (1975) also suggested that a corporate strategy might be reactive, proactive, defensive or accommodative in relation to this one. Resistance or opposition takes place in case of reaction strategy when the company struggles against the stakeholders' interests or completely ignores them. A proactive strategy means the opposite behavior: company tries to prevent potential contradictions and exclude any possibility of unethical activities. A defensive corporation addresses stakeholders' expectations in order to prevent growing pressure from external forces such as legal institutions and society, while organizations with an accommodative strategy address current social issues and agree to take on responsibility for those that are likely to arise in the future without being pressed from the outside.

One of the most prominent findings in the area completed during this period was undoubtedly Carroll's four-part definition of CSR. Here, he defined several categories of the concept thus dividing business responsibilities into economic, legal, ethical and philanthropic/discretionary aspects (Carroll 1979, 500). Moreover, if the economic and legal responsibilities are "required", than the ethical responsibilities are "expected" and the philanthropic ones are only "desired". By investigating these aspects of CSR, Carroll perfectly reflected the existence of various expectations placed on the company by corporate stakeholders and society in general. Besides, he provided a framework for the broadening of a traditional social contract between business and society as the new voluntary responsibilities were included in the concept of CSR.

The impact of CSR initiatives on financial performance of a firm was another direction which gained currency in academic literature in the 1970s. Alexander and Buchholz (1978) e.g. stated that involvement in the socially responsible activities has just a minor meaning in a short-term perspective but it is likely to bring a sufficient fiscal advantage in the course of time. Basing on these findings they concluded that companies employing a value-driven CSR strategy have strong chances to outperform their competitors in a long term. Other researchers proposed some models for the measurement of CSR-related indicators using such tools as causal maps, benchmarking and public opinions (Abbort and Monsen 1979). They were supported by Firth (1978) who claimed that financial community should pay more attention to CSR ranking it as "moderate important" and placing in a more favorable position than some other issues that accountants were inclined to overestimate recently.

The critical perspective on CSR was continued by K. Davis who noted in his article (1973) that companies are not equipped enough to implement social activities and their managers do not have social skills required to response adequately to interact with society. He also argued that empowerment of business with additional ability to influence society may have undesirable consequences considering the further growth of corporate authority. Besides, involvement of the companies in CSR was designated as a possible reason for declining global competitiveness. Nevertheless, at the end of his article Davis mentioned business organizations as abundant sources of talents, capital and managerial expertise and thus concluded that they can be given a chance to participate in social activities.

In the 1980s, inclination to finding new approaches to numerous concepts and theories evolved around CSR has continued. Frederick (2008) defined this period as the first stage of "business/corporate ethics" when the overall interest to ethical corporate cultures has grown substantially. For example, Brand (1989) as cited by Kok (2001) identified three types of ethics, namely transaction, recognition and change ethics. The first type illustrates the company solving conflicts for its own sake and cooperating with other parties just in order to get some benefits from this activity. In the second case, there is a balance between rights and obligations when the company pays more attention to the needs of society but it is not inclined to improve its welfare in general. The latter form is the upper stage of corporate ethics: here, societal values form the essence of the ethical policy and the company does a lot to improve the welfare of society (Kok et al. 2001, 287 – 288).

There was also a growing interest to investigation of companies' reporting role in the building of sustainable organization – society relations. For example, Preston (1983) considered environmental and social reporting as the central source of information making it possible to examine socially responsible activities of the companies by society itself. This idea was extended by Gray (1983) who defined self-reporting by organizations as a form of accountability which may be accepted voluntarily, as a result of legislation or internal codes of practice. Moreover, information should have been reported via the annual reports in various acceptable forms affecting interactions between business and society (customers, employees, communities and natural environment). One more interesting theoretical conception, an Analytical Hierarchy Process Model was proposed by Brice and Wegner (1989). It is based on quantitative methods as the principal means of making decision to favor this or that CSR program. First of all, subjective value determinants such as e.g. customer preferences are converted into quantitative measures which are in this case utility values. Accordingly, these ones are used as the main decision

factors to make the final choice among competing CSR agendas. The fiscal award for involvement in CSR activities was one of the central subjects in Minitzberg's work (1983). He supposed that it can be just a limited financial interest of business in socially responsible investment (SRI), as beyond a certain level the market will decline to reward it. Thus, there is a sense to be good but trying to be too good is likely to entail serious troubles.

Stakeholder theory was approached by Etzioni (1988) who stated that organizational culture should become the main tool to redefine employees' relationships and improve their interactions with stakeholders and environment. The right of stakeholders to influence company decisions was legitimized with the help of Kantian moral philosophy; according to this approach, they cannot be treated as the subjects of corporate goals comprising conscious and telic behavior in themselves (Evan and Freeman 1988).

At the turn of the century, a number of fundamental works comprising the previous experience in CSR and tackling some specific issues of the concept appeared. Besides, another trend to consider CSR in accordance with sustainable development was outlined in this period.

Discussion on ethics was continued by Shaw (1996) and McKenna (1999). These authors have identified five ethics approaches: eternal law, utilitarianism, universalisms, distributive justice, and personal liberty. All these theories are goal oriented, so that applying each of these ones managers have to control the ethics of their company and employees. Coexistence of different ethics at the same time implies that there will be conflicts between them. Therefore, managerial objective consists in choosing one theory to follow or balancing different ethics bases if they are applied at the same time.

CSR audit is in the heart of P. Kok's article (2001). They determined social responsibility audit as an instrument that should be embedded in the self-assessment process with models of excellence as critical benchmarks. Thus, it focuses on the process but not on the content addressing the latter one by providing some normative comment to it. The goal of this audit instrument is to help the company to assess its real position in relation to social responsibilities defined by management.

One more prominent trend that obtained currency during this period is connected with increasing concern in CSR and human rights in developing and newly industrialized countries. One recent work on this question investigates the impact by different international organizations such as the

United Nations commissions and the EU's Multi-Stakeholder Forum on CSR as well as insights from emerging economies in Africa and Latin America. A special part is dedicated to a comparative analysis of International Framework Agreements (IFAs) which are used to protect the minimum labor rights and CSR codes of about 60 multinational enterprises (MNEs). The analysis found out that both IFAs and CSR codes tend to reflect the priorities of MNEs' counterparts along with a significant influence of stakeholders on the nature of provisions achieved (Buhmann, Roseberry, and Morsing 2011). Other books covering various aspects of CSR performance in developing countries include the works by Frynas (2009), Banerjee (2007), Agarwal (2008) and others. Their focus is predominantly on peculiarities of CSR agendas realized in developing countries as well as potential differences between socially responsible behaviors of the same MNEs in developed and emerging economies. Speaking of those advantages that CSR initiatives are likely to bring in developing world some researchers doubt that these ones can make growth more equitable and inclusive as poverty reduction is not stated among the main objectives of social responsibility. Besides, just a small number of people in developing countries are employed by MNEs that have adopted CSR as one of their core business strategies (Jenkins 2005).

Among other CSR-related concepts that gained attention from academic society at the beginning of the 21st century were SRIs that aimed at creating positive corporate image, incorporating ethical values norms and minimizing environmental damage (Fung, Law, and Yau 2010), multiple stakeholder relationships and their connection with Corporate Ability (CA) and CSR (Sen, Bhattacharya, and Korschun 2006), Corporate Governance (CG) as a CSR concomitant in the process of sustainable development (Rosam and Peddle 2004), etc. At the same time, attempts to redefine CSR finding a more solid formulation (Moir 2001) and comprise the most frequently used definitions with analysis of dimensions involved and conceptual novelty were also continued in this period.

1.3. Providing a Link Between CSR and Environmental Management

The development of a detailed theoretical framework is of special significance in order to determine the link between CSR and environmental management in the oil and gas industry. Here, CSR is considered as involving both voluntary and obligatory dimensions. Considering technical precautions one can observe that these ones contain both regulatory (e.g., emissions control technology) and non-regulatory aspects (e.g., emissions reduction policy). The

preference for this or that aspect may differ depending on the institutional context which dominates for a certain company. Technical regulations however may be normatively promoted by various environmental non-government organizations (NGOs) and professional unions if they are not regulated preliminarily. As for organizational systems and processes, these ones can be divided on structural (e.g., the person or department responsible for environmental decisions, specific environmental management systems) and strategic groups (e.g., detailed environmental plan or policy). Besides, there are also external activities that include philanthropic (e.g., programs intended for recultivation of fouled lands, collaboration with environmental NGOs) and public relations dimensions (e.g., informing company's stakeholders about its environmental policy). One more section refers to the attitude of top managers towards environmental activities of the company contributing to the proper understanding of cultural support for these ones (in other words, whether the top management regards environmental responsibility as a major threat or opportunity) (Ozen & Kusku 2008, 299).

In the current theoretical framework, these practices are combined according to their compliance with regulative, normative, or cognitive aspects. As it can be seen from the table 2, the regulative aspects involves technical precautions prescribed by law, whereas the non-regulative technical procedures/systems (both structural and strategic) and external activities are included in normative aspects. Finally, the cognitive aspect shows to which extent the environmental responsibility is supported by the top management.

Basing on the above mentioned aspects, the following adoption patterns can be classified (Ozen & Kusku 2008, 300):

1) Regulative adoption – implies implementing environmental activities as stated by environmental regulations;
2) Normative adoption – involves those activities that are expected as appropriate behavior by other actors in the industry;
3) Cognitive adoption – refers to practices that are taken-for-granted as the effective way of business.

It is clear that all three levels may coexist and even intersect within a certain company at the same time. For example, the company that adopts environmental responsibility normatively is likely to adhere to legal requirements, while the cognitive adoption implies that it involves regulative and normative aspects as well (Hirsch 1997, 48).

Table 2. Dimensions of CSR in Relation to Environmental Management

Dimensions	Internal organizational systems/processes
Regulative	*Technological precautions* Emissions control technology Well and pipeline workover technology Emissions reduction policy Pollution control regulations Leakage elimination policy Breakdown elimination policy
Normative	*Structural precautions* Environmental management systems Person or department responsible for environmental decisions Involvement of employees in environmental activities In-service training about environmental issues *Strategic precautions* Detailed environmental plan or policy Budget allocations for environmental activities *External activities* Programs intended for recultivation of fouled lands Collaboration with environmental NGOs Informing company's stakeholders about its environmental policy
Cognitive	*Top management attitudes to environmental responsibility* Managerial support to environmental activities General perception of environmental concern Evaluation of environmental expenses

Derived from Ozen & Kusku (2008) and updated

Figure 1 shows those factors that can be used to determine the nature of CSR depending on the national context. Businesses located in the countries where institutional frameworks provide significant discretion to private economic actors are most likely to display clear features of explicit CSR, whereas companies in economies with coordinated approaches to social responsibility are expected to have implicit CSR.

Figure 1. Theoretical Framework of CSR and Environmental Management in the Oil and Gas Companies
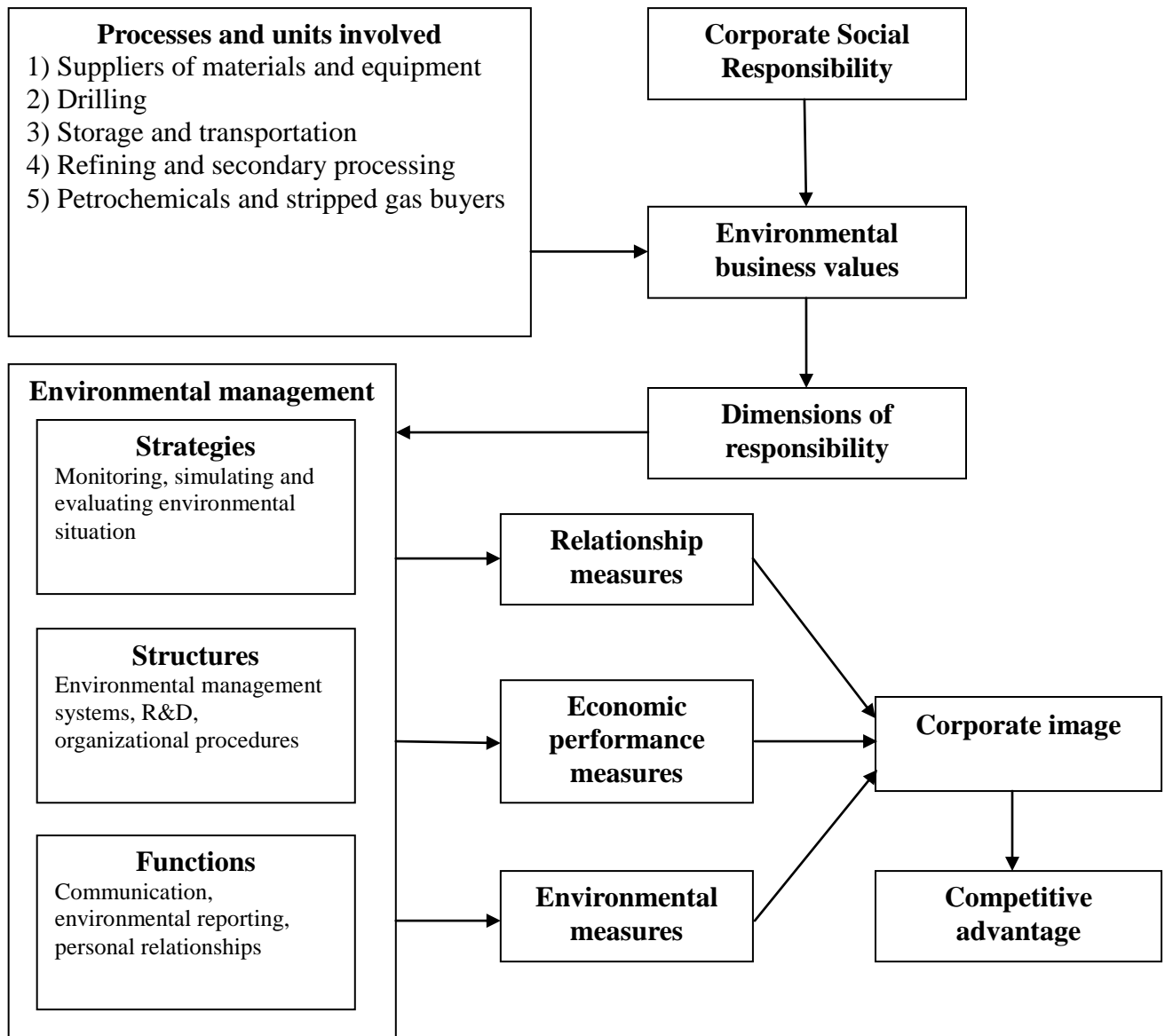
Based on Karna et al. (2003), Chahal and Sharma (2006), Matten and Moon (2008)

Theoretical framework of CSR and environmental management customized for the oil and gas companies should include a number of independent variables that have a visible impact on environmental performance of the company. Furthermore, it aims to reveal multiple relationships that are likely to occur between these variables and the elements of environmental management planning as well as the influence that the nature of CSR has on managerial decisions. Environmental management is divided into three hierarchical levels namely strategies, structures, and functions. Environmental issues are thus implied to be embedded in the company's managerial decisions to a full extent, with a solid basis on business values underlining social and environmental responsibility (Karna, Hansin, and Juslin, 2003, 852).

As it can be seen from the scheme above (figure 1), the goal of environmental management consists in monitoring and improving ecological situation communicating the results to stakeholders in order to convert environmental strengths into sustainable competitive advantage. A number of special frames such as environmental management systems, organizational procedures, R&D, and contact channels should be well embedded into company's structure in order to ensure the implementation of environmental strategies. The same is true about ramified functions (e.g., communication, environmental reporting, and personal relationships) planned to support strategic decisions. It is also important to provide a sustainable relationship among strategies, structures and functions in order to justify efficiency of the company's environmental performance.

Current model implies that in case of environmentally conscious organization, its strategic decisions are designed in perfect compliance with environmental business values. In other words, the deeper environmental decisions are embedded in corporate values, the more intensive is environmental activity of the company emphasized in its decisions on structural, functional and strategic levels. Besides, environmental performance is acclaimed as a continual source of competitive advantage for the company arising from technological and procedural innovations as well as a newly devised "strategic model" for environmental management. Hence, companies with a pronounced environmental strategy are most likely to succeed in realignment towards sustainable development and free market orientation (Karna, Hansin, and Juslin, 2008, 853 – 854).

1.4. Environmental Management Systems in an International Context

Most researchers note that reducing the negative impact on environment has become of special significance for business practitioners in the last two decades due to increasing regulatory requirements and a growing pressure from consumers changing their behaviors to an absolutely new level of environmental consciousness. This means that the development of environmentally responsible products and operations takes a gradually increasing place in the managerial decisions. Their intensity is undoubtedly roused by an obvious desire to attract new groups of customers and suppliers who are likely to value environmental responsibility among the central company priorities such as costs, lead time, and quality (Khanna, 2010, 424).

In the last fifteen years, many voluntary standards including the International Environmental Management System Standard (IEMSS) ISO 14001, the UN Global Compact, and the Global Reporting Initiative have emerged throughout the world. Getting down to analysis of these ones, M. A. Delmas and M. J. Montes-Sancho (2011) note that their recent adoption is likely to prevent us from the normal understanding of their international dissemination as well as those impact that various national institutions and cultures have on them. Therefore, to be able to trace the factors that facilitate or impede the continuing diffusion of environmental accountability standards, it is necessary to devise an institutional perspective for the process of their adoption (Delmas and Montes-Sancho, 2011, 103).

The majority of researchers are inclined to consider national governments and corporations as the most important actors that influence the adoption and development of organizational practices. However, the nature of environmental management systems (EMS) implies that these ones arise from the organization itself and do not depend on government regulations. In other words, EMS can be represented as "a collection of internal efforts at policy making, assessment, planning, and implementation" that has "a voluntary self-regulation structure" (Edwards and Darnall, 2010, 422 – 423).

A typical EMS assumes the existence of a detailed environmental policy, educational programs to teach employees about environmental standards, internal auditing system embedded in the company structure, and a set of specialized indicators to record the environmental performance. In spite of a considerable diversity that could be seen in implementation of these procedures, there is one commonality among all EMSs that consists in achievement of a continuous environmental growth. It may be just a common compliance with environmental regulations, but actually the basic sense of EMS implies a sufficient extension of these preliminary requirements: e.g. the company can substitute or eliminate some regulated processes completely, thus exempting itself from the need to follow costly regulatory schemes. Other potential benefits of EMS include possibilities to engage employees in environmentally responsible activities and optimize informational flows in order to monitor operations efficiently and increase knowledge about environmental concerns of the population. The ultimate goal consists in a possibility to assess the overall environmental performance of a company thus precluding the emergence of significant disproportions among various subsystems within its structure (Edwards and Darnall, 2010, 423).

Providing a link between EMS and the concept of sustainable development, researchers note that the initial concern of business in the issues of ecological sustainability has arisen from a number of quite determinate needs, such as improvement of information flows regarding legal prescriptions and associated corporate polices, revised accounting procedures as a basis for environmental auditing, and business performance management. Ultimately, these separate standards and practices are to be transformed to a formalized EMS, which is aimed to promote an organization to a new level of environmental performance. Being designed to comprise earlier established processes and metrics in a single system and improve company indicators, it is therefore very similar to quality-based initiatives (El-Gayar and Fritz, 2011, 4).

Figure 2. Gaining sustainable competitive advantage through the environmental management systems (EMS) implementation

External factors Business partners Regulatory institutions NGOs and consumers	**Organizational needs** EMS EDSS	**Potential for improvements** Technological and process innovation Personnel learning
Internal factors Shareholders Company management	**Need for feedback** EMIS	Environmental capital growth → Sustainable competitive advantage
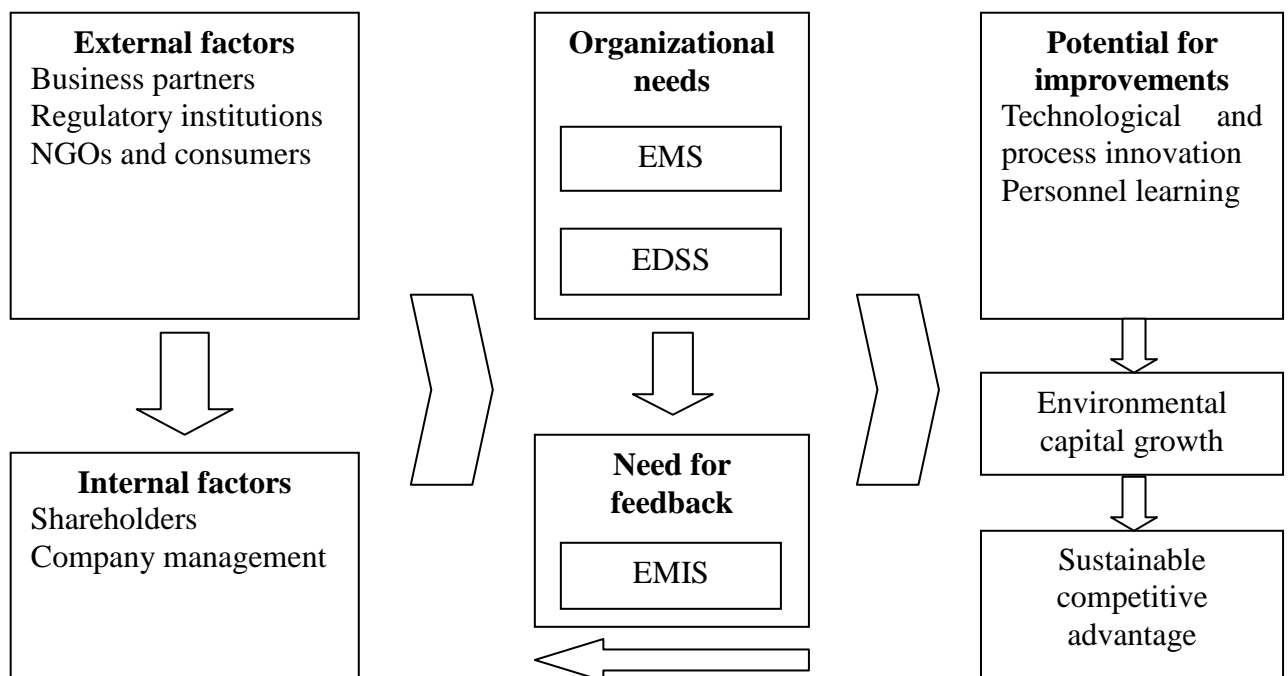
Based on Hart (1995), Porter and Linde (1995), Morrow and Rondinelli (2002), Wrisberg et al. (2002)

Besides of EMS proper, there are also Environmental Management Information Systems (EMIS) and Environmental Decision Support Systems (EDSS). The latter one is based on the strategies of workflow improvement and process modification including aggregation, ad-hoc development, as well as modeling and testing of environmental procedures. At the same time, a typical EMIS is designed to include a number of techniques, such as lifecycle assessment, environmental cost accounting, etc. It facilitates the process of environmental control and performance measurement, but in spite of an evident benefit for business, it is still difficult to convert these

systems into a significant strategic advantage due to challenges with deployment and optimization (El-Gayar and Fritz 2011, 4 – 9).

