The Companies and the Climate Change: Differences between Perceptions and Practices

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Abstract: The companies are taking action in response to the increasing number of regulations related to the climate change, but also in anticipation to the future developments of public actions in this domain. For the operating companies, the fight against the climate change can also result in investments and business opportunities through, among others, in a more efficient use of the natural resources and the energy, less waste, streamlining logistics, diversification of energy sources, acquisition of advantageous positions on the market and introduction of new means of participation of the consumer and the provider. This article examines the steps taken by EU companies in the current context, conditioned by the public objectives regarding the climate change. The paper concludes that the efforts in eco innovation are led by developed small and medium enterprises and are still mainly concentrated in correction measures of environmental damagers than preventive ones.

Keywords: public actions; investments and business opportunities; small and medium enterprises

JEL Classification: G15

1. Introduction

The latest globalization so radically redesigned "in a world of companies" giving them a fundamental impact on the business environment and thus the entire economy. Increasingly fierce competition and rapidly changing technology that lead to business today face increasing pressure in terms of preparing tenders for goods and services. It is becoming more and more difficult for companies to enter the market with a new and innovative, environmentally friendly idea and meet the customer's demands.

Secondly, the knowledge revolution and the striking manifestation of multiple mutations produced in the world economy have prompted the policy makers, particularly in the more developed countries, to face these realities from a pragmatic perspective. The idea that the company should sponsor an initiative in order to improve the living conditions of the individuals is an outdated pattern of

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thinking. But since initiatives also have an economic impact, created by the added value, the investors may as well be attracted.

The climate change confronts companies with new risks and new opportunities. The intensification of the emissions regulations weighs heavily on the issuing companies who face penalties and lawsuits unless they comply. The measures that affect prices of GHG emissions have an effect on the production costs and decrease the value of the companies that do not act in this field. Given the growing awareness of the society to the climate change, these companies may find their image tarnished. A growing number of the companies integrate the fight against climate change in their overall strategy. A recent survey among the CEO of companies of the Fortune 500 index revealed that 70% of the 130 respondents believe that the climate change will be a key element in their business decisions in the next five years.[1]

Pioneering companies have begun to take action against climate change as early as the '90s. Since 2005, companies' efforts to reduce emissions have become widespread, a development that was largely triggered by the implementation of the Community system of trading emission quotas. Besides compliance with the current regulations and anticipating future developments, companies manage their greenhouse gas emissions under the energy cost reduction plans with regard to the diversification strategies of fossil fuels, to conquer new business markets and foster their reputation. They also lend greater attention to the expectations of the investors and consumers, and are well aware that it is useful to influence the debate on policies against climate change at both international and national level.[2]

For many companies, participation in discussions regarding the policies against climate change is a natural part of their strategy: any regulatory policy on GHG emissions will define the rules and change the competitive landscape, which promote certain sectors, activities and businesses. To maintain some control over their part of future activity, companies find it useful to monitor and anticipate the envisaged measures (Hoffman & Woody, 2008).

The technology transfer plays a central role in the international fight against the climate change architecture. As fundamental pillars of the development of clean technologies, companies are expected to help the countries where they operate to meet their needs to develop technological and innovation capacities, i.e, share skills and train local staff to their development design and use of clean technologies.

Looking ahead to 2020, the projection of greenhouse gas emissions based on existing policy measures of the Member States, The EU's TV is on track to achieve the target of 2020. However, it can also be considered as already existing and

[1] http://www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=Mzc2ODA.
[2] http://dx.doi.org/10.1787/9789264090255-fr.

measures not enough to put the EU on track to meet the goal of 40% reduction of GHG for the next decade until 2030 as planned[1].

Romania has already been affected by the climate change. IPCC projections indicate that the climate is getting warmer during this century at least in line with the global projections and precipitation patterns will move and there will be wetter winters and drier summers. In 2007 already, Romania experienced the warmest year in two decades (average temperature of 11.5° C against an average of 25 years of 8.4 ° C) 2.3 and the most severe drought over the past 60 years, while in 2005 there were historical floods, which caused 76 deaths and property damages. The effects of these extreme weather events affected the country in significant economic losses in agriculture, transport, energy supply and water management. Consequently, mitigation and adaptation to the climate change are top priorities for Romania.

At a regional level, the Central Region is the first Romanian region to begin to develop a regional policy on climate change, on the basis of a program funded by the Norwegian EEA grants (RO 07). The program supports the local authorities in three municipalities of the central region of Romania in their implementation of the current legislation on climate change by developing strategies and plans on adaptation to climate change. The program will also support the implementation of meteorological studies on regional and local climates. In addition, the program will test adaptation solutions to climate change for the transport, energy and construction. The program beneficiaries are decision makers and both regional and local decision-making authorities, the research community and education, NGOs, civil society and the general public.