As it can be seen from the scheme above (figure 2), the sources of demand are basically divided in internal and external ones. There is no doubt that one of the most significant external factors promoting the adoption of environmental plans and policies by companies is regulatory pressure. Managers are likely to be afraid of potential lawsuits or act under the impact of previous penalties for environmental violations as the basic motivating reasons behind EMS implementation. Another external factor was mentioned in the so called Porter hypothesis that attributed EMS adoption to a strong competitive pressure in some industries (Porter and Linde 1995, 98). Finally, the third force is represented by consumers groups shaping the general public opinion towards environmental performance of a certain company and thus acting as a major driver of initiatives in this field (Morrow and Rondinelli 2002, 161 – 163).

Environmental policies and regulations if considered as a result of government pressure provide a twofold impact on the firm's performance. On the one side, they create a set of liabilities for companies; on the other side, they are likely to be treated as a source of economic incentives and conventional norms for both technologies and products. In their research, Porter and Van der Linde (1995, 101) made a special emphasis on this potential of environmental regulations to promote innovations and new approaches to established problems. Current feature can be well exemplified by proliferation of advanced reporting requirements that created substantial demand for the newly devised EMISs and thus spurred the development of environmental software industry.

But if the government institutions possess sufficient instruments to push their policies through, NGOs and consumers act mostly indirectly shaping the behavior of business by means of public control, media inquiries, and threat of coordinated actions such as boycotting the goods or services produced by the firm. Certainly, these activities are of special significance for those companies that are usually recognized as the main sources of pollutants; thus, in order to improve their negative image they have to invest heavily in environmentally responsible actions in order to be revised as protectors of environment. EMISs developed to support these new trends are likely to include regular reporting with a visible stakeholder orientation as well as systems for lifecycle analysis that henceforward are intended to play a crucial role in decision-making process.

Another important group of external stakeholders that can impact the environmental performance of the company is represented by business partners. Those firms that depend on the role and image of their partners in the supply chain can reasonably inflict environmental requirements upon them. However, the extent of those requirements is determined by a number of additional economic factors such as the relative size of companies involved and market power of trading partners, buyers and suppliers. More specifically, the position of a certain company can be leveraged by means of supply chain integration or realignment of the whole network on the basis of common standards for environmental control and evaluation (Wrisberg et al. 2002, 6 – 7).

Internal factors are represented by the pressure coming from the company's shareholders. First of all, their interests can be explained by sincere anxiety for the environment and motivation to contribute to business growth on the basis of the "triple bottom line" concept. In this case, the internal motivation is combined with desire of environmentally-conscious stakeholders, thus becoming one of the central drivers of organizational change. Requiring more efficient ways of environmental data exchange, improved visibility and applicability of desired information, they promote further development of EMISs as the most effective tool to satisfy the needs of both groups (El-Gayar and Fritz 2011, 14 – 15).

Table 3. A Natural-Resource-Based View of the Firm

Strategic capability	Environmental driving force	Key resource	Competitive advantage
Pollution prevention	Minimize emissions, breakdowns and waste	Continuous improvement	Lower costs
Product stewardship	Minimize life-cycle of products	Stakeholder integration	Anticipate actions of competitors
Sustainable development	Minimize environmental burden of firm growth and development	Shared vision	Future position

Adopted from Hart (1995) and revised

Trying to achieve a sustainable competitive advantage, many firms go over to resource-based view on environmental issues (see table 3). Here, the basic task consists in developing nonreplicable, nontransferable assets by means of continuous technological and process innovation, personnel training, and unique ideas. These assets are notable for a very specific

identity, as they include such intangibles as reputation and public goodwill, which can only be determined by their ability to contribute to future financial growth of the firm (Barney 1991, 101 – 103).

As a result, businessmen made a determined step towards voluntary adoption and sometimes even move beyond existing norms. In other words, there is significant intrinsic interest of the company management in anticipating regulatory mechanisms due to the potential to increase barriers to entry through radical technological innovation and accumulated environmental capital and thus reinforce company's leadership position in the industry. Besides, continuous expansion of multinationals into emerging economies makes it possible to test new business models and production designs in different socioeconomic and environmental conditions, thus providing another potential for environmental capital growth through business and process innovation (Hart 1995, 999 – 1000).

1.5. Historical Overview of CSR

Since the times of industrial revolution in the leading Western economies, the question of a social contract between society and the world of business has become of special significance for the newly established corporations. At first, obedience to the law was considered as sufficient condition to praise a firm. Business served as a major economic institution for producing want-satisfying goods and services, providing job and fair pays for workers, contributing to the growth of national economies and ensuring tax proceeds (Lantos 2001, 3).

However, in the 19th century the general attitude to corporations began to change. In 1815, several American companies in Massachusetts and New York lost their charters for "not keeping their roads in repair". At the same time charters of banks in a number of states were revoked for fraudulent actions that were likely to leave them in a financially unsound condition. Nevertheless, the situation had changed again before this trend became truly evident. By the end of the 19th century, all restrictions around incorporation had disappeared miraculously. As a result corporations were no longer required legally to serve the needs of the public, so that their social and environmental effects proved to be really damaging in a large number of cases. The separation of business from social responsibility was supported by the main economic theories of the time; according to these ones the so called "externalities", governments and other state institutions (but not corporations themselves) were responsible for managing with negative sides

of economic growth. Therefore it does not look surprising that finally consumer and environmental activists of the 1960s and 1970s called for the restoration of federal charters to restrict the reign of corporations (Banerjee 2008, 53 – 55).

In fact, the framework for modern business and its social responsibility was outlined by the 18th century Scottish philosopher Adam Smith in his imposing treatise "The Wealth of Nations". He supposed capitalism to be the most effective economic system in encouraging the pursuit for gain and creating wealth as it allows individuals freedom in choosing employment, investments and purchases thus contributing to the common good. In his opinion, competing hard and trying to achieve the best quality to get the next promotion, but only if done ethically, will undoubtedly result in high personal development and growth of the firm's treasury (Lantos 2001, 3).

Most researchers trace the origins of CSR back to the 1920s mentioning among the main reasons of its emergence a considerable anti-trust movement of the previous period and ideas of early twentieth century theologians and religious thinkers who suggested that some Christian principles could be applied to business activities. This is how the so called twofold statement for the first time formulated by Andrew Carnegie appeared. In fact, it consisted of two related principles. The first one was a charity principle, which required more fortunate individuals to contribute their resources to charities aiding the disadvantaged, while the second one was the stewardship principle, a biblical doctrine, which being applied to the world of business suggested that the wealthy had to become stewards or caretakers of society's economic resources, keeping their property in safe hands for the benefit of society as a whole (Jenkins 2005, 526; Lantos 2001, 5).

A considerable wave of regulation rose after the Great Depression in the 1930s, exemplified by Roosevelt's New Deal in the US and the nationalizations and regulations of the postwar Labor government in Great Britain. In 1948, International Trade Organization proposed a draft charter with measures aimed to adjust international investments, employment standards and business activities (Jenkins 2005, 526).

The reaction of business circles to these alterations consisted first of all in the growing popularity of the idea that corporations as organizations have social responsibility and obligations before society. It gained momentum in 1950s when scientific writing on CSR evolved and continued through the 1960s and 1970s under the influence of several social groups, including the feminist movement as well as fighters for native people, for the mentally and physically challenged, and

for minorities (Lantos 2001, 6). In 1953, Bowen who is reputed the "father of CSR" provided the first definition of social responsibilities of the businessmen. According to him, "…it refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society" (cited by Hansen 2010, 9).

One more shift emphasized in the 1960s consisted in the rapidly growing concern of businessmen in ethical issues. It was probably the liberal consumerist media which triggered this remarkable turn in the minds of business practitioners as it used to depict corporations as an absolute evil knee-deep in corruption, repressive labor practices, environmental scandals, etc. As a reaction to this negative promotion, the desire for CSR became prominent both in colleges and corporations' lobbies. Respect for moral issues was declared as a necessary component of every business entity in order to limit a totally selfish pursuit for profit. Productivity was no longer considered sufficient to morally justify corporations, while the significance of non-economic relations with society and influence on the natural environment has grown substantially (Lantos 2001, 4).

These dramatic changes in understanding how the ideal relations between business and society should look like provoked however the rise of criticism on CSR. Opponents represented by some financial news media predicted in the 1970s the inevitable wave of "shareholder revolutions" and protests due to the negligence of the very fundaments of free society and the basic sense of business as well. But in fact only two corporations reported shareholder protests at the beginning of the "CSR era", which were not considerable enough to cause any serious consequences and revision of a chosen strategy. Moreover, quite a large proportion of shareholders approved this move to CSR insisting that corporations they invested in should engage more actively in dealing with social and environmental issues (Keinert 2008, 13).

In the 1970s, a number of disciplines contributed to CSR favoring the proliferation of new concepts and approaches in the field. Some researchers however argue that a variety of contradictory theories made it difficult to follow the consistency of goals but anyway one basic aim remained in common: to rethink and redefine relationships between society and business (Keinert 2008, 13). Among the most evident concepts that emerged in this period were e.g. Corporate Social Responsiveness often referred as CSR_2 by some authors and Corporate Social Performance (CSP), which will be investigated deeper in the following paragraphs of this chapter.

Despite an increased concern of stakeholders in the social and environmental issues, the general attitude of people towards corporations remained negative. This can be explained by a number of notorious corporate scandals of the 80's and 90s connected to a large extent with human and environmental tragedies. The accident of Bophal and Shell's Brent Spar plans are just the most prominent ones that prove how indifferent were large corporations towards environmental and broader social concerns recently. Therefore the results of a US survey of 2002 do not look surprising at all showing that the level of trust of US Americans towards corporations has not increased considerably since the 1970s, as about 70% of respondents assume their actions to be irresponsible in the whole.

Nevertheless the last decade of the 20th century demonstrated a steep increase in legal liability and enforceability for top executives in the US. A larger number of companies have come to the idea of issuing the so called codes of conduct which have later been expanded to encompass their global suppliers as well ("Supplier Code of Conduct" or "Ethics").

The concept of sustainable global growth is among other significant trends of recent years that fostered placing responsibility on private companies as the main drivers of steadfast development on a global level. It is important to note that this movement was supported by such prominent supranational organizations as the UN Global Compact and the European Commission, which has published a Green Book in 2001 with suggestions for European companies that wanted to implement advanced CSR practices in their business. A number of certifications such as SA 8000 and EMAS were also designed to present other ways for companies searching to signal their specific concern for social and environmental issues including a more thorough reporting as well (Keinert 2008, 14 – 17).

Another new phenomenon which gained momentum recently is socially responsible investment (SRI) which is an umbrella term for investment strategies applied by companies that attempt to create positive social image, minimize environmental impact and incorporate some ethical beliefs. According to the Eurosif report, the global SRI market was estimated to be US$7.2 trillion or approximately €5 trillion in 2007, with about 53% of assets under management n Europe, 39% in the US, and the rest 8% in the rest of the world (primarily Canada, Australia, New Zealand and Japan). Socially responsible investors are represented today both by institutions and individuals, and the first ones constitute the largest and fastest growing segment of SRI world (Fung, Law, and Yau 2010, 1 – 7).

Researchers now agree on the fact that the verdict "irresponsible corporation" is possibly one of the most serious accusations that a company can be subjected to, as it is likely to harm of even ruin its business activity undermining relations with consumers, suppliers, investors, and government. Unethical corporate behavior will not go unpunished by market itself anymore, and therefore development of a sustainable CSR strategy becomes one of the primary issues for a modern corporation wishing to achieve a high standing among its customers and partners.

1.6. Analysis of CSR Definitions

Modern literature provides a wide number of CSR definitions that sometimes clash with each other impeding the development of a uniform view on the concept and causing the increase of discrepancy in its multiple interpretations. Growing concerns over the challenges in defining CSR were expressed repeatedly by various researchers. Unfortunately even the fervent proponents of CSR often cannot determine those components that should be included under its umbrella term (Scherer and Palazzo 2007, 1097). One of potential threats follows from the fact that inaccurate authors may pervert the concept to such a large extent when it becomes "morally vacuous, conceptually meaningless, and utterly unrecognizable" (Orlitzky 2005, 48). Besides, there is a steady fear that the absence of a common language is likely to upset a normal dialogue between companies and their stakeholders (Hopkins 2003, 125).

Concerns of a similar nature were expressed by A. Dahlsrud (2006) who noted that talking about CSR differently may "prevent productive engagements". According to him, it is almost impossible to develop an unbiased definition of CSR due to an absence of a special methodology that could be applied for verification of its impartiality. Therefore considering CSR as a social structure he focuses on a careful exploration of the differences and similarities among existing definitions and proposes a classification of them into five dimensions (Dahlsrud 2006, 4):

- The environmental dimension – in definitions referring to natural environment and including such indicators as "environmental stewardship", "environmental concerns in business operations", etc.
- The social dimension – in definitions referring to relationships between business and society and including such indicators as "integration of social concerns in business operations", "contribution to a better society", etc.

- The economic dimension – in definitions referring to socio-economic or financial aspects of CSR and including such indicators as "preservation of profitability", business operations", "contribution to economic development", etc.
- The stakeholder dimension – in definitions referring to stakeholders or stakeholder groups and including such indicators as "interaction with stakeholders", "interaction with employees, suppliers, customers, and communities", etc.
- The voluntariness dimension – in definitions referring to the actions that are not prescribed by law and including such indicators as "disconnection from legal obligations", "emphasis on ethical values", etc.

In his analysis of CSR definitions, Dahlsrud determined that one definition may include several dimensions at the same time. However, the frequency of environmental dimension (59%) found by researcher is significantly lower than the frequency of other dimensions included in the concept (see table 3). This means that concerns over the environmental issues are likely to be less pronounced in majority of definitions than e.g. the incentive to performing social obligations or commitment to contribute to the needs of stakeholders (Dahlsrud 2006, 5).

Table 4. The dimension score and dimension ratio for definitions of CSR

Dimension	Dimension score	Dimension ratio (%)
The stakeholder dimension	1213	88
The social dimension	1213	88
The economic dimension	1187	86
The voluntariness dimension	1104	80
The environmental dimension	818	59

Derived from Dahlsrud (2006)

There are several possible reasons that can explain such a peculiar negligence to the environmental dimension of CSR. First of all, early definitions of the concept often excluded any references to environmental concerns and thus could influence later interpretations in the same manner. Furthermore, some researchers and NGOs such as e.g. the World Business Council for Sustainable Development (WBCSD) are inclined two differentiate the initial concept of corporate social responsibility from the corporate environmental responsibility (CER) and as a result do not include the environmental dimension in their definitions of CSR (Dahlsrud 2006, 5 – 6).

According to Marrewijk (2003), there are three principal approaches to defining CSR and Corporate Sustainability (CS). The first one is known as a linguistic approach, which explains the increasing ambiguity and inconsistency in understanding CSR with the language problems. The proponents of this view assume that translating the term "social responsibility" to the languages and cultures of Continental Europe, Asia, Africa and South America is likely to contain a threat of applying to social welfare issues only. Therefore, they suggested replacing the old concept of CSR with a newly devised Corporate Societal Accountability (CSA), as the term "societal accountability" covers all the necessary dimensions of a company's relationships with and responsibilities to society (Marrewijk 2003, 101).

Figure 3. CSR Definition: Relationship of CS, CSR and 3P
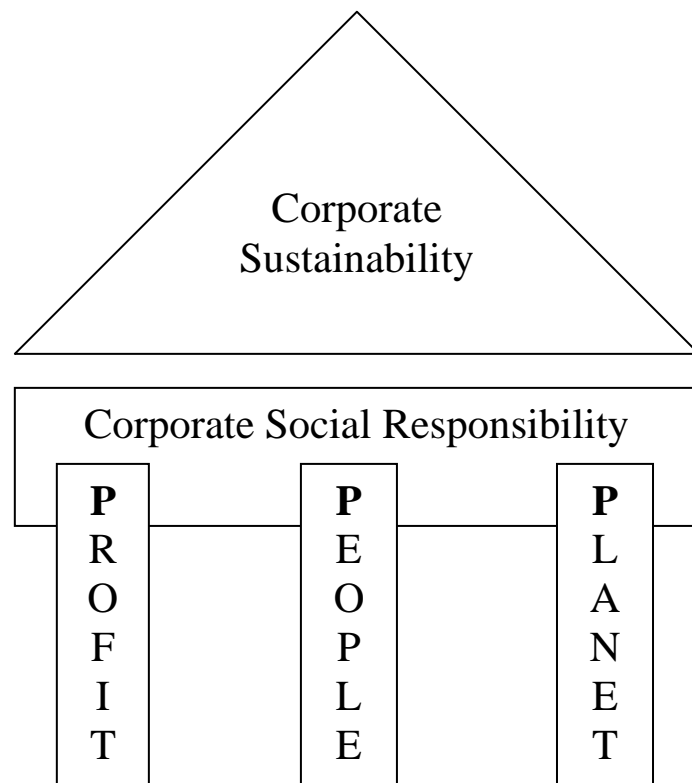
Based on Wempe & Kaptein (2002). Derived from Marrewijk (2003)

The second approach mentioned by Marrewijk was presented by Wempe and Kaptein at the Corporate Sustainability Conference held in 2002 at Erasmus University. In this definition, CSR was identified as an intermediate stage comprising three dimensions of the Triple Bottom Line, whereas the Corporate Sustainability (CS) appears to be the ultimate goal of sustainable development. Here, the three aspects of sustainability (economic, environmental, and social) are combined with the concept of CSR as equal and one-directional categories (see figure 2).

Finally, the third approach ties the concepts of CS and CSR as both referring to company activities. Hence, they are defined as voluntary actions, where the environmental and social aspects are included not only in business operations but also in its relations with company's stakeholders. Differentiating this definition into five interpretations Marrewijk identifies a set of the so called ambition levels related to CS/CSR: compliance-driven level, profit-driven level, caring level, synergistic level, and holistic level. This principle of self-determination when the company chooses a position on one of these levels is equalized by the principle of communion. According to this one, business entities are considered as a part of rapidly changing environment so that they have to adapt in time and respond to concerns of their stakeholders (Marrewijk 2003, 102 – 103).

In this work, the second approach is taken as the principal one due to its coherence and a focus on environmental aspect of CS/CSR besides of other 3P of the Triple Bottom Line.

Concluding with analysis of CSR definitions it is important to note that available interpretations describe rather CSR as a phenomenon than the social responsibility of business. This means that they do not provide any effective tools that could be used to manage challenges within this phenomenon. Therefore the main practical challenge consists not in searching the "right" definition of CSR but in understanding how it is embedded in a specific context and how it influences the process of business strategy development (Dahlsrud 2006, 7).

2. From Theory to Practice: Justification of a Methodological Approach

To clarify the thesis methodology and provide a link from theory to practice, this chapter involves several consecutive steps. First of all, the approach of the study is explained to cover all the necessary issues. Then, the methods of data collection and analysis are introduced including the list of hypotheses which are considered in a separate paragraph because of a specific attention paid to their justification. Finally, limitations are interpreted and discussion on reliability and validity of results takes place in order to provide a basis for the further analysis.

2.1. Approach of the Study

Theoretical issues covered in the first chapter of this thesis are rather versatile and diverse. Arising from the central concept of CSR, they are considered in a complex in order to explore causal linkages and deepen the projected framework. Therefore, the process of the EMS implementation is analyzed on the basis of extended literature review and the ways of how they can contribute to the incremental environmental capital growth through the technological and process innovation are explored. The focus is on justification of existing relationship between the CSR and environmental management as a mode of translation the environmental strengths embedded in the corporate values into sustainable competitive advantage. Consequently, the role of stakeholders is explained and the benefits of EMS as the basic structural precautions for the monitoring and improvement of environmental impact are provided.

In the third chapter, current stage of commitment to CSR in the oil and gas industry is analyzed on the basis of non-financial reporting provided by the most prominent companies from all over the world. The principal attention is paid to the issues of environmental sustainability including those efforts that are made by companies to proactive elimination of environmental problems through the adoption of voluntary certifications and implementation of EMS in the most critical areas.

As it comes from the nature of research that consists mainly in comparing theoretical models to existing business practice, the focus is on acquiring qualitative information from the companies' reports. Consequently, current study is defined as explanatory and a survey is proposed as the most preferable research strategy for analysis of multiple indicators related to sustainable performance of the oil and gas companies. Moreover, it seems to be of special importance for the proper identification of causal linkages that are likely to occur between different groups of indicators and affect the processes of EMS implementation.

Taking into account the aforesaid, a deductive approach is employed as the most appropriate one for the nature of this thesis. It includes two basic stages that are considered to be especially significant for modification of the theoretical results in the light of new findings. First of all, a list of hypotheses is deduced to test the most likely outcomes. Then, an overall suggestion to combine the results of theory and survey is provided and an adjusted model for the EMS implementation in the oil and gas industry is designed.

2.2. Data Collection and Analysis Methods

Current thesis is based on the analysis of secondary data being conducted as a desk research. Methods of secondary data collection include thorough analysis of books, articles, and non-financial reporting of selected oil and gas companies. Later, the whole data obtained is compared to provide a sustainable link between the theory and practice and conclude what approaches are inherent in environmental performance of the oil and gas companies.

The central method for data collection which is used in empirical part is sampling. In this research, the sample is represented by 51 companies of various size and ownership structure. More specifically, there are 32 publicly-owned and 19 state-owned companies / companies with a controlling stock owned by state originated from different countries in Europe, Middle East, Asia – Pacific, Americas and Russian Federation. Among those entities in the sample are public companies with rather moderate reserves and revenues such as Premier Oil and Australian Worldwide Exploration (AWE), largely expanded multinational corporations (six supermajors, Hess Corporation, etc.) and the state-owned giants with mainly domestic production (Saudi Aramco, Abu Dhabi National Oil Company, etc.). The main questions that are explored here include the analysis of impacts that the national or regional context has on understanding of CSR as well as the dependence that is likely to occur between the company ownership structure and approach to environmental sustainability. These assumptions come from a widely held belief that the majority of state-owned companies that are not expanded internationally and thus do not depend on international reputations are less inclined to improve their environmental impact. Besides, the country of origin effect is also often mentioned in this case. It is stated in the literature that the stakeholder engagement is mostly insignificant in the companies originated from developing countries and consequently, their social and environmental records are also very limited, with many issues remaining undisclosed to the wider society (Frynas 2009, 8 – 9).

Taking into account the above mentioned details, it is likely to deduce that the results of sample analysis expressed in activities of a limited group of companies cannot be treated as critical ones for the whole industry. It seems to be impossible e.g. to develop general propositions about the importance of environmental programs in the process of improving company image due to very specific natural contexts and differences in the corporate governance. However, generalizations are feasible when the matter is of practical improvements such as innovative procedures and technologies purposed to reduce environmental risks or adjusted model for the EMS

implementation. Some results acquired in this area can be extrapolated to the companies of the same size working in the similar climatic conditions.

As the basic proposition for empirical part consists in testing assumptions and processing a large amount of data expressed by a number of sustainability indicators, a quantitative analysis was chosen as a more convenient one for the effective comparison of results and a visual representation of existing trends. A framework for the measurement of sustainable performance is represented by a specifically designed evaluation matrix that comprises 37 indicators combined in the four basic groups (see appendices 2 and 3). These ones investigate initial inclination of the sampled companies to sustainable development, stakeholder management, environmental performance and approaches to the EMS implementation. If the needed information is provided by the company in its sustainability (CSR or environmental) report, than the appropriate indicator is marked as having received the "1" score. If there is no such information, than the indicator is labeled with "0" result. Finally, the results are summed up for each company in the sample to find out the numerical interpretation of its sustainable performance. A similar matrix for evaluation of sustainability reporting disclosure can be found e.g. in the work by Cormier et al. (2005).

Taking into account that the environmental indicators are realized as having substantial importance for this research, the quality of their disclosure is analyzed on the basis of a quality – quantity matrix. Predominantly, each of 21 environmental indicators is explored as completely, partially or not disclosed by the sampled companies. The focus is on finding those areas with an especially considerable potential for improvement and examining if the majority of companies are still inclined to reactive solution of environmental issues.

Finalizing with the methodology of this research, it seems to be reasonable to conclude that the whole analysis is designed mainly to answer "what" and "how" questions, as these ones are intended to clarify the nature of the subject, its characteristics and ways for improvement. More specifically, answering these questions is important to examine current stage of environmental performance and suggest potentials for the EMS implementation including those benefits that they are likely to bring in for the oil and gas companies and promote innovations on the process level.

2.3. Research Design

Explanatory design of this research implies the existence of several linkages that should be explored in order to prove their consistency or vice versa refute as being totally erroneous. The main problem in this case is environmental sustainability as it is considered in the sampled companies. Accordingly, the EMS implementation is treated as the central process in acquiring incremental environmental growth and thus contributing to sustainable performance of the oil and gas companies. Multiple indicators involved in the measurement of these components are likely to establish different linkages. To investigate these ones better, a list of hypotheses is provided.

As it is mentioned in the literature, corporate governance issues are of special importance in determining company's inclination to sustainable development (Li et al. 2008, 316). A special attention is paid to the percentage of independent non-executive directors on the Board, as it is widely recognized as the most significant indicator contributing to increased accountability of the corporate reporting and intrinsic interest of the company management in CSR. Other metrics include extended information about executive officers and major committees as well as data on remunerations provided in the companies' reporting. It is likely to assume that the state-owned companies and especially those ones that originate from countries with higher power distance are not inclined to disclose such issues to wider society. Basing on this discussion, the following hypothesis was developed for testing.

> H1: *Publicly-owned companies tend to be more precise in disclosing corporate governance issues than the state-owned companies, as the latter ones are not willing to report some indicators of their performance due to a more closed internal structure.*

It is also known that proactive approach to elimination of environmental problems means an undoubtedly higher commitment to sustainability than addressing them reactively. Practically, this corresponds to a cognitive adoption level which is realized as the most effective way of business conduct, because it combines both normative and regulative dimensions of CSR meaning the real managerial support to environmental activities as well (Ozen and Kusku 2008, 300). However, it is assumed that the majority of companies in the sample are not so motivated to invest in the costly activities and technological innovations preferring rather sporadic environmental activities to implementation of dedicated programs and EMS on the structural level. Consequently, the second hypothesis was formulated in the following way.

H2: *Oil and gas companies are more inclined to apply reactive activities in their sustainable development or undertake actions with high publicity effect than act proactively and adopt those strategies that are designed to bring in gradual improvements.*

The last hypothesis for testing comes from the previous discussion on existence of various forms of EMS and proliferation of certifications that are applied in the field of Health, Safety and Environmental Management Systems (HSEMS). Being designed to resolve specific problems, they are likely to employ excessive customization that prevents the companies from transition to a more advanced integrated level.

H3: *Though the EMSs are understood as the only dedicated way to environmental sustainability, there is a lack of integrity in their structure and certification standards.*

2.4. Limitations

As the principal premise of this thesis consists in acquiring practical evidences and making suggestions for environmental responsibility in the oil and gas industry, it is not intended to deepen into theories of business ethics and moral philosophy as well as definitions of corporate social performance (CSP), corporate citizenship and other CSR-related concepts. Moreover, strategies of sustainable development and the 3P model are discussed just as a basis for the further analysis of environmental indicators and extensive theoretical justification is not included in analysis. The focus is on planning and implementation process, so that the study starting on strategic level proceeds then to the operational decisions and activities finalizing with projections for the future innovations in EMS.

In spite of the fact that the EMSs are understood as very costly tools and their implementation requires substantial investments from the oil and gas companies that are notable for a number of potentially critical areas, it is not intended to adduce detailed financial explanations and provide monetary figures here. In other words, economic content of the oil and gas companies is not considered separately but only in addition to environmental issues.

It is also important to mention that results obtained from analysis of separate oil and gas companies cannot be applied to the whole industry. There are several reasons to justify this

remark. First of all, there is a number of internal specificities that are inherent in the oil and gas companies throughout the world, and it is likely to assume that different corporate policies employed by them provide sufficient impact on their understanding of CSR. Besides, the majority of deductions obtained in the course of companies' analysis were made on the basis of significant indicators mentioned in their non-financial reporting. This principle was named "as disclosed in the companies' reporting". In other words, if the information on a certain indicator is not provided by the company, then it is assumed that there is no such a point stipulated in its sustainable strategy. One more problem that is likely to provide sufficient impact on the companies' approach to CSR and environmental sustainability relates to the national or regional context which is known in marketing as the "country of origin" effect. For example, companies originated from the cultures with high power distance are likely to be reluctant in disclosing their corporate governance structure and especially those issues that relate to percentage of independent non-executive directors on the Board, remuneration policies, and other internal specificities. Besides, a relatively small sample size and the absence of several key state-owned producers (namely Petroleos de Venezuela and Petroleos Mexicanos) prevent us from doing too fundamental conclusions and excessive generalizations.

2.5. Reliability and Validity

As the main research method applied in this thesis is the survey of the sampled companies on the basis of results provided in their non-financial reporting, it seems to be impossible to achieve the full reliability. In any case, the results may be spoiled by deficiencies that are inherent in the current reporting style and reluctance to disclose those issues that are realized as too sensitive for the company confidentiality. In other words, it is difficult to judge management motivations and accountability of non-financial reports in order to determine clearly if the information provided by companies is true.

At the same time, quantitative methods applied for the measurement of sustainability indicators are designed to enhance the overall reliability. For example, the structure of environmental matrix is prepared to avoid double counting and include those parameters that allow concluding on sufficient accountability of a particular report (e.g. compliance with GRI principles). Besides, the quality – quantity matrix is also designed to measure the completeness of information provided by the oil and gas companies and thus judge if their reports are well-grounded enough.

To increase the external validity of research, oil and gas companies from different countries and of various ownership structures were included in the sample. However, the number of the state-owned is sufficiently smaller if compared to the publicly-owned ones. To some extent, this is caused by the fact that access to sustainability reporting is sometimes restricted and required information cannot be obtained in the open access. As a result, generalizations can be made only if a certain trend was demonstrated by majority of companies in the sample, but not in those cases when it is inherent in a single company or a group of companies with the similar cultural specificities.

3. Environmental Sustainability in the Oil and Gas Sector: Capabilities and Potentials of Environmental Management Systems Implementation

The processes of oil and gas exploitation and further production are fairly considered as a potential health and environmental hazard. A number of laws and regulations are therefore projected to address various health, safety, environment and quality (HSEQ) issues that are likely to occur in the companies working in the oil and gas industry. As a result, HSEQ management systems are now widely realized as an inherent part of sustainable strategy nurtured by MNEs all over the world (Nouri et al. 2005, 447). Both national and independent oil and gas companies understand that turning to the problems of sustainable development is of special importance in today's information society, when the possible negligence to HSEQ-related issues can be made public easily. Even a rapid glance casting on the annual reporting of companies in the sample shows that more corporations are now paying sufficient commitment to responsible behavior including appropriate items in the conventional structure of these reports. Some of them go beyond compliance applying principles of the so called General Reporting Initiative (GRI) to issue sustainability, CSR and environmental reports (Kolk 2004, 59 – 60).

In this chapter, a comparison of oil and gas companies on the basis of their commitment to sustainable development takes place. Besides, they are also analyzed proceeding from the overall compliance with GRI principles including a specifically designed content, managerial support, etc. A particular interest is paid to the most likely problems and outcomes connected with implementation of EMS in the oil and gas industry as well as a potential linkage between their successful performance and a company governance structure.

Moreover, it seems to be important to understand, if the country of origin effect has sufficient influence on the process of the EMS implementation, because European and US-based companies are generally treated as more committed to CSR than business entities from BRICS and developing countries (Frynas 2009, 9, 108 – 110). Other issues that are of special importance in this case, such as building confidential relations with stakeholders, promoting voluntary environmental activities and improvements are also in the heart of analytical research. Besides, to prove the importance of CSR and in particular its environmental dimension for the wider society customer questionnaire is used as the most reliable source of valuable insights and concerns expressed by this stakeholder group.

3.1. Different Approaches to CSR and Sustainability Reporting in the Public Owned and State Owned Oil and Gas Companies

As it was already mentioned in the first chapter of this work, CSR has wide implications for the oil and gas industry. Consequently, there are multiple reasons pushing companies to develop their own CSR strategies and initiate socially responsible programs.

For example, legitimacy theory explains the growing commitment of many companies to CSR by means of a "social contract", which requires business entities to operate within specific bounds and norms established in a certain society. As these ones are not fixed and tend to change over time, companies are forced to apply strategic plans designed to predict those changes and react them opportunely (Brown & Deegan 1999, 22). The deeper aim is to promote further developmental stage when companies will be penalized for inconsistency with those needs expressed by local communities and violations of environmental directions. Therefore, legitimacy can be described as a process in which organizations use disclosure strategies to achieve higher levels of social responsibility. In other words, the organization's value system should be redesigned to be congruent with the value system of the larger social group, because disparity between these two value systems means a serious threat to the organization's legitimacy undermining its ability to execute social obligations (Gray, Kouhy, and Lavers 1995, 54).

There were several works conducted that linked legitimacy theory to the strategies of corporate social disclosure. For example, Hogner (1982) found that variations in companies' reporting were likely to represent variations in society's expectations of CSR. One more interesting research with a similar theoretical background was conducted by Patten (1992). He tried to explore the appropriate changes in environmental reporting of American oil and gas companies as a reaction to major Exxon Valdez oil spill happened in 1989. In his study, it was found that the amount of environmental disclosures increased significantly in the post-1989 period, though the initial incident was related to a single company. Basing on these results, one can assume that Exxon Valdez oil spill disrupted the legitimacy of petroleum industry in the whole, and thus the resulted increase in environmental disclosure can be reasonably explained by means of legitimacy theory.

Finding possible correlation between changing policies of environmental disclosures in the companies' annual and sustainability reports and the time of significant environmental

prosecutions with the help of legitimacy theory was also in the centre of the work by Deegan and Rankin (1996). Basing on the analysis of several Australian companies, they determined a substantial increase in amount of positive environmental information disclosed by the companies that were subject to prosecution if compared to a proper sample of non-prosecuted organizations. These results are explained by the fact that companies tend to convey more favorable details in order to draw attention of the audience away from the news damaging their reputation (Deegan & Rankin 1996, 63 – 64).

Media agenda setting theory is another significant approach that should be taken into account to understand the commitment of business to CSR. Initially, it is designed to see the relationship between those topics taken up by the media and their meaning to general public. However, the media is not realized as a tool reflecting public concerns; it rather shapes them, not mirrors (Ader 1995, 300).

Living in the information society means simultaneous existence in two different worlds: the first is real and another one is created by the media itself. As a result, those issues that impact people's behavior can be categorized by their "proximity" to the audience. Zucker (1978) divided them into two groups: those issues that can be experienced by many people were marked as "obtrusive" ones, whereas the issues that are unfamiliar to wider society were defined "unobtrusive". It stands to reason that the public paid higher attention to opinions of the media, if the information regarded unobtrusive issues. According to Zucker, the environment has unobtrusive nature. Consequently, public cannot get all the necessary information through interpersonal communications and other real-world conditions addressing their concerns to the media as a principal source of relevant data (Zucker 1978, 239 – 240).

In a research dedicated to investigation of a possible relationship between the media's coverage of noxious emissions and public concerns in these ones, it was found that the extent of media attention has a positive correlation with community's anxiety for pollution issues. As the individuals have mostly little experience with contaminations, they are likely to place a higher degree of reliance to information conveyed by the media. Consequently, real-world indicators of pollution were identified as statistically insignificant, as they have no direct impact on the media or public agenda (Ader 1995, 309).

Figure 4. Publicly Owned Oil and Gas Companies Classified by Sales Revenues,
US $ mln. (2010/2011)

Company	Sales revenue, US $ mln.
Exxon Mobil	486429
Shell	470171
BP	386463
Chevron	253706
ConocoPhillips	251226
Total	218897
Eni	142740
Lukoil	133600
Repsol	79423
TNK-BP	44646
Hess	38466
Murphy	27689
Occidental Petroleum	24104
BG Group	21073
Surgutneftegas	20186
Apache	16888
CNR	15507
Marathon	14663
Anadarko	13882
Bashneft	13341
EOG Resources	10126
Devon	9940
Encana	8870
Talisman	8272
Russneft	6867
Nexen	6464
Petrom	5595
Pioneer	2786
Newfield	2471
Tullow Oil	2304
Premier	764
AWE	304,87

Based on accumulated data from annual reports and fact sheets of oil and gas companies

In this study, a sample of 51 companies is investigated to determine those relationships that are likely to occur between the degree of environmental disclosures made by oil and gas corporations and various factors impacting their intensity, such as significant oil spills and other pollutions, notorious environmental prosecutions, changing legal environment, stakeholder

relations, etc. Here, environmental disclosure is understood as one of inherent dimensions of a company's approach to CSR. Thus, the ultimate goal is to explore those differences existing in the understanding of a socially responsible behavior in the public owned and state-owned companies as well as the influence provided by the country of origination effect.

Figure 5. Publicly Owned Oil and Gas Companies
Classified by Proved Oil and Gas Reserves, bn boe (2010/2011)
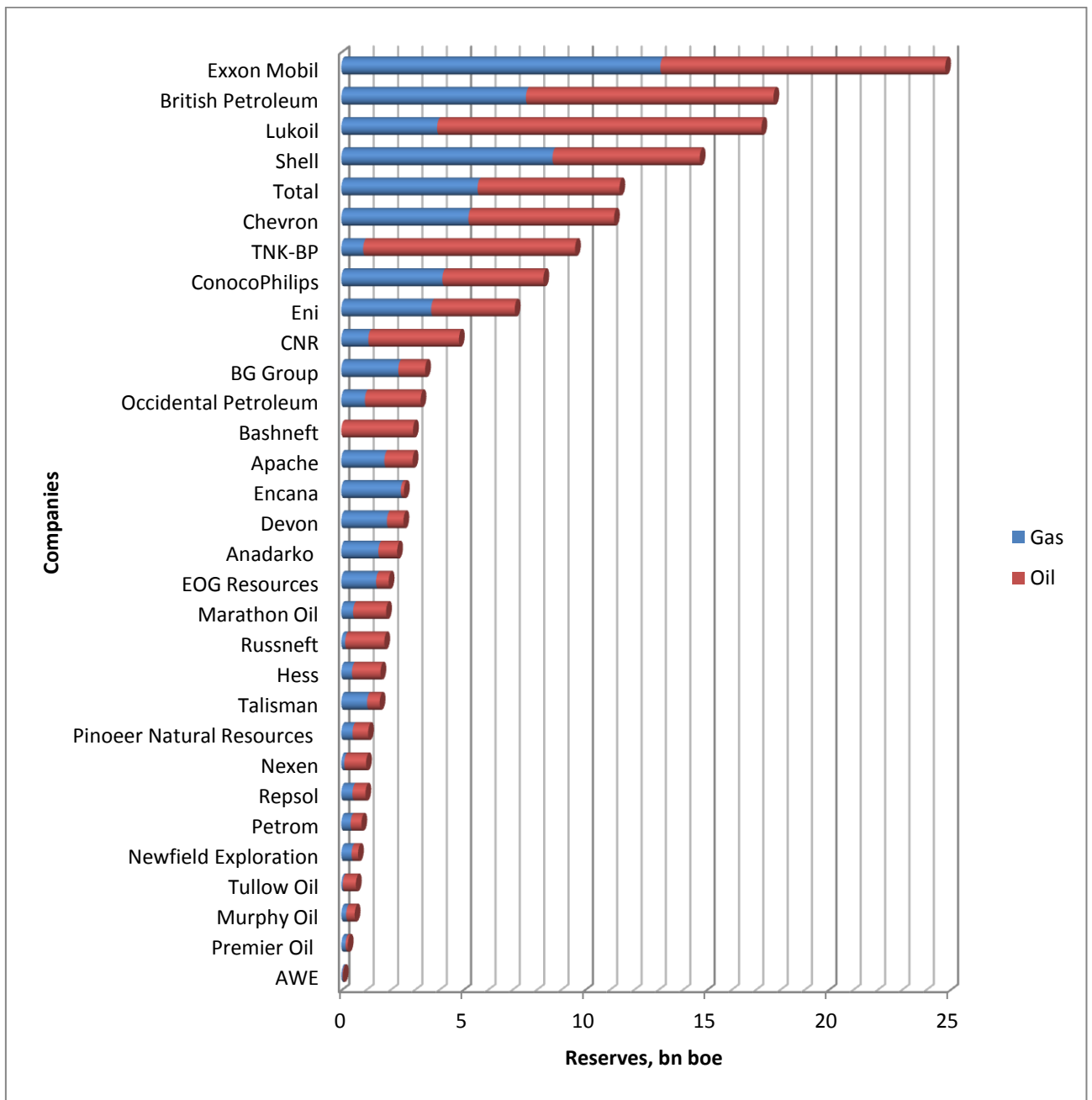
Based on accumulated data from annual reports and fact sheets of oil and gas companies

To broaden the results of analysis and obtain deeper insights, companies from different parts of the world and of various sizes were included in the sample. 32 out of 51 sampled companies are

publicly owned business entities, whereas the controlling stocks of other 19 corporations are owned by state.