To compete effectively in the development of a low carbon economy, EU companies need to act outside their immediate borders. In this context, companies must focus on four areas as part of their emission reduction strategy: 1) they can achieve substantial multiplier effect through the dissemination of their disclosure practices and reduce all emissions throughout the Supply Chain; 2) a change in the consumer's behavior is essential for the GHG emissions reduction measures to be successful, the companies plan to increase interventions to consumers more often in their strategies against the climate change. They can also extend their action by other means: 3) by participating in the policy development and 4) by assisting the transfer of technology and skills.

[1] European Commission, European Council Conclusions 23 and 23 October 2014 http://www.google.ro/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjj452u7trOA hUHPRQKHfUGCPEQFggaMAA&url=http%3A%2 F% 2Fwww.consilium.europa.eu 2Fuedocs%%% 2Fcms_data 2Fdocs% 2Fpressdata 2Fen 2Fec%%% 2F145397.pdf & usg= AFQjCNECPJHGfWoLyYoq9QJx-o61-NqJ4g & sig2 = xd8nSbs2rDwZSW8MWMHhZA.

If the current economy continued to unfold in a black-white scenario, the contradictions of the existing model would generate, undoubtedly, a large-scale collapse in all areas of society. Through our analysis, we will try to answer some key questions as: Why companies should fight against climate change? The greenhouse effect is presented as the product of a natural phenomenon or would it be that the companies are 'guilty' due to their facts and actions? What is the role of Europe in this world of constantly changing companies? How did the climate change reached to this powerful interaction between ethics and business?

One possible answer could be that to find the answer we usually share three concepts that are closely related: morality, ethics and deontology.[1]

This article examines the measures taken by EU companies in the current context (yet evolving) conditioned by the public objectives on climate change. This paper is organized into four sections. The first section contain the introduction and an overview of the conceptual framework for the study. The next two sections describe the construct and hypotheses' development and research methodology, with associated findings. The final section provides a discussion of the results, the relevance of this research to literature and presents the conclusions and recommendations reached from the study.

2. Companies and Climate Change: the Design of our Future

The companies are the most important agents of the economic and technical progress. By bringing material progress, they create favorable conditions for the emergence of other progress. It is a fact that we cannot question.

The easiest targets for GHG reduction are the improving of energy efficiency (by enhancing the heat insulation and the installation of lighting systems of high energy production, for example) and, more generally, the decline in energy consumption.

Pew's Studies Center for Global Climate Change (Prindle, 2010) show that increased energy efficiency can considerably reduce emissions and generate substantial financial benefits. For many companies the improvement of the energy efficiency means primarily to apply it to the extent that it often results in cost reduction.

For example, Carrefour, considering that almost half of the emissions directly from the activity of stores and logistics activities came from energy consumption, adopted a target of 20% reduction in energy consumption per square meter of their commercial surface in the group between 2004 and 2020. The measures adopted to achieve this objective include the installation of energy management devices,

[1] http://www.irbms.com/pdf_word/Charte-ethique-prevention.pdf.

lighting systems of high energy production, and closed freezers. In 2008, the group reduced its energy consumption by 6% (kWh/m2) compared to 2007 (www.carrefour.com)

As for Alcatel Lucent, the energy consumption lies in the bulk of GHG emissions related to its operations. To reduce consumption, the company examines and implements procedures such as the grouping of sites, temperature control and replacement of lighting. For example, it decreased its energy consumption over the past two years by consolidating its intensive energy data centers. At the end of 2008 it had already reduced their number from 25 to 17. In Stuttgart (Germany) it had saved about 5 MWh and reduced CO2 emissions by 2 tons by installing insulating devices, windows and new lighting systems and replaced the air conditioning by natural ventilation. (www.alcatel-lucent.com)

Another company concerned with the climate change is Bayer which assesses "the Climate Check" of its production processes around the world, raw materials, logistics and energy included, to determine their interaction with the climate. This control has two components: "the Climate Print", a climate print indicator which provides the necessary data for assessing the impact of different alternatives of the processes and various sites on the climate, and the "Climate impact – analyzed" a systematic analysis of the impact on the climate of manufacturing processes and production plants. Once the potential savings in CO2 emissions are identified, the company evaluates the optimization measures of processes and plants. (www.climate.bayer.com)

For an overview regarding how the companies that participated in the OECD survey integrate the climate considerations into their structure, we can analyze the numbers in Figure 1.