Figure 6. State Owned Oil and Gas Companies / Companies with Controlling Stock Owned by State Classified by Sales Revenue, US $ mln. (2010/2011)
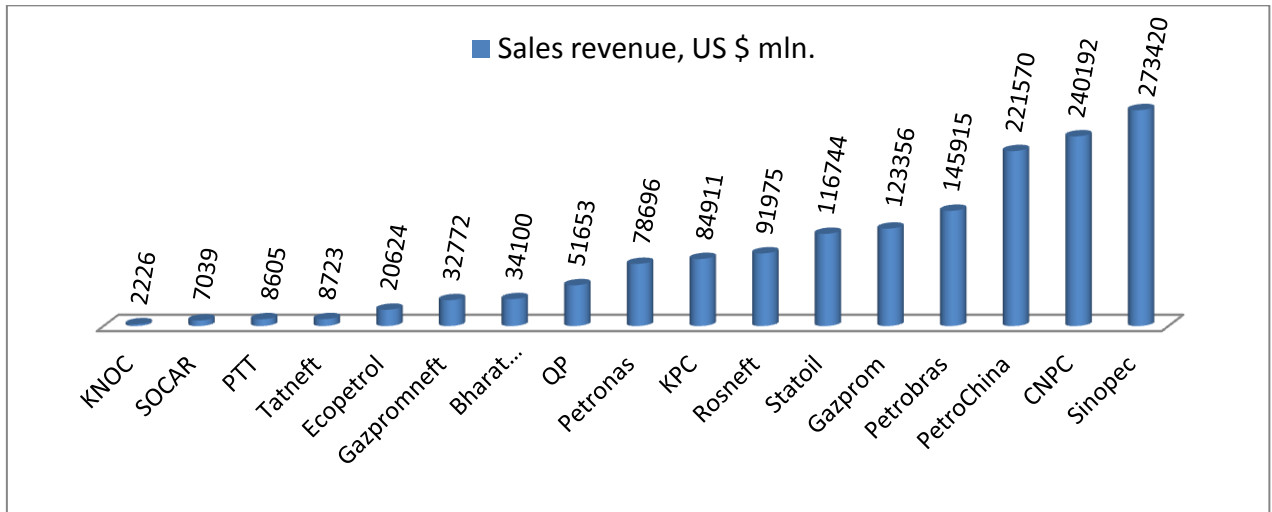
Based on accumulated data from annual reports and fact sheets of oil and gas companies

Figure 7. State Owned Oil and Gas Companies / Companies with Controlling Stock Owned by State Classified by Proved Oil and Gas Reserves, bn boe (2010/2011)
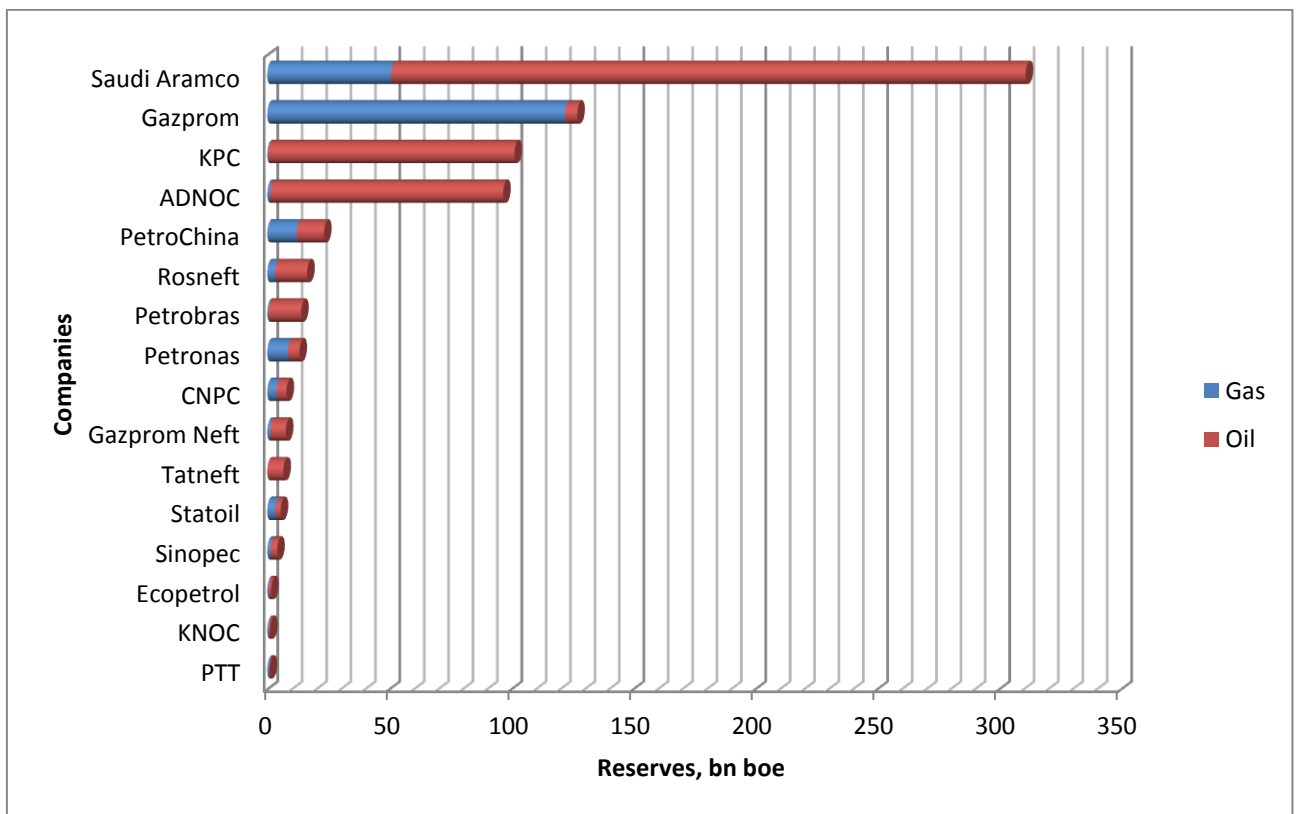
Based on accumulated data from annual reports and fact sheets of oil and gas companies

As it was already mentioned in the second chapter of this thesis, the main reason for the companies to be included in the sample was the publication of an annual report with a special section dedicated to environmental issues and a separate sustainability, environmental or CSR report. As many state-owned companies are not inclined to disclose their internal information, their number is rather limited in the sample. For example, Petroleos Mexicanos (Pemex) and Petroleos de Venezuela (PDVSA) that are among Latin America's largest enterprises by revenues boasting considerable oil and gas reserves were not taken for analysis as they do not provide required information in an open access.

Comparing data from the figures 4 – 7 that demonstrate distribution of total proven reserves and annual revenues among sampled oil and gas companies, one can note that several state-owned corporations control substantially higher reserves than any publicly-owned company. Besides, there are at least 13 out of 19 state-owned corporations that recorded revenues less than 20,000 $US mln. in 2010/2011 financial years (taken into account that Saudi Aramco, ADNOC and KPC do not provide required information). It is also important to mention here that many state-owned giants are considered as crucial for their countries' economies. For instance, Saudi Aramco which is the world's largest producer and exporter of oil claims to provide a major impact on the Kingdom's economy not only through a large share of export revenues but also maintaining significant developmental projects in the field of infrastructure, education, and various knowledge-based initiatives (Al-Falih 2010, 228 – 229). At the same time, Russian largest oil and gas companies, Gazprom and Rosneft are often mentioned to be in a symbiotic relationship with the state, and their impact on the country's economy is so large that Russia is sometimes mentioned as a petro-state not only in the press but in scientific articles and official statements too (Poussenkova 2010, 103).

Among public owned companies, the most prominent in terms of economic indicators as well as oil and gas reserves are the so called supermajors, which is the name to describe the world's five (or sometimes six) largest publicly-owned petroleum corporations, namely BP, Chevron Corporation, ExxonMobil Corporation, Royal Dutch Shell, Total S.A., and ConocoPhillips Company. If production sites of the largest state-owned companies are located mainly in their home countries, than the areas of activities realized by publicly-owned companies are very diverse: e.g. ExxonMobil has operations in more than 45 countries and even those enterprises that demonstrate rather moderate performance such as Australian Worldwide Exploration (AWE) and Premier Oil have multiple interests in different countries throughout the world.

To explore the CSR strategies employed by the sampled oil and gas companies, it seems to be important to examine their overall commitment to sustainable development. Another issue that is of special significance is the corporate governance analysis. Assessing the degree of corporate disclosure as well as presence of specific policies related to human rights, community engagement, and environmental performance is important to understand the companies' approach to CSR. Besides, stakeholder management is another crucial part that should be analyzed in particular, as relations with the media, local communities, NGOs and governmental institutions are often realized as a major driver of CSR and one of the central indicators of the company's responsible behavior.

To assess sustainable performance of the sampled companies, their appropriate results were measured on the basis of a specifically designed evaluation matrix. According to the percentage of total scored, they were correspondingly combined into four groups (see Appendix 2):

- High (more than 75%)
- Acceptable (more than 50%)
- Low (more than 25%)
- Very low (less than 25%)

Figure 8. Sustainable Performance of the Sampled Companies
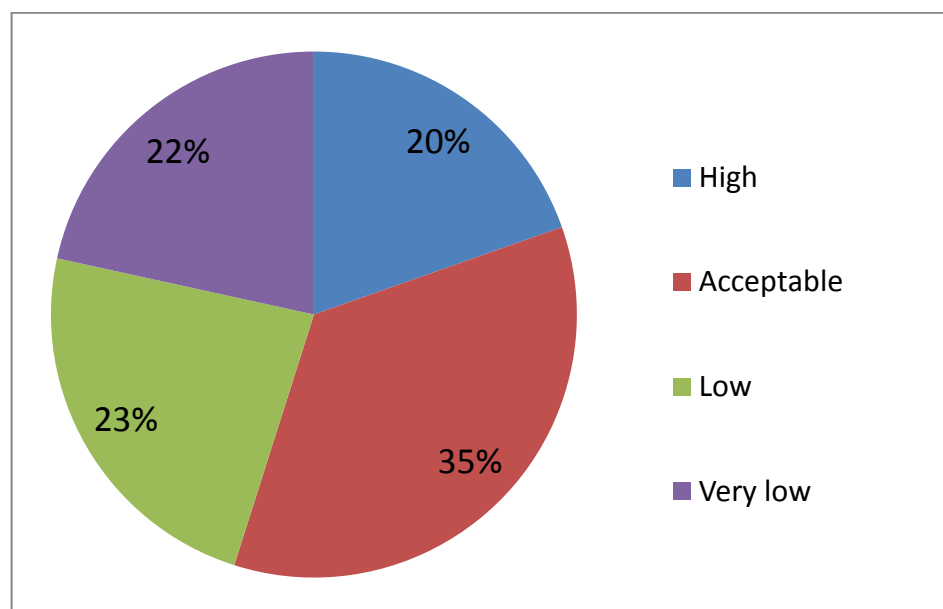
From the results shown in the diagram above (see figure 8), one can easily note that low and very low levels comprise together 45% of sampled companies, whereas two higher levels of

sustainability correlate with 55% of companies in the sample. This means that the overall sustainable performance of oil and gas enterprises as reflected in their sustainability reporting is rather acceptable.

Applying statistical metrics for the analysis (see table 5), we can see that the mean score of 18.84 is slightly lower than the median score of 19.00, whereas the mode value is substantially higher, comprising 27.00 points. As the mean measures the average value, the median is the middle value in terms of size, and the mode is the most frequent number occurred in the sample, one can deduce that the closer these values are to each other, the more representative the mean number is considered to be. Taking into account that the standard deviation also measures the overall variation from the mean, it seems to be reasonable to conclude that the smaller it is, the more reliable the mean is. In this case, the standard deviation value of 9.65 seems to be sufficiently high. This means that the mean is likely to be wrong in representing a particular score. An assumption is also supported by a large range value of 35.00, which indicates the difference between the highest (36.00) and the lowest (1.00) numbers.

Table 5. Statistics of Total Score for Oil and Gas Companies in the Sample

Statistical metrics	Value obtained
Mean	18.84
Median	19.00
Mode	27.00
Standard deviation	9.65
Minimum	1.00
Maximum	36.00
Range	35.00

As a result of this discussion, it seems to be reasonable to conclude that the mean is not a representative figure in this case. It is explained by the fact that the dispersal of scores in the sample is rather high, and more than half of the companies got a result, which is more than the mean value. Besides, it seems to be reasonable to assume that the large dispersal in sustainability scores reflects significant divergence in sustainable performance of the sampled oil and gas companies and the absence of a uniform approach for the whole industry.

In order to see, if the situation differs considerably in the publicly-owned oil and gas companies taken separately from the state-owned corporations, we decided to provide the same analysis for both groups considered apart and severally (see table 6 and table 7).

Table 6. Statistics of Total Score for the Publicly Owned Companies in the Sample

Statistical metrics	Value obtained
Mean	19.50
Median	20.00
Mode	4.00
Standard deviation	10.08
Minimum	1.00
Maximum	36.00
Range	35.00

As it can be seen from the table above, the standard deviation value is rather more than in the case of both publicly and state owned companies taken together. Moreover, as the enterprise with the minimum ("Russneft") and maximum ("Eni" S.p.A.) scores obtained from the cumulative sample are presented in this observation, the range is as high as in the previous example. Therefore, discussion on the representativeness of the mean value that took place earlier is also applicable for this case.

Table 7. Statistics of Total Score for the State Owned Companies / Companies with Controlling Stock Owned by State in the Sample

Statistical metrics	Value obtained
Mean	17.74
Median	19.00
Mode	27.00
Standard deviation	9.04
Minimum	4.00
Maximum	32.00
Range	28.00

The same logic is also true for the interpretation of statistical results obtained in the analysis of sustainable performance reported by the state-owned companies. In this case, the sample size is

smaller as there are only 19 companies taken for consideration. Besides, the range of 28.00 is substantially lower if compared with 35.00 of the sampled public owned enterprises. This means that the spread of sustainability scores is lower for the state-owned corporations, but nevertheless the dispersal is considered to be rather high, as the standard deviation of 9.04 has also an appreciable value. As a result, the divergence in sustainable performance seems to be significant for the sampled state-owned corporations as well.

Figure 9. Inclination to Sustainable Development in the Publicly Owned Oil and Gas Companies
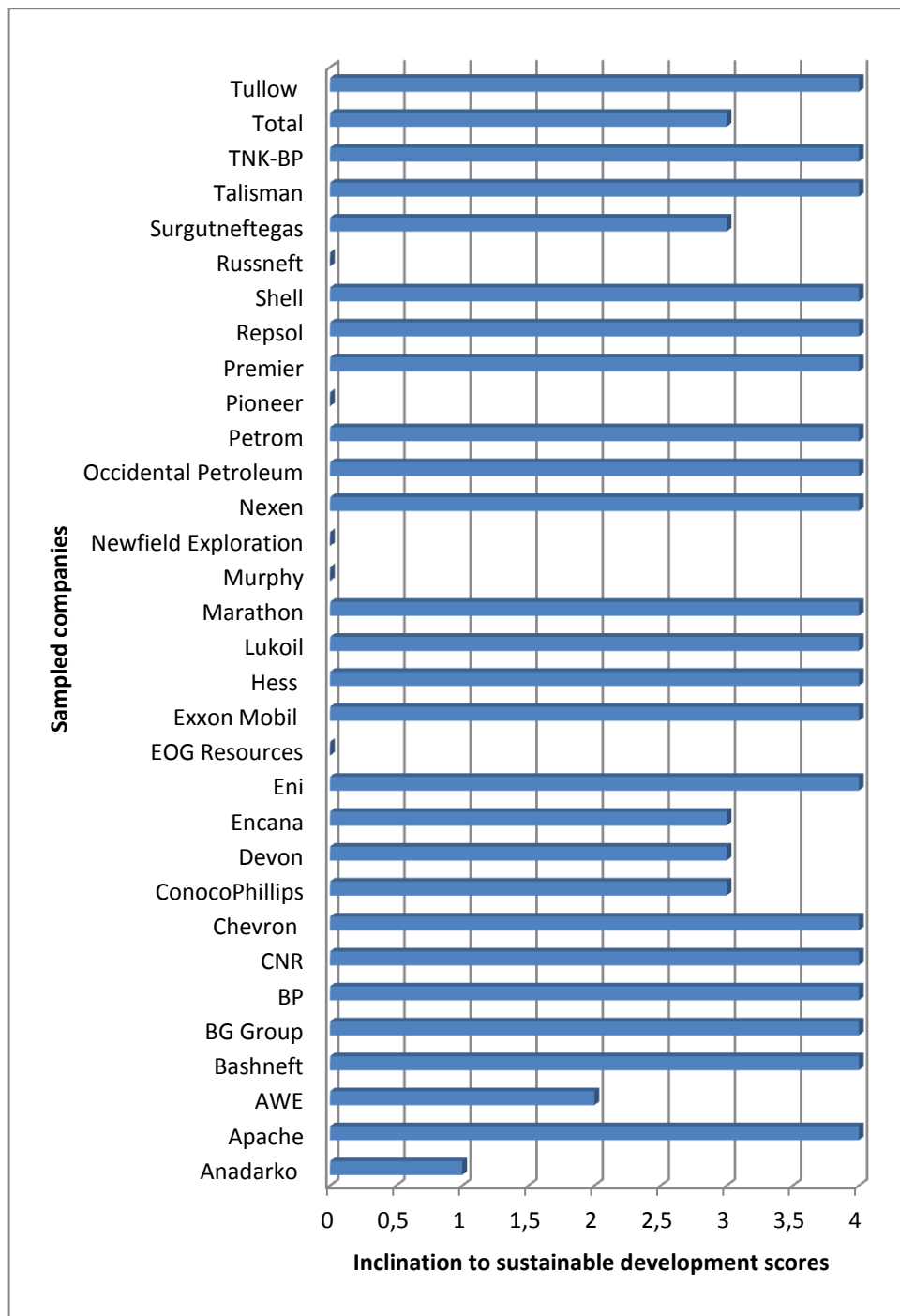
The analysis of inclination to sustainable development shown by the sampled publicly-owned companies (see figure 9) shows that 62.5% of them achieved the maximum score of 4.0 for this section. At the same time, 5 companies which are accounted for 15.6% of the sample have not demonstrated any commitment to sustainable development in their business strategy. It can be explained by the fact that no one of these companies has a special sustainability, environmental or CSR report disclosing all the relevant information in their annual reports, where the principal attention is paid to financial performance and those issues related to oil and gas exploration, corporate governance details, operating controls and procedures, etc.

Figure 10. Inclination to Sustainable Development in the State Owned Companies / Companies with Controlling Stock Owned by State
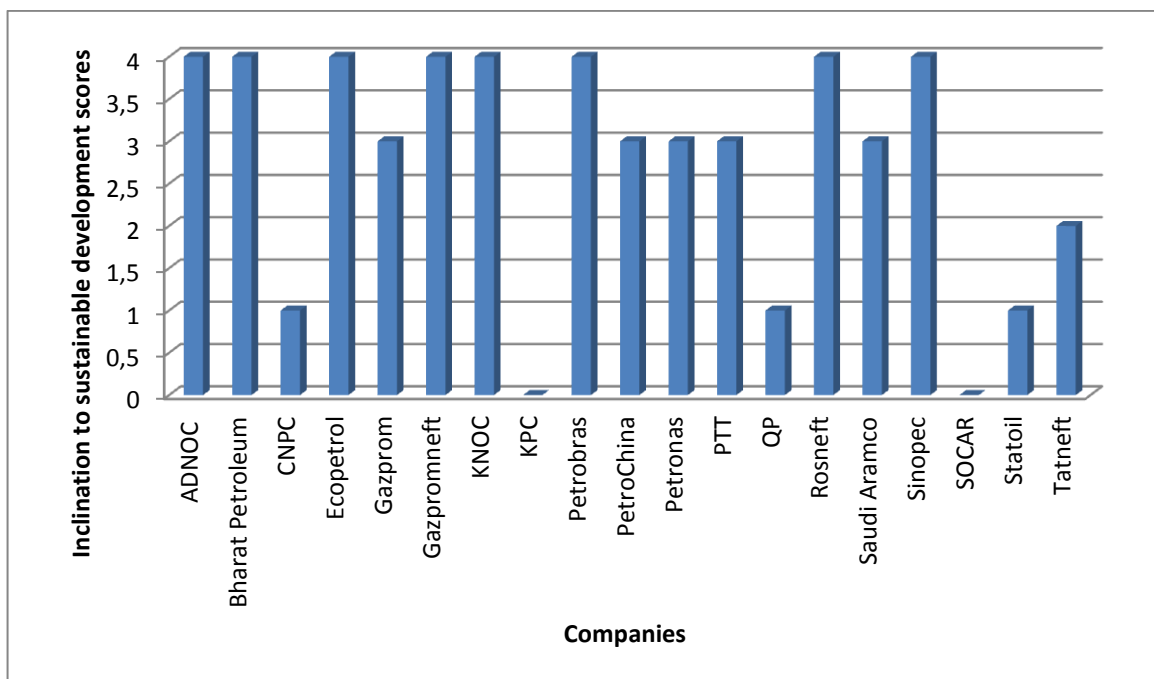
Subsequently, the same analysis was applied for the state-owned companies included in evaluation matrix (see figure 10). Here, only 8 out of 19 enterprises which are accounted for 42.1% of the sample have demonstrated the maximum possible inclination to sustainable development. This seems to be a substantial decrease as compared to the sampled public owned companies. But at the same time, only two state-owned corporations which are Kuwait Petroleum Corporation (KPC) and State Oil Company of Azerbaijan (SOCAR) have shown "zero" result according to the scorecard.

One more point, which is interesting to mention relates to compliance with the principles of General Reporting Initiative (GRI). In a few words, it can be described as an attempt to provide a standard framework for sustainability reporting developed by several national and international institutions in order to facilitate the communication with a range of stakeholders and thus increase the amount of relevant information conveyed on various environmental, social, and ethical issues (Unerman et al. 2007, 3). Today, as many companies from different industries are seeking how to improve their interactions with wider society, governmental institutions, media and NGOs, a need for "extended qualitative information" is largely recognized by business entities (Ball et al. 2006, 266). Consequently, the adoption of GRI guidelines is treated as a decisive step towards "real" sustainable performance. Since the first guidelines had been published in 2000, two revised versions appeared in 2002 and 2006, namely G2 and G3 respectively. Taking this into account, one can assume that the significance of GRI is likely to increase over time, and more companies will look for an opportunity to adopt it (Guenther, Hoppe and Poser 2010, 12 – 13).