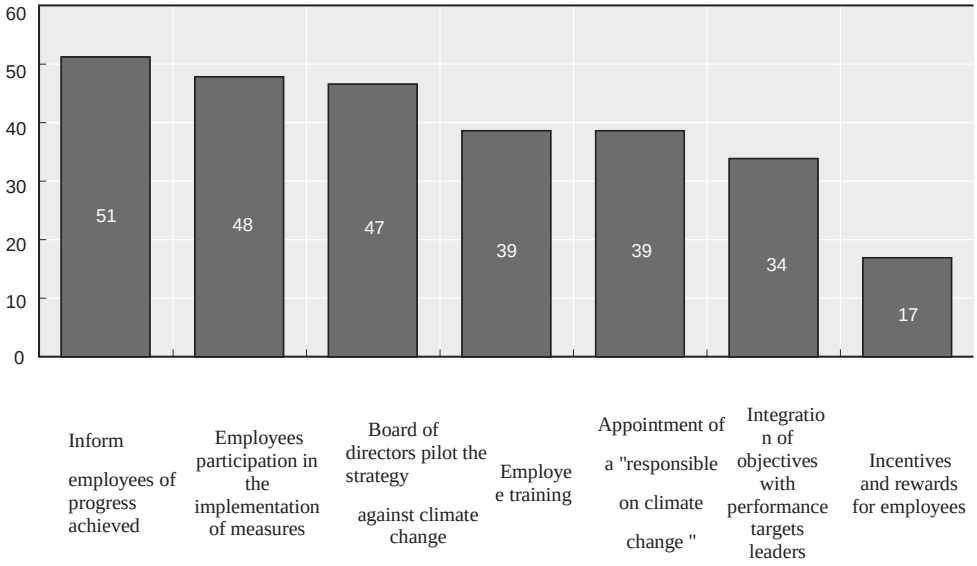

Figure 1. Internalization considerations associated with the climate change in companies

Source: OECD survey on business practices to reduce emissions (2010) https://www.oecd.org/corporate/mne/46282309.pdf

As it can be seen from those presented so far, some companies have adopted regulations and established guidelines and monitoring systems of environmental arguments in order to prevent false or misleading environmental claim ("*greenwashing*"). These regulations aim to protect the consumers, but are also useful to companies wishing to provide honest information on the measures adopted to improve the environmental performance of their products.

However, an essential part of the efforts done by the company in the specific industry to tackle climate change and achieve a "green growth" will be the eco-innovation. In recent years, since the environmental policies and innovation are likely to reinforce each other, it is necessary to support this trend in order to simultaneously achieve ambitious environmental and socio-economic objectives.

Generally speaking, the various eco-innovation activities can be analyzed in three dimensions: the objectives (target areas of eco-innovation: products, processes, marketing methods, organizations and institutions); the mechanisms (terms of changes to objectives change, redesign, alternatives and creation); the impacts (effects of eco-innovation on the environment). (Fussler & James, 1996).

In short, in a world where success is almost necessary, it can be said that sustainable development brings about "prosperity" for companies because its

message is consistent with the perspective of an ecological reconciliation with nature and with creating a challenging economic environment for businesses. Sustainable development requires a new type of reference to reality and also the development of new forms of organization of the specific work frame – "smart economy" (clusters, polestars competition, industrial parks, business incubators, industrial sites, etc.); it is important to develop some voluntary eco-innovation roadmaps at a national level in order to facilitate the assimilation of the policy by the Member States and also to increase confidence in the environmental technologies.

3. Data and Methodology

The research methodology is used in achieving the stated objectives of this study. We used Yards Formula for sample size determination to select 104 entrepreneurs that constitute our samples (confidence level is 95% and error tolerance is 5%). The research design used in this study is survey research method. The research design used in this study is survey research method. This is a data collection method that involves the collection of primary data from respondents chosen from a given population through well-structured questionnaire. The decision to structure the questionnaire is predicated on the need to reduce variability in the meanings possessed by the questions as a way of ensuring comparability of responses. The involved sectors in the investigation are: agriculture, manufacturing, environmental and construction industries. Data collected from the questionnaire were analysed, summarised, and interpreted accordingly with the aid of descriptive statistical techniques such as total score and simple percentage. While inferential statistics such as correlation coefficients was used to proof the level of significance in testing stated hypothesis. There are various statistical tools that can be used for testing of hypotheses but this research work will be limited to the use of correlation coefficient analysis. The value of the Pearson can range from 1.00 to +1.00. These values indicate the strength of relationship between two variables. We seek to determine the relationship between eco-innovation and environmental performance components.

The questionnaire is divided into two parts: the entrepreneurs' perception towards the eco- innovation in business and the hypothesis on the following assumption:

H_0: There is no relationship between eco-innovation and environmental performance.

H_1: There is a relationship between eco-innovation and environmental performance.