In this thesis, the compliance of companies with GRI was assessed on the basis of a specifically designed content. It consists of multiple parameters that are generally combined in several groups consisting of multiple parameters that are generally combined in several groups: strategy vision and report profile, corporate governance, stakeholder engagement, economic, environmental and social performance indicators. The latter ones are of special significance for the nature of this thesis, as they include such issues, as emissions reduction, waste management, energy usage, labor practices, attitude to human rights, product responsibility, etc. In the current sample, 18 out of 32 publicly-owned companies (56.3%) and 9 out of 19 state-owned companies (47.4%) have shown compliance with this indicator. Other issues that were taken into account in measuring companies' adherence to GRI are executive commitment to the guidelines and a record of GRI in the structure of report. Though both public owned and state-owned companies have demonstrated rather decent results in this case, it is reasonable to mention that only one company from the whole sample which is Italian Eni prepared its sustainability report in a full compliance with GRI supplementing it with extensive graphical data on the changes in environmental, social and economic performance over time.

Researchers assert that success of CSR strategy consists in ability of a company to translate decisions applied on the global and corporate levels into gradual improvements at local sites. Here, corporate governance is understood as one of the central issues contributing to successful implementation of these ones (Monks and Minow 2008, 9 – 12).

In this thesis, corporate governance in the oil and gas industry was analyzed both on the global level (using such descriptors as information on existing leverages of internal control, profiles of key managers, and codes of business ethics / conduct) and local level (whether the companies are inclined to invest in community development, structural improvements at local sights, installation of innovative techniques at particular fields or facilities, etc.). As in the previous case, corporate governance data is investigated on the basis of information disclosed in company reports, so that the earlier advanced principle "as disclosed in sustainability reporting" takes place here as well.

The results obtained in this phase of analysis are mixed and rather amazing. For example, it is reasonable to assume that CSR practices should be better developed in the six supermajors, as their activities are spread all over the world being under the constant control of the media and various societal groups. However, only two supermajors which are British Petroleum (BP) and American Exxon Mobil were identified as paying high attention at the social dimension of CSR. Among other publicly-owned companies that were found in the upper quartile are Hess Corporation from the US, Russian Lukoil, Romanian oil company Petrom which is now a subsidiary of Austrian OMV corporation, major Spanish producer Repsol, TNK-BP (a company of mixed ownership: 50% owned by BP and 50% owned by a group of Russian businessmen), and Italian Eni that showed the highest result according to the scorecard. At the same time, only two state-owned corporations, the Abu Dhabi National Oil Company (ADNOC) which is the world's fourth largest oil producer from the United Arab Emirates and Columbian Ecopetrol were identified as business entities with a high commitment to resolve social dimension of CSR.

One more interesting remark that should be made in this case relates to the overall performance of these companies regarding their total proven reserves and the sales revenues as of 2010 / 2011. Though such giants as ADNOC, BP, Exxon Mobil, Eni and Lukoil were repeatedly mentioned as the largest oil-producing firms with continually evolving operations and considerable financial resources, both Petrom and Ecopetrol are the companies of a substantially smaller size and do not have capabilities to increase their operations in the future. Nevertheless, they are inclined to invest heavily in CSR going beyond of compliance and initiating voluntary programs to improve further their social and environmental indicators.

In a deeper analysis of corporate governance, it was identified that both publicly and state-owned companies have demonstrated rather vivid willingness to disclose information on such issues as

the presence of internal control / percentage of non-executive directors, key manager profiles with precise remuneration sums, codes of business conduct, existing standards of shareholder participation, etc.

Figure 11. Stakeholder Management in the Publicly Owned Companies
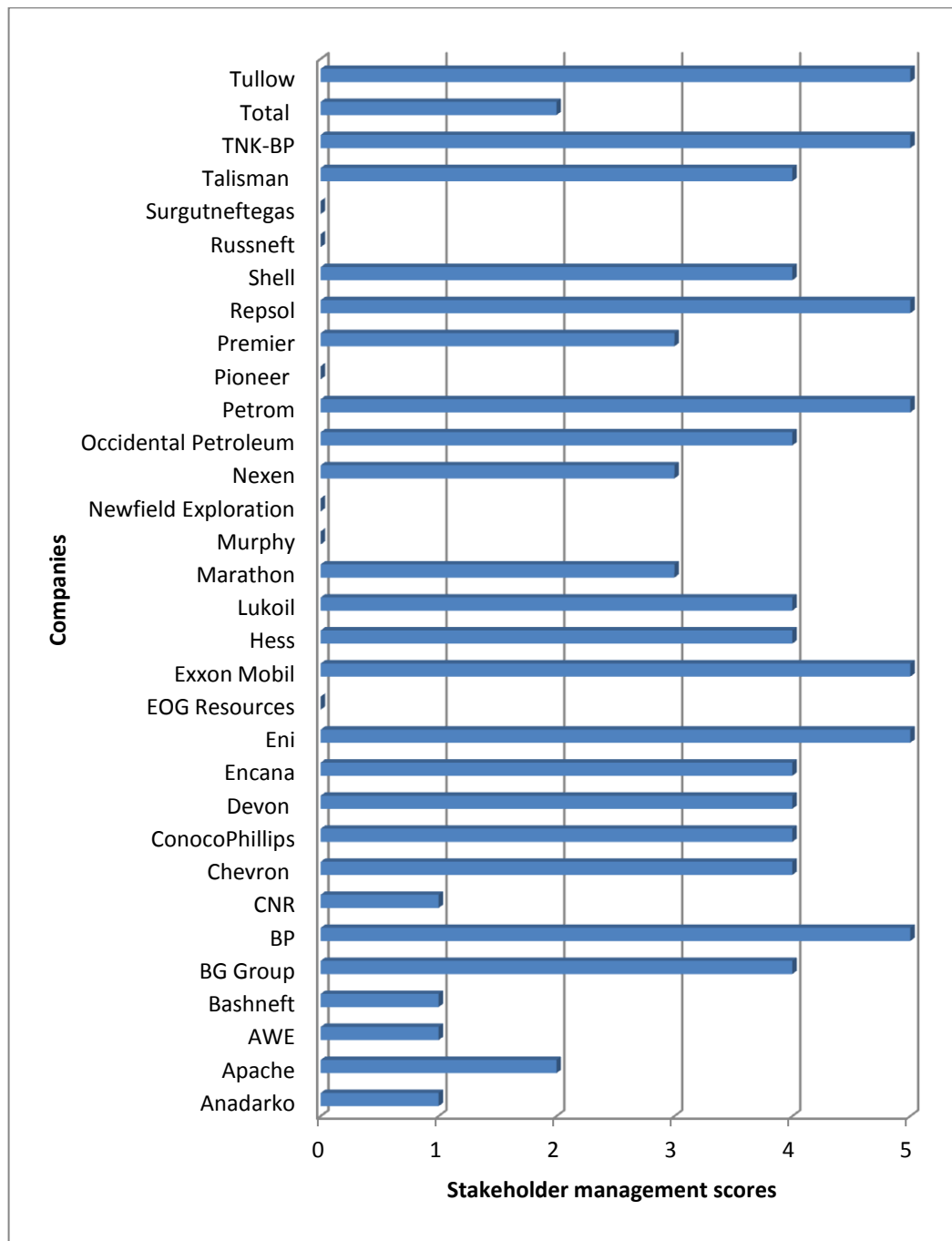
However, it was identified that the companies originated from Arab countries have shown very low inclination to corporate governance disclosure. To some extent, this finding can be explained by existing peculiarities in the national context that prevent Arab businesses from disclosing those information that is perceived as highly sensitive and closed from external control. Besides,

it is reasonable to assume that this unwillingness of companies' executives does not meet significant counteraction from the wider society, as there is no real request to such information from existing stakeholder groups or they do not have enough power to demand it.

Stakeholder management analysis is of special importance, as it describes the degree of attention paid by a certain company to interaction with governmental institutions, business partners and wider groups of population. Moreover, it demonstrates the commitment of companies to obtain information from their stakeholders using various possible channels and work in harmony on different critical issues.

Figure 12. Stakeholder Management in the State Owned Companies / Companies with Controlling Stock Owned by State
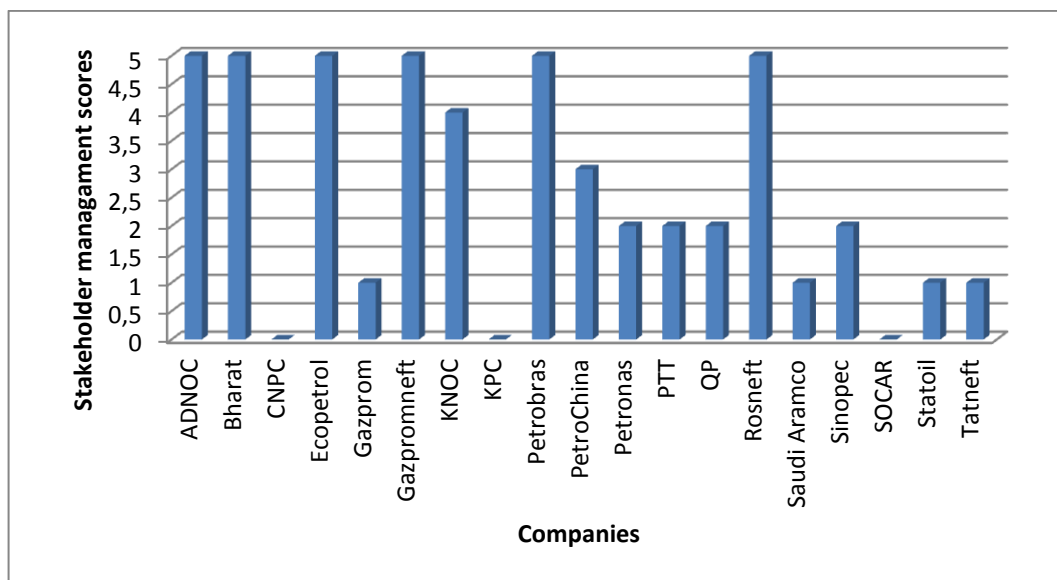
As it can be seen from evaluation of stakeholder management in the publicly-owned companies (see figure 11) and state-owned corporations (see figure 12), both diagrams look rather volatile indicating substantial differences in approaches to this issue in the sampled companies. However, one can deduce from the given results that the publicly-owned oil and gas producers are more committed to development of sustainable relations with their stakeholders (20 out of 32 companies which are accounted for 62.5% of the sample have overcome the 50% barrier) than the state-owned companies (8 out of 19 companies which are accounted for 42.1% of the sample have scored 3 or more points for this section). At the same time, there are six publicly-owned and three state-owned corporations that have not demonstrated any commitment to stakeholder management at all. Taking into account a substantial number of the sampled companies that showed very shallow compliance with the current issues (e.g. mentioning intention to

stakeholder engagement without any further explanations for the mechanisms of feedback control, type of information obtained and its further usage), one can reasonably note that there is a large room for improvement in this area. Many researchers recognize the specific importance of stakeholder engagement in business operations in order to get valuable feedbacks on those potentials that could be improved and promote sustainable performance of the company among its customers, business partners and various governmental organizations. Moreover, current issues are of special importance when we deal with the oil and gas companies, which are often blamed for inconsistency of actions, environmental violations as well as disdaining the rules of local communities and demolishing fragile ecosystems in developing countries.

Table 8. Stakeholder Management in the Oil and Gas Companies

Stakeholder groups	Communication channels	Use of stakeholder information
Communities	Consultations, community advisory panels	1) Identifying areas to improve relations and invest in CSR – the Community Rice Mill in Kud Nam Sai municipality, Thailand (Hess Corporation) 2) Pilot studies in Peru and Angola – initiating electrification projects (Eni S.p.A.) 3) Guided tours to the Esso refinery in Great Britain – enhancing understanding of operations, promoting safety and emergency response procedures (ExxonMobil)
Employees	Surveys, intranet, health and safety committees	1) Collective negotiation and communications with trade unions on specific local actions (Eni S.p.A.) 2) A safety culture survey – identifying improvement opportunities and launching the Fundamentals of Safety course (ExxonMobil)
Suppliers	Mentoring programs, B2B relationships	1) Extended vendor management systems, E-Procurement portal – initiating

		programs to increase awareness on cultural issues, monitoring and spreading the principles of sustainability, developing a pilot project on green procurement (Eni S.p.A.) 2) Resource center in Papua New Guinea to strengthen management skills of local partners (ExxonMobil)
Customers	Customer service organizations, surveys	1) Initiating Quality Excellence programs within R&M and G&P, Sustainability Program for commercial activities, workshops on specific themes, dedicated web section (Eni S.p.A.) 2) Redesigning packaging to incorporate sustainability considerations – plastic resin consumption reduced by up to 7% (ExxonMobil)
Governments and MLIs	Consultation, negotiation, voluntary initiatives	1) Constant interaction with Italian Anti-trust Authority – reducing unfair commercial practices, training commercial embassy staff in relation to internationalization topics and approaches with partner countries (Eni S.p.A.) 2) Joint industry task forces, congressional briefings, multiple consultations – developing a marine well containment system to increase capabilities in oil spill prevention and emergency response (ExxonMobil)
NGOs	Partnerships, voluntary initiatives, funding programs	1) Partnership with UN Earth institute – initiating a project for measuring efficacy of operations for community (Eni S.p.A.) 2) Continued Transparency Operation,

		informational meetings and discussions with Amnesty International, WWF Italia, Transparency International, etc. – a case study pilot program for assessing Human Rights impact within a Social Baseline Analysis (Eni S.p.A.) 3) Participation in UN's Global Compact Network – getting information about the best practices in the field of sustainable development and promoting these ones in Russia (Lukoil)
Shareholders and investors	Dialogue and consultation, annual meeting, surveys, workshops and conferences	1) Manual for Minority Shareholders, updating of dedicated web section (Eni S.p.A.) 2) Meetings and teleconferences with institutional and socially responsible investors – promoting oil sands and shale gas development (ExxonMobil)
Industry sector	Trade and professional associations, benchmarking	1) Cooperation in terms of the Russian Union of Industrialists and Entrepreneurs – developing mutually acceptable rules of play and agreeing on the interests (Lukoil)
Universities and research centers	Strategic partnerships, research projects	1) Talent attraction activities, training of employees (Eni S.p.A.) 2) Meetings with the students, conferences of young professionals – nurturing its own talent pool (Lukoil)
Media	Press relations, online activities	1) Special website launched, special corporate issues on themes related to sustainable development in Africa (Eni S.p.A.) 2) Corporate blog launched – providing transparency and actively sharing information with journalists (Lukoil)

Based on accumulated data from corporate sustainability reports of oil and gas companies

The table above demonstrates why different groups of stakeholders are significant for oil and gas companies as well as what channels are to be used in order to get diverse insights about different issues of sustainable development. Examples of sampled companies that showed the strongest attention to the problems of stakeholder engagement explain clearly, how the information obtained from wider stakeholder groups can be embedded in their activities contributing to higher sustainable performance and improving corporate image.

The analysis of corporate governance disclosure and those issues related to stakeholder management corroborates hypothesis one saying:

Public owned companies tend to be more precise in disclosing corporate governance issues than the state owned corporations, as the latter ones are not inclined to report many indicators of their performance to wider public due to a more closed internal structure.

3.2. The Analysis of Environmental Performance and EMS Development in the Sampled Oil and Gas Companies

The evaluation of environmental performance is rather useful, as it provides companies with benchmarks for improving their performance in the most crucial areas. Besides, publication of well-structured reports, prepared in compliance with existing guidelines allows indigenous people, researchers, controlling commission members, governmental officials, and other stakeholders from broader society judging easily performance of companies.

But in spite of these observations, it was noted from the sample of oil and gas companies in this research that each of them is more inclined to apply different forms of environmental and sustainability reporting, without any coherent plan or structure. There are some common places that can be found in different reports, such as statements of commitment to sustainable development, norms of shareholder participation, identification of environmental policies, etc. But when one tries to examine narrower issues, such as percentage of annual water and land withdrawal or a list of environmental expenditures by type, the quality of corporate disclosure decreases substantially.

This remark takes on special significance in case of EMS. The analysis of sustainability reporting demonstrates that it is one of the weakest facets of environmental performance. Even the largest oil multinationals such as BP, Chevron and ExxonMobil report just a limited

information on their compliance with ISO 14001 certifications. Moreover, they usually do not reveal any crucial information related to adoption of other voluntary certifications.

Figure 13. Environmental Performance and EMS Implementation in the Publicly Owned Companies
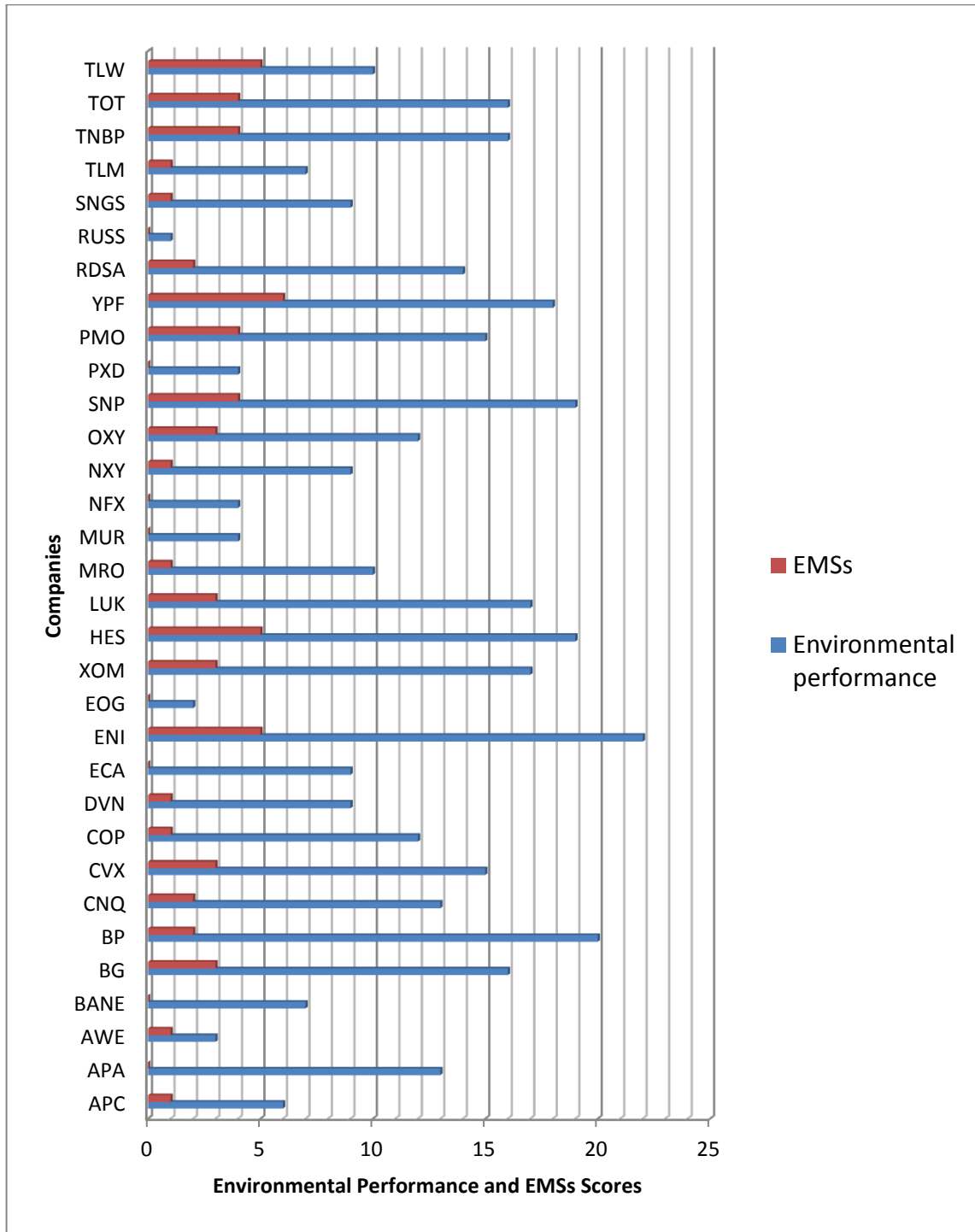
Applying the same analysis as it was done in the previous paragraph to environmental performance and EMS in the sampled public owned companies, one can easily note that the

resulted chart looks very volatile and unsteady (see figure 13). The environmental performance of most companies demonstrates very moderate results if compared to those of corporate governance disclosure: e.g. only one company, which is the Italian Eni Group achieved the maximum possible result of 22, and only 17 of 32 companies have overcome the 50% barrier. These results are even more modest in the case of EMS adoption, as 16 of 32 companies have demonstrated either "zero" or minimum adoption level. This can be explained by the fact that putting companies' facilities and operations in compliance with ISO 14001 requirements is a rather costly and science intensive action, as it implies substantial investments in constant environmental improvements, presence of experienced specialists, training programs for employees, and considerable executive commitment to sustainable development, of course.

Besides, there is one more interesting detail that can be noted from the chart below. British company Tullow Oil that demonstrated rather small results in the area of environmental performance getting 10 of 22 points have incredibly shown substantial compliance with EMS requirements. We are inclined to believe that this contradiction can be explained by the lack of consistency in the company's environmental reporting that can be interpreted as an obvious room for improvement.

Figure 14. Environmental Performance and EMS Implementation in the State-Owned Companies / Companies with Controlling Stock Owned by State
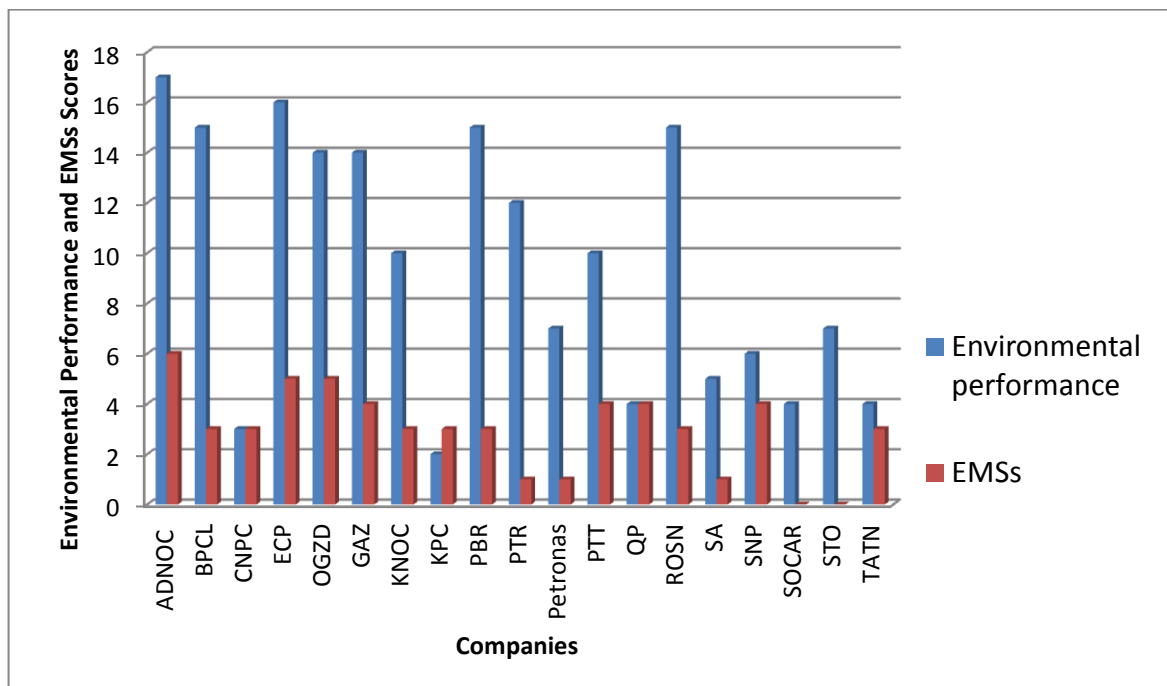
Proceeding with the state owned companies / companies with controlling stock owned by state, one can easily note a surprising outcome stemming from this analysis (see figure 14). Only five companies from the sample have demonstrated "zero" or minimum adoption level of EMS, which is an undoubtedly larger percentage ratio if compared to the public owned oil and gas producers.

This result can be explained by three reasons. First of all, the sample size in this case is substantially smaller than in the previous example, so that one can assume that this fact have impacted the results of analysis in favor of state owned companies. Secondly, the above mentioned high cost of EMS implementation that prevents many public owned corporations from their adoption in compliance with ISO 14001 certification requirements may be not so crucial for the state owned companies that are often in better position due to considerable financial flows and support rendered by government. Finally, the results reported by some state owned companies can be judged as rather doubtful due to lack of internal control and sufficient auditing from disinterested parties (e.g. Abu Dhabi National Oil Company that demonstrated the most appreciable results stated in its sustainability report that the company management has self-declared the reporting to be GRI Application Level "A"). Certainly, this circumstance is another reason for us to doubt in the credibility of some reports presented in the sample.

To investigate how different indicators of environmental performance are reported by the sampled companies, they were analyzed on the basis of reporting completeness (see figure 15). From the given chart, one can see that there are no indicators completely reported by more than 50% of entities in the sample. "Oil spill prevention and response plans", "greenhouse gas emissions", and "energy efficiency" were scored as those measures that were entirely disclosed in the majority of corporate reports, whereas other indicators obtained rather insignificant results. Besides, none of the sampled companies has completely reported 10 out of 21 indicators.

Nine measures ("oil spill prevention and response plans", "greenhouse gas emissions", "energy efficiency", "waste management", "restoring damaged lands", "emissions from gas flaring and other sources", "water usage", "hazardous waste", "minimizing negative effects on ecosystems") are reported partially or completely by more than 50% of sampled companies. This demonstrates what environmental indicators are perceived as the most significant ones in order to be revealed to the public. In other words, it can be said that these measures form an obvious trend for environmental reporting in the oil and gas industry. However, "partially reported" results should not be taken too seriously, as this mark was given to the companies that showed even a minimum

commitment to reporting their performance in relation to a certain indicator. For example, many oil and gas producers have announced their intention to develop sustainable practices in the areas with rich and vulnerable ecosystems as this information is highly required by some influential stakeholders, but they did not provide any relevant cases or detailed programs that could be used to assess the existing performance. Overall it can be said that the style of reporting is too general in most cases.

Figure 15. Environmental Indicators Reported by the Oil and Gas Companies
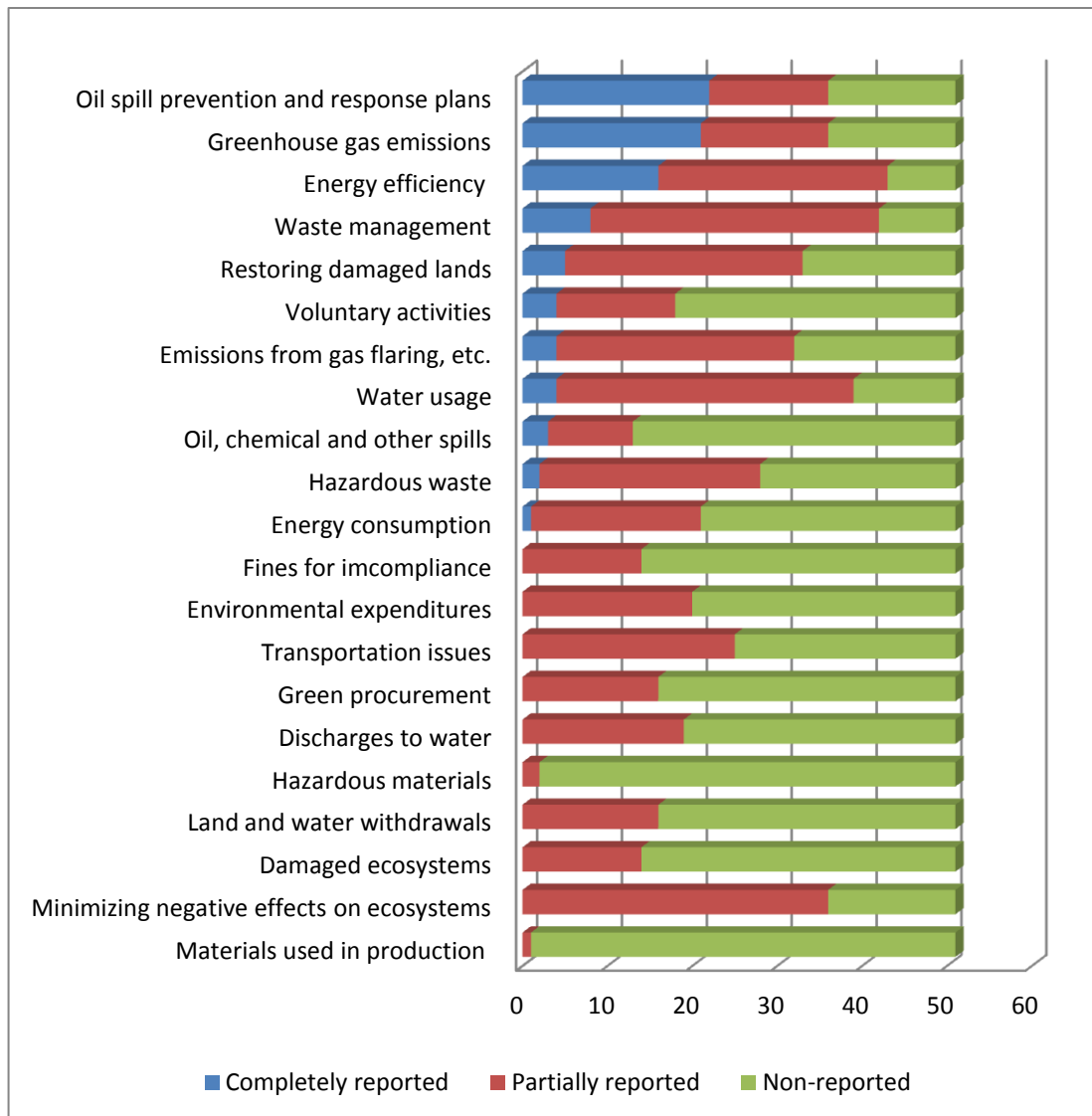
To provide a more demonstrative visualization and deepen the results of analysis, a special matrix was designed to include both quantity and quality of companies' reporting (see figure 16). As it can be seen from the scheme, the quantity of reporting reflects partially and completely reported indicators, whereas the quality dimension takes into consideration only those measures

that are reported completely. Moreover, there are four basic areas that can be identified in this quality – quantity matrix:

- High quantity / high quality – no indicators
- High quality / low quantity – no indicators
- High quantity / low quality – 9 indicators
- Low quantity / low quality – 12 indicators

Figure 16. Quantity – Quality Matrix of Environmental Indicators Reported by the Oil and Gas Companies
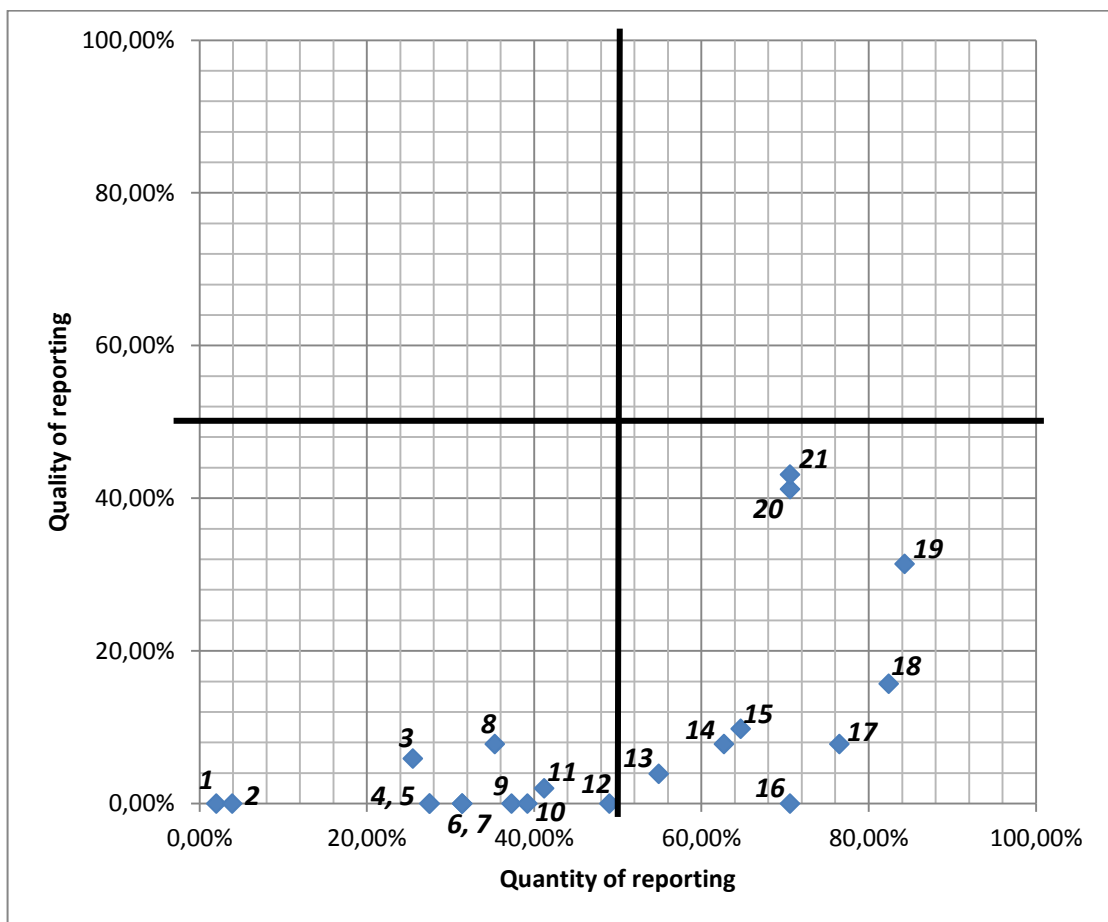
1 – materials used in production, 2 – hazardous materials, 3 – oil, chemical and other spills, 4 – damaged ecosystems, 5 – fines for incompliance, 6 – land and water withdrawals, 7 – green procurement, 8 – voluntary activities, 9 – discharges to water, 10 – environmental expenditures, 11 – energy consumption, 12 – transportation issues, 13 – hazardous waste, 14 – emissions from gas flaring, etc., 15 – restoring damaged lands, 16 – minimizing negative on ecosystems, 17 – water usage, 18 – waste management, 19 – energy efficiency, 20 – greenhouse gas emissions, 21 – oil spill prevention and response plans

As there are no indicators in the two upper quadrants, one can reasonably conclude that the quality of environmental reporting (and consequently environmental performance) of the total sampled companies tends to be lower, than it was considered in the previous analysis. However, there are four indicators that gained substantially higher attention from the oil and gas producers than the other ones according to the matrix.

The highest result which was obtained for reporting of oil spills has a twofold explanation. Companies working in the industry are likely to acquire sufficient experience in this issue, because information about spills as the sources of significant contamination is generally required by local authorities. Besides, one can note that the number of details reported on the oil spill prevention and response plans has increased substantially in 2010 / 2011 reporting if compared to sustainability reports published in 2008 / 2009. After BP deepwater horizon incident when a considerable amount of liquid hydrocarbons got into Mexican Gulf, the concern of different stakeholder groups in the safety of oil exploration and transportation has increased dramatically. Governmental officials, NGOs and wider society require that the companies should take a higher degree of social and environmental responsibility in mitigating the potential negative effects of their operations. In this case, the increased reporting seems to be a reasonable response which is likely to satisfy some of existing stakeholders' concerns.

Taking into account an actual discussion on the reasons and consequences of climate change supported by eminent scientists and fueled by the influential media all over the world, it is easy to explain a substantial attention paid to reporting of greenhouse gas emissions by many oil and gas companies. The same deduction is true for the energy efficiency initiatives. Growing public awareness of these issues is widely understood by the industry players. Thus they tend to invest heavily in developing innovative approaches to energy use and promote their findings among the public to enhance their corporate image and a reputation of responsible producers. At the same time, a decreased quality of this indicator reporting as compared to the highest quantity value can be explained by the fact that many companies do not have sufficient experience in disclosing energy efficiency issues to controlling units. Furthermore, they may be reluctant to provide a thorough description of their policies and approaches to this area, as it is perceived as highly sensitive in maintaining a specific company image in the stakeholders' eyes and thus should be preserved from copying by competitors. However, some companies such as Eni and BP tend to report more information on efficient energy use providing insights from the local facilities as well as the charts showing changes in energy consumption for the whole company over a particular period of time.

Speaking of approaches to waste management, it can be assumed that many companies are inclined to report the amounts of their waste as they have to pay for its disposal. However, current GRI guidelines require that the firms should be very specific in disclosing the exact destination, methods of waste treatment (including recycling, re-use, composting or incineration), classification and estimation of its different groups. As a result, only 15.70% of the sampled companies report these ones to a full extent. One of the best examples of how the waste management issues should be reported in the companies' sustainability reports is provided by Repsol. Detailed information on different groups of waste resulted from numerous operations, exploration and transportation activities shows that investigation of required data is not an impracticable task at all.

To test hypothesis five, the presence of oil spill prevention and response plans in the environmental reporting of all companies in the sample was compared to their commitment to green procurement strategies development. After BP deepwater oil spill that took place in 2010, all the companies that had previously reported on existence of the special oil spill prevention plans in their structure have adopted additional fast response mechanisms and dedicated systems (see table 9).

Table 9. BP Deepwater Oil Spill Impact on Adoption of Oil Spill Response / Prevention Plans

Activity description	Companies done, %
Mentioning BP incident in the annual or sustainability report	92
Declaring commitment to increased safety in the shelf development and water transportation	79
Adopting additional reactive oil spill response and prevention plan	71

Based on accumulated data from oil and gas companies' annual and sustainability reports

As it can be seen from the figure 17, 36 companies out of 51 included in the sample have enhanced their oil spill response or prevention plans according to their sustainability reports. However, only 16 out of 51 companies pay attention to implementation of green procurement strategies which is accounted for mere 31.40%.

Figure 17. Comparison of Proactive and Reactive Activities in the Sampled Oil and Gas Companies
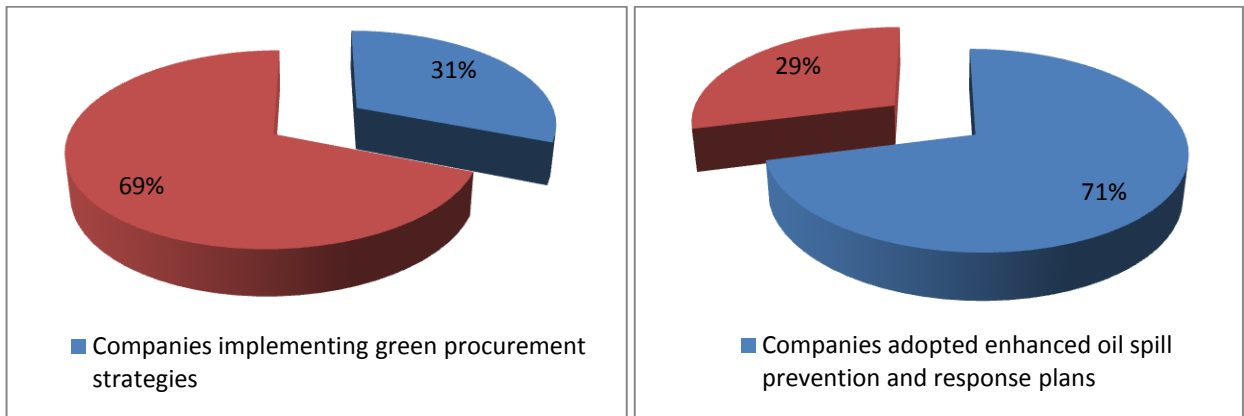
The discussion above supplemented by the data on EMS adoption and the quality – quantity analysis of environmental indicators in the sampled oil and gas companies proves hypothesis two saying:

Oil and gas companies are more inclined to apply reactive activities in their sustainable development or undertake actions with high publicity effect than act proactively and adopt those strategies that are designed to bring in gradual improvements.

3.3. The Implementation of Standardized Environmental Management Systems: Different Ways and Heterogeneous Outcomes

The adoption of EMS certified according to ISO 14001 means going beyond compliance. In this research, several drivers are identified as those forces that make companies to implement activities that are not required by any law or regulation. Among the most important ones cited in the literature are (Cho & Patten 2007, 641):

- Improved relations with regulators
- Customers' requirements for beyond-compliance activities
- Improved relations with NGOs and community groups
- Access to some areas of the world where specialized environmental programs are preferred
- Incidents inside and outside the oil and gas industry
- Integration of environmental activities into other management programs, especially occupational health and safety

- Commitment to sustainable development

It is important to understand the difference between a common environmental plan and a dedicated EMS. As it comes from analysis of sustainability reporting of the sampled companies, the ultimate goal of environmental plan which is always a linear aimed process consists in reduction of a noxious emission to a certain level. At the same time, the EMS implementation does not have such a clear outcome. In contrast to environmental plan, it is rather a cyclic process than a linear program. Therefore, it is designed to improve environmental indicators continually always finding a room for the further improvement. This explains partially why the process of EMS adoption is treated as a very costly and knowledge intensive operation.

However, those companies that announce resolute commitment to sustainable development should bear in mind that EMS play almost the basic role in this movement, as it provides a complex approach to environmental issues. As compared to environmental plan, the genuine EMS is designed to encompass several processes and evaluate numerous potential impacts on environment.

As it comes from the analysis given in the previous paragraph, commitment to systematic approach in the handling of environmental issues was pronounced by most of the sampled companies. However, this initial intention does not mean the implementation of EMS in reality. The adoption of various ISO certifications, their extensions to site-level processes and production facilities as well as environmental indicators improved due to installation of EMS are reported by a limited number of companies. Besides, the quality of reporting is predictably rather poor; even those firms that claimed to have adopted the ISO 14001 and other certifications on their facilities often do not reveal any crucial information.

As it can be seen from the figure below, 14 out of total 32 publicly-owned companies in the sample have announced that they apply EMS certified according to ISO 14001 standards. However, narrower issues often remain undisclosed, so that one can doubt in the real commitment of most companies to sustainable development through implementation of EMS. The analysis of results scored by the publicly-owned companies in evaluation matrix shows that no one of the six supermajors demonstrated compliance with five or six indicators mentioned in this section. Actually, only four sampled corporations provided detailed information on EMS employed in their routine operations.