4. Discussion of Results and Findings

Table 1 shows the results obtained using the Pearson correlation coefficient with participants overall shift to inspect hypothesis and indicates a significant relationship between eco-innovation and environmental performance. The simple coefficient correlation between environmental performance and the components of eco-innovation (eco innovation product) recorded a 0.394 value indicating a medium relationship with a 0.01 level of significance, (environmental responsibility) recorded a 0.332 value indicating a medium relationship to environmental performance with a 0.01 level of significance, (green supply chain management) recorded a 0.404 value also indicating a medium relationship to environmental performance with a 0.01 level of significance, (cleaner production) recorded a 0.301 value indicating a medium relationship to environmental performance with a 0.01 level of significance. Since all the components of eco-innovation are positively related to environmental performance, we therefore accept the alternative hypothesis and reject the null hypothesis. This implies that there is a positive relationship between eco-innovation and environmental performance. The results support our predictions of hypothesis.

By analysing the results of the survey, eco-innovation brings a large number of socio-economic benefits (over 70% increases in eco-efficiency) both for firms directly involved in its production and society as a whole (over 25% reductions of pollution). Due to the increasing impact of environmental policies and the reducing of the marginal costs of environmental policies by 50%, eco-innovation resulted from introducing innovation technologies is one of the main priorities regarding the strategy European SMEs. The new guiding principle for the reform of regional policy has always focused on helping the less developed regions face serious problems in terms of reducing the impact of climate change. Opportunities are created every day and can be extrapolated within the most remote areas of the continent. A regional approach requires the involvement of regional authorities in the development and policy of the overall strategy. Not every region or province has had a glorious past with successful entrepreneurs and creative universities. Sometimes things need to be created from scratch.

Our study also reveals that more than half (58%) of the respondents involved in only one green product at any particular period of their entrepreneurial activities. It was also discovered that 42% of the respondents believe to a high extent that development of green product increases productivity. However, 75% of the respondents believe to a very high extent that eco-efficiency level determines environmental performance.

Table 1. Correlations of eco-innovation and environmental performance

		Eco innovation product	Environmental responsibility	Green supply chain management	Cleaner production	Eco - efficiency
Eco innovation product	Pearson Correlation	1	.475(**)	.332(**)	.337(**)	.394(**)
	Sig. (2-tailed)		.000	.000	.000	.000
	N	100	100	100	100	100
Environmental responsibility	Pearson Correlation	.475(**)	1	.463(**)	.317(**)	.332(**)
	Sig. (2-tailed)	.000		.000	.000	.000
	N	100	100	100	100	100
Green supply chain management	Pearson Correlation	.332(**)	.463(**)	1	.452(**)	.404(**)
	Sig. (2-tailed)	.000	.000		.000	.000
	N	100	100	100	100	100
Cleaner production	Pearson Correlation	.337(**)	.317(**)	.452(**)	1	.301(**)
	Sig. (2-tailed)	.000	.000	.000		.001
	N	100	100	100	100	100
Eco - efficiency	Pearson Correlation	.394(**)	.332(**)	.404(**)	.301(**)	1
	Sig. (2-tailed)	.000	.000	.000	.001	
	N	100	100	100	100	100

5. Conclusion

The companies are taking action in response to the growing number of regulations (Goga & Modiga, 2010) related to the climate change, but also in anticipation to the future developments of public action in this area. On the other hand the complexity of economic life in terms of competition imposed by the market economy increases the role of information in decision making. Its quality depends on the quality of current and future innovative decisions taken and thus the results.

One way for the companies to participate in the policy process is to take part in public consultations. There is no single formula to determine the number of visits and their duration, and the risk that the latter are deemed insufficient or inadequate will always be present. This is particularly true in an area as complex as the climate change, which concerns the entire industry and economy. As part of the recent consultation process set up by the French government to develop new policies and guidelines in many areas related to the environment, including climate change (the "Grenelle" of the environment), five colleges have been set up and closely participated in this exercise: the state, local communities, NGOs, employers and trade unions[1].

The results of this study show that the hurdles and the eco-innovative commitment to innovative green activities are closely linked to the performance of the adoption of the business. At the same time, the hurdles not only businesses in eco-innovation can discourage green strategies of the European companies, but may also hinder the implementation of the paramount importance EU policies.

Finally, in many cases, companies have found that what is good for the environment is not necessarily bad for business. In fact, it can lead to a competitive advantage due to better overall management, optimization of the production processes, reduction of the resource consumption, and the like. The experiences of EU initiatives also show that a significant number of companies are increasingly interested in implementing cleaner production to improve their economic and environmental performance.

Today, most European companies are focusing on the environmental dimension of sustainable innovation by improving their green products. They try to solve the equation: eco-innovation = sustainable market + New Business Models. Therefore, today's eco-innovation is a key issue which requires a certain approach. Also, "going green" is gradually considered as a potentially profitable management for the European companies in recent years. It is important to note that market orientation is not to be confused with assuming that small businesses want to compete in a global market by exporting their eco products.

[1] http://dx.doi.org/10.1787/9789264090255-fr .

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