Figure 18. Analysis of the EMS Indicators Applied by the Sampled Publicly Owned Companies
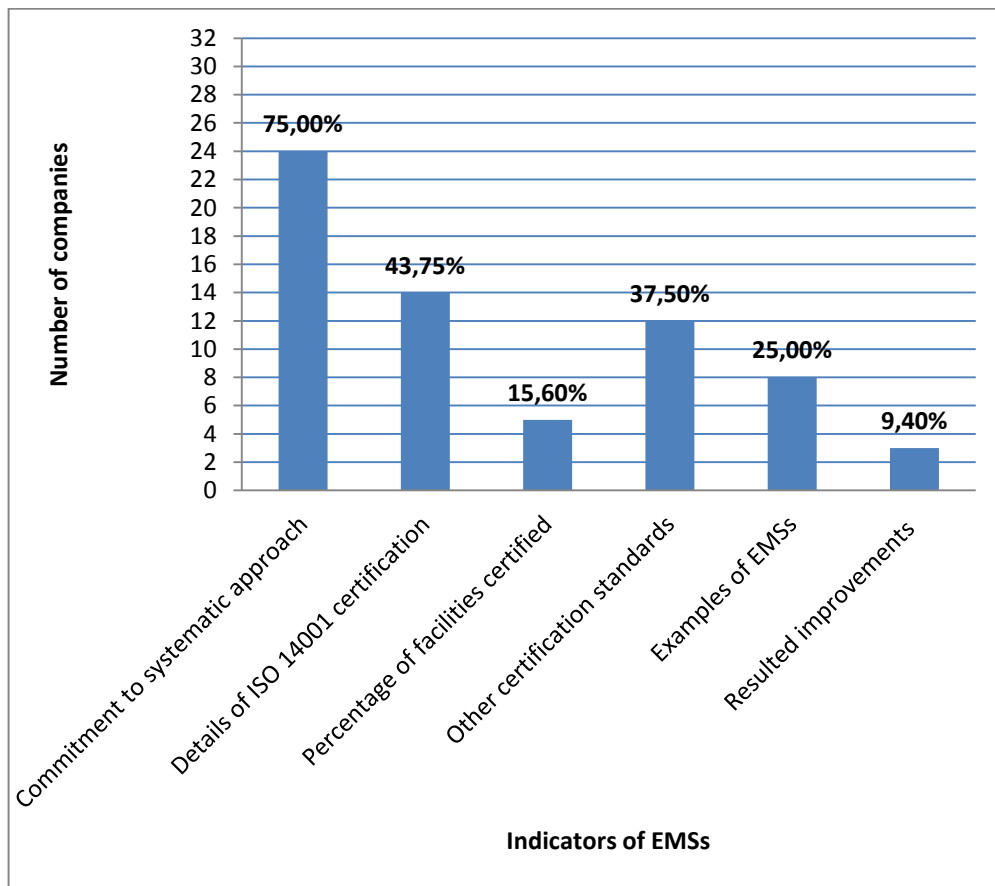
The most thorough description is inherent in sustainability report prepared by Repsol. Besides ISO 14001, its certifications include ISO 14064 which aims in verification of reduction-related activities and is widely used by the company to diminish greenhouse gas emissions, OHSAS 18001 designed to enhance occupational health and safety standards and EN 16001 that contributes to higher efficiency through global and systematic management of energy. Taking into account, that the company has already certified all its major refining and chemical centers to the standard, it is now working on extension of its EMS to deal with transportation, logistics and oil spill prevention strategies. The last point is of special significance, as Repsol seems to be the only publicly-owned entity in the sample that employs proactive approach to prevention of oil spills.

A number of certifications for EMS are reported to have implemented by Eni S.p.A. These ones include ISO 14001 certifications in Italian and foreign facilities including those located in developing countries, ISO 16001, OHSAS 18001 and the Eco-Management and Audit Scheme (EMAS) which is a voluntary environmental management instrument providing verification and

evaluation of the processes involved by independent environmental verifiers as well as a considerable degree of stakeholder engagement. Besides, the company pays sufficient attention at development of vendor management systems in various countries throughout the world where Eni has its activities. Their goal consists in monitoring and spreading the principles of sustainability within the supply chain (e.g., initiating a pilot project on green procurement). However, in spite of this progress with the EMS implementation, the company does not provide any information on improvements resulting from a systematic approach to environmental management. Taking this into account, one can assume that Eni lacks progressive informational systems transforming the site-level information on organizational level.

Figure 19. Analysis of the EMS Indicators Applied by the Sampled State-Owned Companies / Companies with Controlling Stock Owned by State
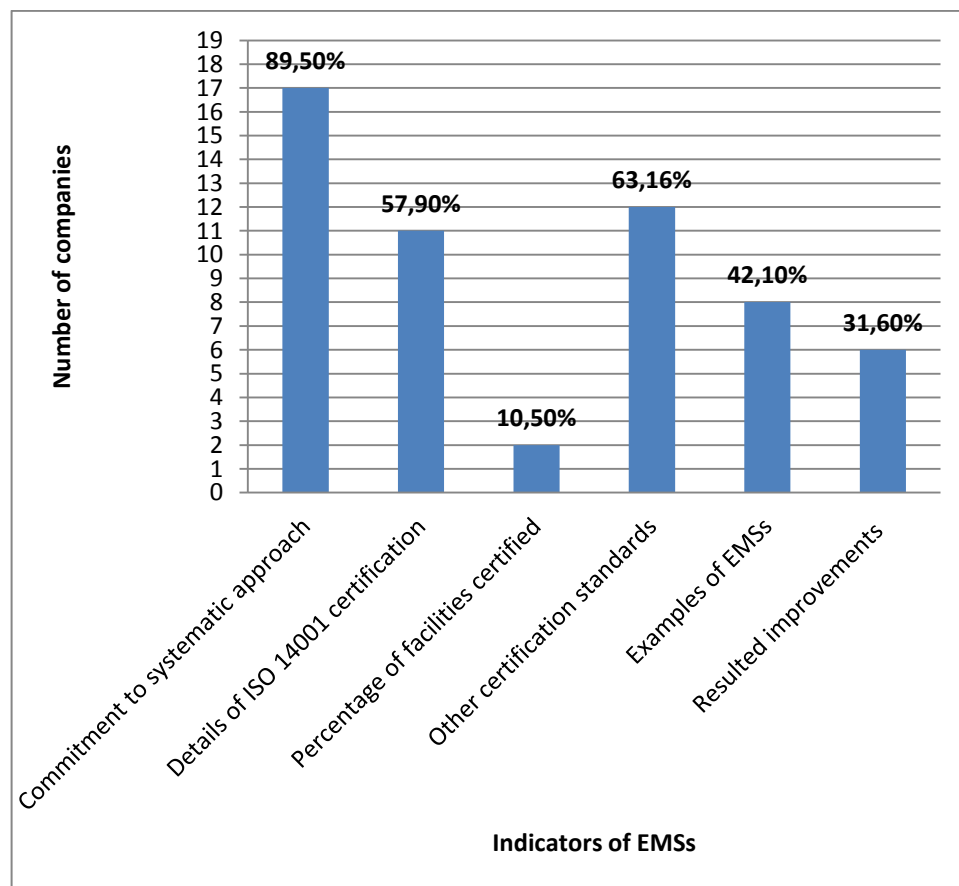
Even a fleeting glance at the data provided in the figure 19 is enough to see that the sampled state-owned companies show substantially higher commitment to sustainable development through implementation of EMS than the publicly-owned ones. For example, ADNOC claims to have implemented EMS certified according to ISO 14001 standards on the majority of its production sites (69.2%). These ones are embedded in a larger group of Health, Safety and

Environment Management Systems (HSEMS) that include ISO 9001 certifications employed to assess the quality of operations and OHSAS 18001 designed to enhance occupational health and safety standards. It is likely to assume that such a systematic approach which combines simultaneously several fields of the company's sustainable performance should bring in higher results. The overall implementation of HSEMS has shown a steady increase from 83% to 89% in 2006 – 2010 in ADNOC and what is even more remarkable, EMS constitute one of the principal parts of this trend. According to results of ADNOC's sustainability reporting, the higher attention is paid at those systems that are aimed in air quality monitoring (the Air Quality Monitoring System was primarily established in 2007). It is designed to include EIMSs (an annually publishing Air Quality Index, which is taken as a measure of overall air quality and a benchmark to compare actual ambient air quality with the primarily stated objectives), EDDSs (a simulation tool to test various scenarios of air pollution and possibilities for their reduction) and an evaluation framework (developing abatement strategies in both efficient and cost-effective manner). However, other environmental indicators such as greenhouse gas reduction, cutting down flaring emissions, renewable energy and energy saving / efficiency initiatives, initiatives to reduce transport impact, material saving procedures, waste management, oil spill preparedness and response as well as various voluntary initiatives are regulated principally as independent environmental plans and rather spontaneous campaigns. Besides, one more deficiency is inherent in the fact that these programs are implemented mainly on the site levels, without a structured organizational movement.

Another company with controlling stock owned by state that showed rather appreciable results for the EMS installation is Gazpromneft. The most interesting detail to mention is that it announced an ultimate objective to devise an integrated management system in the fields of occupational and environmental safety. Currently, this integrated approach is realized as the most advanced level of environmentally responsible management. The company has already developed and launched a project named Azimuth which is a part of the EMIS designed to integrate information in the area of occupational safety, standardization and automation of the management reporting. It is stated in the company's sustainability report published in 2010 that the main objective aims in designing common policies for the multiple production sites of Gazpromneft. This is undoubtedly a better approach, as developing customized programs for each particular site is likely to mute possibilities for appropriate evaluation of an overall organizational performance. Those standards adopted by Gazpromneft include the above mentioned ISO 14001, ISO 9001 and OHSAS 18001. The focus is on the Integrated Risk Management Systems (IRMSs) designed to comprise the Triple Bottom Line issues of

sustainable performance and provide real-time dialogue for the crucial stakeholders including personnel, investors, suppliers, and consumers. However, the final adjustment of EIMSs is projected for the period of 2012 – 2015. Therefore, current tools employed for communication of environmental indicators by Gazpromneft seem to be rather separate and ineffective as they lack a common framework and the unified goals. These circumstances are likely to prevent the company from achieving higher environmental performance but nevertheless those objectives stated in the 2010 sustainability report enable us to believe that it will increase in the near future.

Though it is recognized in the literature that EDDSs play significant role in testing various possible approaches to minimization of negative environmental impacts, prevention of oil, chemical, and other spills, waste disposal and efficient energy use, only several sampled companies mentioned these ones in their sustainability reporting. At the same time, the proliferation of business modeling software designed to simulate dynamic structures on both procedural and organizational levels provides substantial opportunities for the oil and gas producers to enhance their environmental indicators. For example, Monte Carlo Simulation which is generally used in inventory and risk management to evaluate potentials of different scenarios paired can be used for evaluation of installation modifications as well as various process improvements designed with the help of numerous "what if" scenarios. Initially, a similar decision support tool for the maintenance of the offshore located sites was tested by Statoil in 2008. Among other outcomes that were obtained in the course of this analysis was the probability density of oil and gas losses resulting from maintenance procedures and the so called "unforeseen failures" of equipment and production shutdowns. Consequently, the most likely benefits include increased optimization due to installation of a heterogeneous system and a wide potential for more precise scheduling to prevent noxious emissions and dangerous spills (Conn et al. 2010, 733, 742 – 744).

A number of simulation models were designed to control pollutants resulting from gas flaring. For example, potentials to reduce secondary pollutants and their impact on the atmosphere via specifically designed EDDSs are analyzed in the work by Sonibare (2011). More specific predictive models that are designed not as the ultimate EDDSs but rather as the parts of the whole system include dynamic models to determine concentrations of various contaminants resulting from the gas flaring or oil and chemical spills. Testing procedures include mathematical modeling on the basis of physical properties of resulted pollutants and environment as well as numerous "what if" analyses to determine the rates of contamination, dissolution, concentrations at various distances from the epicenter, etc. (Abdulkareem et al. 2009; Riazi & Roomi 2008).

As it can be seen from the analysis of the sampled oil and gas companies, the process of stakeholder engagement is also very slow in many cases. This means that there is also a large room for improvement for the EMISs to adjust information exchange on both inter-organizational level and outside the company. However, it is likely to assume that the future of environmental sustainability will be shaped by the integrated management systems that are aimed in integration of the EMSs proper (both EDDSs and EMISs) as well as Health and Safety Management Systems (HSMS).

The discussion above supported by examples of companies in the sample corroborates hypothesis three saying:

> H3: *Though the EMSs are understood as the only dedicated way to environmental sustainability, there is a lack of integrity in their structure and certification standards.*

Projections for an integrated approach to the EMS implementation were made however by Gazpromneft and Eni, but as these companies have declared their inclination to the integrated management systems not long ago, it is still early to speak of results of their performance. A good example is represented by the Kongsberg Integrated System (K-LINE) which is described as a distributed monitoring and control system. It claims to be of special applicability because of its flexible and open architecture to resolve a wide range of control tasks for the oil and gas industry. Being tailored to supervise and enhance the sustainability of oil and gas operations, K-LINE is designed to include systems on five levels (Kongsberg 2011):

- K-PRO (process and control applications, gas processing systems, power systems, utility and auxiliary systems, subsea control systems)
- K-SAFE (process shutdown systems, emergency shutdown systems, fire and gas detection)
- K-IMS (information management systems)
- K-CHIEF (marine applications)
- K-POS (position mooring).

The scheme above demonstrates how the initial framework for the EMS implementation can be extended on the basis of the survey findings. Here, integration of strategic and structural precautions is treated as a basic precondition for development of the integrated EMS. Other

significant factor is represented by cooperation of a cognitive dimension expressed through intrinsic interest of the company management in CSR and multiple internal competencies accrued within a business organization (e.g. personal experience, physical resources, knowledge management, data management, quality and safety management, process control, dedicated applications, etc.).

Figure 20. Gaining Sustainable Competitive Advantage through Implementation of the Integrated EMS in the Oil and Gas Industry
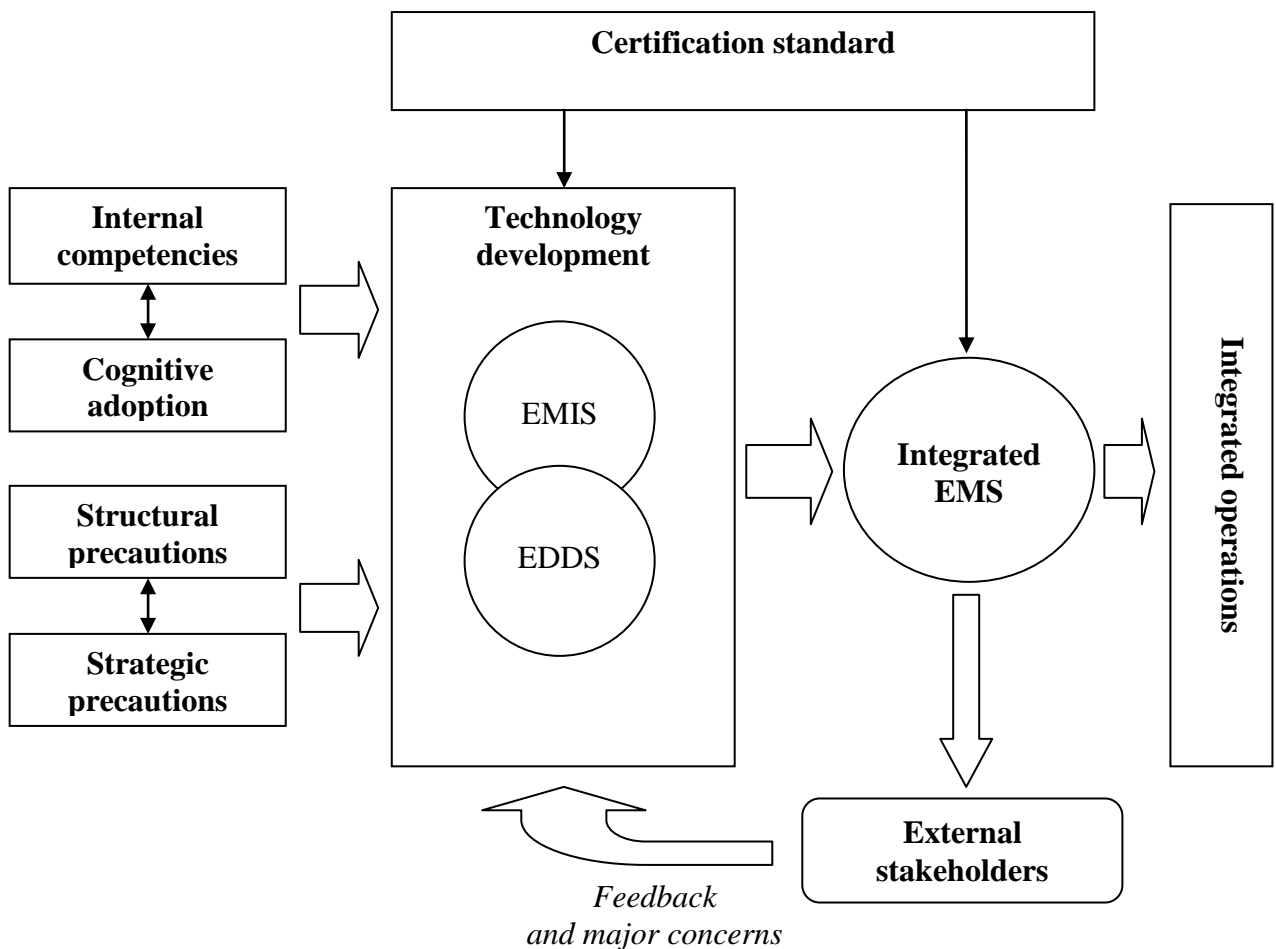
Taking into account the above-mentioned deficiencies that are inherent in the current certification standards and first of all ISO 14001, it is reasonable to deduce that the new standards should be developed to enhance control procedures and encompass more issues of the integrated management systems. Effective stakeholder engagement due to improved information flow and simultaneous control over different operations of the oil and gas industry such as exploration, drilling, onshore and offshore production, refinement and transportation are treated as the basic advantages of the integrated EMS.

4. Conclusions

The analysis of non-financial reporting provided by the oil and gas companies revealed a number of areas for the further improvement. Incompleteness of environmental information, slow stakeholder engagement and the lack of common framework in the process of the EMS implementation are identified as the major obstacles to achievement of environmental sustainability. Even those companies that showed rather decent results for compliance with the metrics of evaluation matrix demonstrate substantial problems in attaining goals of sustainable development. As a basic way to eliminate current deficiencies, the research suggests better integration of existing forms of EMSs embedding these ones deeper in the corporate values. The resulted system should be more efficient in resolving the environmental issues facilitating the potential to innovation and combining both structural and strategic precautions that follow from the framework on environmental dimensions of CSR provided in the first chapter of this work (Ozen and Kusku 2008, 299 – 300).

In the theoretical justification of EMSs, their adoption by companies is explained by intrinsic interest of the company management in anticipating regulatory mechanisms and thus reinforcing company's leadership position in the industry through the radical innovation and accumulated environmental capital (El-Gayar and Fritz 2011, 14). This position is proved by Edwards and Darnall who claim that the EMS can be represented as "a collection of internal efforts at policy making, assessment, planning, and implementation" that has "a voluntary self-regulation structure" (Edwards and Darnall 2010, 422 – 423).

To answer the research question, the initial framework that is designed to provide a link between different forms of EMSs, stakeholder engagement and sustainable competitive advantage was adjusted according to the findings of the survey. The adoption of a unified certification standard and extension of a single system to encompass various processes and sites of the company were identified as the next important step in sustainable development of the oil and gas companies.

Thus, it can be said that the purpose of the EMS implementation consists in designing of an effective structural precaution that contributes to sustainable development through the incremental environmental capital growth and continuous improvement process expressed in arrangement of favorable conditions for the radical innovation, increased environmental accountability and enhanced performance management. Nowadays, the potential benefits of EMS are often limited to a particular facility or process, so that it is impossible to extrapolate the

achieved results to the whole company. Therefore, integration of the multiple structural and strategic precautions in a single EMS designed to satisfy the unified certification standard is of special significance in providing sufficient ability for further improvement on both company and local levels.

4.1. Implications for Management

This thesis identified that the current approach of the oil and gas companies to environmental sustainability is rather limited in most cases. Their adherence to reactive and sporadic activities aimed at reduction of negative consequences rather than elimination of environmental risks and their reasons reveals the lack of cognitive adoption on the management level. In spite of the high costs and increased knowledge intensity that are often tied with proactive approach to environmental issues, there is no other way to sustainable competitive advantage than the integration of the multiple strategic and structural precautions applied in a certain company in a single EMS. Moreover, the existing attitudes of managers and employees should be also revised, as only the intrinsic interest in CSR can contribute to achievement of desired outcomes.

To improve performance management and enhance the overall control, several KPIs can be proposed to measure the approach to environmental sustainability:

- Proportion of reduced environmental impact due to implementation of EMS as compared to the previous results shown by the company
- Involvement of the company management and employees in environmentally-conscious activities
- Completeness of environmental indicators disclosure in the stakeholder-oriented reporting

The first KPI stems from the points that are currently disclosed in the companies' non-financial reports including the percentage of reduced greenhouse gas and other noxious emissions, advancements in waste management and water consumption rates achieved for a certain year. In the case of an integrated EMS comprising several local sites and processes, the focus should be not only on some separate improvements but on enhancement of the overall environmental performance. Thus, current KPI is intended to measure the degree of efficiency of an integrated EMS taken as the most advanced source of sustainable development.

At the same time, the second KPI evaluates the cognitive adoption of environmental responsibility by company management and employees. According to the theoretical findings cited in the first chapter, it is interpreted as the highest adoption level comprising the two lower stages (namely regulative and normative ones) and reflecting the intrinsic attitude to CSR (Ozen & Kusku 2008, 300; Hirsch 1997, 48). As it comes from the survey of oil and gas companies in the sample, most of them can be positioned as involving regulative (expressed through implementation of the legislatively prescribed techniques and actions) or normative dimension (realizing those activities that are expected as appropriate behavior by other actors in the industry). Though commitment to a systematic approach to environmental management is claimed by 80% of the total sampled companies, the real inclination to going beyond compliance which is implied by the EMS implementation is rather insufficient as demonstrated by evaluation of other indicators in this section. According to results of both the survey and theoretical analysis, one can assume that the cognitive adoption of environmental responsibility can be realized as the major driver of sustainable development in the oil and gas industry. Consequently, it can be measured by multiple indicators such as involvement of employees and managers in environmental trainings as compared to the total working hours, percentage of voluntary environmental activities, etc.

Finally, the third KPI reflects the results obtained in evaluation of environmental indicators on the basis of a quality – quantity matrix. The completeness of voluntary disclosures realized by companies is of special significance in understanding their real inclination to sustainable development. Low quality corresponding to disclosure of most indicators is likely to indicate insufficient attention paid by the oil and gas companies to proactive elimination of respective problems. Therefore, the implementation of this KPI is likely to enhance the overall performance and stakeholder management.

4.2. Projections for Further Research

There is a large room for further research identified in this thesis. First of all, projections can be made in relation to those assumptions that were stated on the basis of a literature review, but the survey proved to be insufficient in distinguishing their soundness. For example, one cannot say resolutely that the regional or national factors do not provide substantial impact on the companies' attitude to CSR. Though the survey has not revealed any sustainable linkages needed

for the fundamental generalizations, it was identified that those companies originated from the Arab countries with high power distance are reluctant to disclosure of their corporate governance structure. The US-based companies are in turn rather sporadic in disclosing the environmental indicators as their reporting is regulated by the Form 10-K guidelines that are not adjusted enough to communication of these issues.

One more statement for further research is created by assumption that the oil and gas companies are less inclined to apply CSR initiatives in developing countries. This mention was repeatedly expressed in existing literature. For example, the research carried out by Gouldson (2006) for both the EU and US-based companies found that some noxious emissions tend to be higher in refineries located in poorer areas (Gouldson 2006, 410 – 411). Among other variables that are likely to influence environmental performance of the oil and gas companies, one can mention different levels of income, employment and population density. However, as the oil and gas companies do not provide sufficient information in their non-financial reports, it seems to be impossible to investigate various possible correlations between emission rates and location of companies' operations.

One more detail that should be considered in the course of further research relates to construction of a framework designed to measure the accountability of non-financial reporting. Taking into account that sustainability reports provided by some state-owned companies were judged as being unreliable due to the lack of sufficient internal control, this point is identified as being of special significance. Besides, its importance is likely to increase in the future because of existing trend to integrated reporting of the companies' results instead of publishing separate sustainability and annual reports. Thus, a model for testing accountability should be devised as a major precondition for the further reliable research in this area.

Cost structure of the EMS implementation is another significant issue for a thorough exploration, as many companies demonstrate rather slow adoption process due to higher costs for going beyond compliance that are likely to occur in result. In spite of some research that was made in this area (Darnall and Edwards, 2006), it is still unclear how these costs can be reduced, if there is any impact of the company ownership on the cost structure, etc. Besides, there is a wide range of new problems and potentials that will probably arise from adoption of the integrated EMS. Being irrelevant to the goal of this thesis, they should be analyzed later in a more specific way.

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Appendices

Appendix 1

Table 1. List of Oil and Gas Companies in a Sample

Company name	Country of Origin	Geographical Footprint	Sales Revenues (US $ million)	Total Proved Reserves[1]	Sources of Non-Financial Reporting Reviewed
Public Owned Companies					
1. Anadarko Petroleum Corporation (NYSE: APC)	USA	USA, Brazil, Algeria, West and East Africa, Indonesia, China, New Zealand	13,882 (2011) 10,842 (2010)	Gas: 8,365 Oil: 771 Oil and gas: 2.3	Annual report (2011), environment fact sheet (2011)
2. Apache Corporation (NYSE: APA)	USA	Canada, USA, Argentina, Egypt, North Sea, Australia	16,888 (2011) 12,092 (2010)	Gas: 9,722 Oil: 1,162 Oil and gas: 2.9	Annual report (2011), sustainability report (2011)
3. Australian Worldwide Exploration Ltd. (ASX: AWE)	Australia	Australia, New Zealand, USA, Argentina, Indonesia, Yemen	304.87 (2011) 354.161 (2010)	Gas: 252.2 Oil: 18.6 Oil and gas: 0.065	Annual report (2011), sustainability report (2011
4. Bashneft (MICEX-RTS: BANE)	Russian Federation	Russian Federation	13,341 (2010) 6,775 (2009)	Oil: 2,947.2	Annual report (2010), sustainability reports (2009,

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[1] Estimates of proved reserves are provided in billion cubic feet (Bcf) for natural gas and in millions of barrels (MMBbls) for oil, condensate, and NGLs. For oil and gas together information is provided in billion barrel of oil equivalent (BBOE).

5. BG Group plc (LSE: BG)	United Kingdom	USA, South America, UK, Italy, Norway, Africa, Central and East Asia, Australia (25 countries totally)	21,073 (2011) 17,166 (2010)	Gas: 12,854 Oil: 1,105.4 Oil and gas: 3.4	Annual report and accounts (2011), sustainability report (2011)
6. British Petroleum (LSE & NYSE: BP)	United Kingdom	Over 80 countries	386,463 (2011) 308,928 (2010)	Gas: 41,659 Oil: 10,166 Oil and gas: 17.748	Annual review (2011), sustainability review (2011)
7. Canadian Natural Resources Ltd. (TSX & NYSE: CNQ)	Canada	North America, North Sea, offshore Africa	15,507 (2011) 14,322 (2010)	Gas: 6,101 Oil: 3,720 Oil and gas: 4.83	Annual report (2011), stewardship reports to stakeholders (2009, 2010)
8. Chevron Corporation (NYSE: CVX)	USA	USA, South America, Africa, Europe, Middle East, South and East Asia	253,706 (2011) 204,928 (2010)	Gas: 28,683 Oil: 6,455 Oil and gas: 11.2	Annual report (2011), Corporate Responsibility Report (2010)
9. ConocoPhillips Company (NYSE: COP)	USA	North America, Europe, Africa, Russia, Middle East, Asia Pacific	251,226 (2011) 198,655 (2010)	Oil and gas: 8.3	Annual report (2011), sustainable development reports for Alaska, Australasia and China (2010 –

			2011)		
10. Devon Energy Corporation (NYSE: DVN)	USA	USA, Canada	9,940 (2010) 8,015 (2009)	Gas: 10,283 Oil: 681 Oil and gas: 2.6	Annual report (2010), Corporate Responsibility Report (2008 – 2009)
11. Encana Corporation (TSX & NYSE: ECA)	Canada	Canada, USA	8,467 (2011) 8,870 (2010)	Gas: 13,411 Oil: 133.0 Oil and gas: 2.6	Annual report (2011), Corporate Responsibility Report (2010)
12. Eni S.p.A. (BIT: ENI, NYSE: E)	Italy	Europe, Africa, Americas, Asia and Oceania (79 countries)	142,740 (2011) 128,326 (2010)	Gas: 20,282 Oil: 3,434 Oil and gas: 7.1	Annual report (2011), Sustainability performance report (2010)
13. EOG Resources (NYSE : EOG)	USA	USA, Canada, Argentina, Trinidad and Tobago, UK, China	10,126 (2011) 6,099 (2010)	Gas: 7,851 Oil: 517 Oil and gas: 2.0	Annual report (2011)
14. Exxon Mobil Corporation (NYSE: XOM)	USA	Over 45 countries	486,429 (2011) 383,221 (2010)	Gas : 71,978 Oil : 11,700 Oil and gas : 24.8	Annual report (2011), Corporate Citizenship Report (2010)
15. Hess Corporation (NYSE : HES)	USA	USA, Brazil, Europe, Africa, South Asia, Australia	38,466 (2011) 33,862 (2010)	Gas: 2,423 Oil: 1,169 Oil and gas: 1.6	Annual repot (2011), Sustainability reports (2010, 2009)
16. Lukoil	Russian	Over 40	133,600	Gas:	Annual report

(MICEX-RTS: LKOH, LSE: LKOD, FWB: LUK)	Federation	countries	(2011) 104,956 (2010)	21,626 Oil: 13,319 Oil and gas: 17.3	(2010), Sustainability report (2009 – 2010)
17. Marathon Oil Corporation (NYSE: MRO)	USA	USA, Norway, Equatorial Guinea, Poland, Angola, Iraq	14,663 (2011) 11,690 (2010)	Gas: 2,666 Oil: 1,356 Oil and gas: 1.8	Annual report (2011), CSR report (2009)
18. Murphy Oil Corporation (NYSE: MUR)	USA	USA, Canada, Malaysia, UK, Republic of the Congo	27,689 (2011) 20,226 (2010)	Gas: 1,106 Oil: 349.7 Oil and gas: 0.55	Annual report (2011)
19. Newfield Exploration (NYSE: NFX)	USA	USA, offshore China and Malaysia	2,471 (2011) 1,883 (2010)	Gas: 2,333 Oil: 263 Oil and gas: 0.688	Annual report (2011)
20. Nexen Inc. (TSX & NYSE: NXY)	Canada	Canada, USA offshore, Columbia, UK, Nigeria, Yemen	6,464 (2011) 5,819 (2010)	Gas: 687 Oil: 893 Oil and gas: 1.02	Annual report (2011), sustainability report (2010)
21. Occidental Petroleum Corporation (NYSE: OXY)	USA	USA, Middle East, North Africa, Latin America	24,104 (2011) 19,156 (2010)	Gas: 5,323 Oil: 2,288 Oil and gas: 3.26	Annual report (2011), Social responsibility report (2010)
22. Petrom Group (BVB: SNP)	Romania	Romania, Kazakhstan	5,595 (2010) 4,835 (2009)	Gas: 2,102 Oil: 443 Oil and gas: 0.83	Annual report (2010), Sustainability reports (2009, 2010)
23. Pioneer Natural Resources (NYSE: PXD)	USA	USA, Tunisia, South Africa	2,786 (2011) 2,382 (2010)	Gas: 2,531 Oil: 641 Oil and gas: 1.06	Annual report (2011)

24. Premier Oil (LSE: PMO)	Great Britain	North Sea, Egypt, Pakistan, Vietnam, Indonesia	764 (2010) 621 (2009)	Gas: 960 Oil: 92 Oil and gas: 0.26	Annual report (2010), Social Performance report (2011, 2009 – 2010)
25. Repsol YPF, S.A.	Spain	Americas, Europe, Africa, Russia, Middle East, Kazakhstan, Australasia	79,423 (2010) 64,443 (2009)	Gas: 2,528 Oil: 532 Oil and gas: 0.99	Annual report (2010), Financial statements (2011), Corporate Responsibility report (2010)
26. Royal Dutch Shell plc (LSE: RDSA, NYSE: RDS.A)	Netherlands, UK	Europe, Middle East, Russia, Kazakhstan, China, Indonesia, Australasia, Africa, Americas	470,171 (2011) 368,056 (2010)	Gas: 47,662 Oil: 6,048 Oil and gas: 14.7	Annual report (2011), Sustainability report (2011)
27. Russneft	Russian Federation	Russia	6,867 (2010) 5,328 (2009)	Gas: 880 Oil: 1,607 Oil and gas: 1.77	Annual report (2010, *available only in Russian*)
28. Surgutneftegas (MICEX-RTS: SNGS, LSE: SGGD)	Russian Federation	Russia	20,186 (2010)	N/A	Annual report (2010), Environmental report (2010)
29. Talisman Energy Inc. (TSX: TLM, NYSE: TLM)	Canada	Southeast Asia, Americas, North Sea, Middle East	8,272 (2011) 6,982 (2010)	Gas: 5,817 Oil: 518.0 Oil and gas: 1.58	Annual report (2011), CSR reports (2009, 2010)

30. TNK-BP (MICEX-RTS: TNBP)	Russian Federation	Russia, Venezuela, Ukraine, Vietnam	44,646 (2010) 34,753 (2009)	Gas: 4,945 Oil: 8,700 Oil and gas: 9.6	Annual review (2010), Sustainability report (2010)
31. Total S.A. (Euronext: FP, NYSE: TOT)	France	Africa, Americas, Asia-Pacific, Azerbaijan, Russia, Europe, Middle East	218,897 (2011) 184,628 (2010)	Gas: 30,753 Oil: 5,826 Oil and gas: 11.42	Annual report (2011). Registration document (2011), Society and environment report (2010)
32. Tullow Oil plc (LSE: TLW)	UK	UK, Netherlands, Africa, South America, Pakistan, Bangladesh	2,304 (2011) 1,090 (2010)	Gas: 321.7 Oil: 542 Oil and gas: 0.6	Fact Book (2011), Corporate Responsibility report (2010)
State Owned Companies or Companies with Controlling Stock Owned by the Government					
1. Abu Dhabi National Oil Company (ADNOC)	United Arab Emirates (UAE)	United Arab Emirates (UAE)	N/A	N/A	Sustainability reports (2009, 2010)
2. Bharat Petroleum Corporation Ltd. (NSE: BPCL)	India	India, Australia, Indonesia, East Timor, UK, Mozambique, Brazil	30,245 (2011) 25,018 (2010)	N/A	Annual report (2010 – 2011), sustainable development report (2009 – 2010)
3. China National Petroleum Corporation (CNPC)	China	China, Russia, Central and South Asia, Australia, France, UK, Northern and	240,192 (2011) 13,865 (2010)	Gas: 20,833 Oil: 4,108 Oil and gas: 7.9	Annual report (2010)

		Central Africa, Canada, South America,			
4. Ecopetrol (BVC: ECOPETROL, NYSE: EC, TSX: ECP)	Colombia	Colombia, Gulf of Mexico, Brazil, Peru	20,624 (2010) 15,568 (2009)	Gas: 2,297 Oil: 1,152 Oil and gas: 1.57	Annual report (2010), Sustainability report (2010)
5. Gazprom (MICEX-RTS: GAZP, LSE: OGZD, FWB: GAZ)	Russian Federation	Russia, Central Asia, Algeria, Venezuela, Vietnam	123,356 (2010) 105,056 (2009)	Gas: 670,660 Oil: 5,019 Oil and gas: 127.1	Annual report (2010), Environmental report (2010)
6. Gazprom Neft (MICEX-RTS: SIBN, FWB: SCFF, LSE: GAZ)	Russian Federation	Russia, Cuba, Equatorial Guinea, Iraq	32,772 (2010) 24,166 (2009)	Gas: 6,511 Oil: 6,441 Oil and gas: 7.6	Annual report (2010), Sustainability report (2010)
7. Korea National Oil Corporation (KNOC)	South Korea	Vietnam, Peru, Indonesia, Nigeria, Yemen, Kazakhstan, Russia, Canada, South Korea	2,226 (2010) 1,581 (2009)	Oil and gas: 1.13	Annual report (2010), Sustainability report (2010)
8. Kuwait Petroleum Corporation (KPC)	Kuwait	Kuwait	84,911 (2010) 99,512 (2009)	N/A	Annual report (2010), publication of Environment department (2009)
9. Petrobras (NYSE: PBR, PBRA)	Brazil	Americas, Africa, Europe, Middle East,	145,915 (2011) 120,052	Gas: 2,600 Oil: 13,400 Oil and	Sustainability report (2010)

		East Asia, Australia, New Zealand	(2010)	gas: 13.9	
10. PetroChina Company Ltd. (SEHK: 0857, NYSE: PTR)	China	Asia-Pacific. Middle East, Central Asia, North and Central Africa, UK, France, Canada, South America	221,570 (2010)	Gas: 66,653 Oil: 11,128 Oil and gas: 23.3	Summary of the annual report (2011), Sustainability reports (2010, 2011)
11. Petronas	Malaysia	Asia-Pacific, South Asia, Middle East, Central Asia, Europe, Africa, Americas	78,696 (2011) 68,777 (2010)	Gas: 46,747 Oil: 4,689 Oil and gas: 13.197	Annual report (2011), Sustainability report (2011)
12. PTT Public Company Ltd.	Thailand	South East Asia, Australasia, North Africa, Middle East, Canada (13 countries)	8,605 (2011) 8,590 (2010)	Gas: 3,835 Oil: 272 Oil and gas:0.97	Fact Sheet (2011), CSR report (2007, 2008)
13. Qatar Petroleum (QP)	Qatar	Qatar	51,653 (2011) 32,456 (2010)	N/A	Annual report (2010), Corporate Profile (2011)
14. Rosneft (MICEX-RTS & LSE: ROSN)	Russian Federation	Russia	91,975 (2011) 63,047 (2010)	Gas: 17,780 Oil: 13,116 Oil and gas: 16.35	Financial statements (2011), Sustainability reports (2009, 2010)

15. Saudi Aramco	Saudi Arabia	Saudi Arabia	N/A	Gas: 279,000 Oil: 260,100 Oil and gas: 310.88	Annual review (2010), Sustainability report (2010)
16. Sinopec Ltd. (SSE: 600028, NYSE & LSE: SNP)	China	China, Gabon, Sudan, Ethiopia, Canada, Brazil	273,420 (2011)	Gas : 6,709 Oil : 2,848 Oil and gas : 4.07	Annual report (2011), Sustainable Development report (2011)
17. State Oil Company of Azerbaijan (SOCAR)	Azerbaijan	Azerbaijan	7,039 (2011) 5,344 (2010)	N/A	Annual report (2010)
18. Statoil ASA (OSE: STL, NYSE: STO)	Norway	Americas, Europe, Russia, Africa, Middle East, Central Asia, India, Asia-Pacific	116,744 (2011) 92,305 (2010)	Gas: 17,681 Oil: 2,276 Oil and gas: 5.5	Annual and sustainability reports (2011, 2010)
19. Tatneft (MICEX-RTS: TATN, FWB: TTFB)	Russian Federation	Russia, Angola, Iran, Saudi Arabia, Oman, Syria, Central Asia	8,723 (2010) 7,638 (2009)	Gas: 27.2 Oil: 6,608 Oil and gas: 6.6	Annual report (2010)

Appendix 2

Analysis of Non-Financial Reporting Measured by Compliance to Selected Indicators of GRI Guidelines

Indicators of sustainability disclosure	Publicly Owned Companies (32)	State Owned Companies (19)
1. Inclination to sustainable development		
1) Presence of a separate report dedicated to sustainable development issues (0 – 1)	81.3%	68.4%
2) Statement of commitment to sustainable development (0 – 1)	84.4%	89.5%
3) CEO letter of commitment to sustainability (0 – 1)	75.0%	63.2%
4) Compliance with GRI principles (0 – 1)	65.6%	52.6%
Subtotal	**75.8%**	**68.4%**
2. Stakeholder management		
5) Commitment to stakeholder participation (0 – 1)	81.3%	84.2%
6) Identification of major stakeholders and a basis for their selection (0 – 1)	56.3%	52.6%
7) Mechanisms of communication with stakeholders / feedback control (0 – 1)	62.5%	42.1%
8) Type of information obtained from stakeholders (0 – 1)	28.1%	31.6%
9) Use of stakeholder information (0 – 1)	59.4%	47.4%
Subtotal	**57.5%**	**51.6%**
3. Environmental performance		
10) Structured data on environmental impact improvement during some period of time (0 – 1)	81.3%	68.4%
11) List of materials used in production (0 – 1)	3.1%	0
12) Approaches to waste management and recycling (0 – 1)	81.3%	84.2%
13) Report on all energy sources and use (0 – 1)	40.6%	47.4%
14) Energy efficiency initiatives (0 – 1)	84.4%	84.2%

15) Report on water usage (0 – 1)	65.6%	94.7%
16) Participation in programs aimed at minimizing negative effect on ecosystems (0 – 1)	75.0%	63.2%
17) Report on ecosystems affected by exploration, production, etc. (0 – 1)	31.3%	21.1%
18) Report on annual withdrawals of ground and water (0 – 1)	34.4%	26.3%
19) Policies on protecting and restoring damaged lands or other natural resources (0 – 1)	65.6%	63.2%
20) Report on greenhouse gas emissions (0 – 1)	75.0%	63.2%
21) Report on emissions from gas flaring and other possible air emissions by substance (0 – 1)	62.5%	63.2%
22) Commitment to policies aimed at implementation of hazard communication programs, appropriate storage and disposal of hazardous wastes (0 – 1)	62.5%	42.1%
23) Report on hazardous materials applied by company in exploration, production, or other processes (0 – 1)	6.3%	0
24) Discharges to water by type (oil seeps, spills, etc.) (0 – 1)	46.9%	21.1%
25) Oil spill prevention and response plans (0 – 1)	87.5%	42.1%
26) Significant oil, chemical and other spills with indication of exact amount, type of contaminants and pollution damage (0 – 1)	31.3%	15.8%
27) Implementation of green procurement strategies / suppliers' compliance with environmental policies (0 – 1)	46.9%	26.3%
28) Reducing pollutions caused by transportation vehicles (0 – 1)	50.0%	47.4%
29) Report on environmental expenditures by type (0 – 1)	37.5%	42.1%

30) Report on fines levied due to incompliance with environmental principles or violations (0 – 1)	28.1%	26.3%
31) Report on voluntary environmental activities and improvements (0 – 1)	53.1%	5.3%
Subtotal	**52.3%**	**43.1%**
4. Environmental management systems (EMS)		
32) Commitment to systematic approach towards environmental management (0 – 1)	75.0%	89.5%
33) Details of ISO 14001 certification (0 – 1)	43.8%	57.9%
34) Percentage of facilities certified according to ISO 14001 by type (0 – 1)	15.6%	10.5%
35) Other certification standards applied by company (0 – 1)	37.5%	63.2%
36) Examples of EMSs installed by company (0 – 1)	25.0%	42.1%
37) Report on improvements made due to implementation of EMSs (0 – 1)	9.4%	31.6%
Subtotal	**34.4%**	**49.1%**
Total points	**52.7%**	**47.5%**