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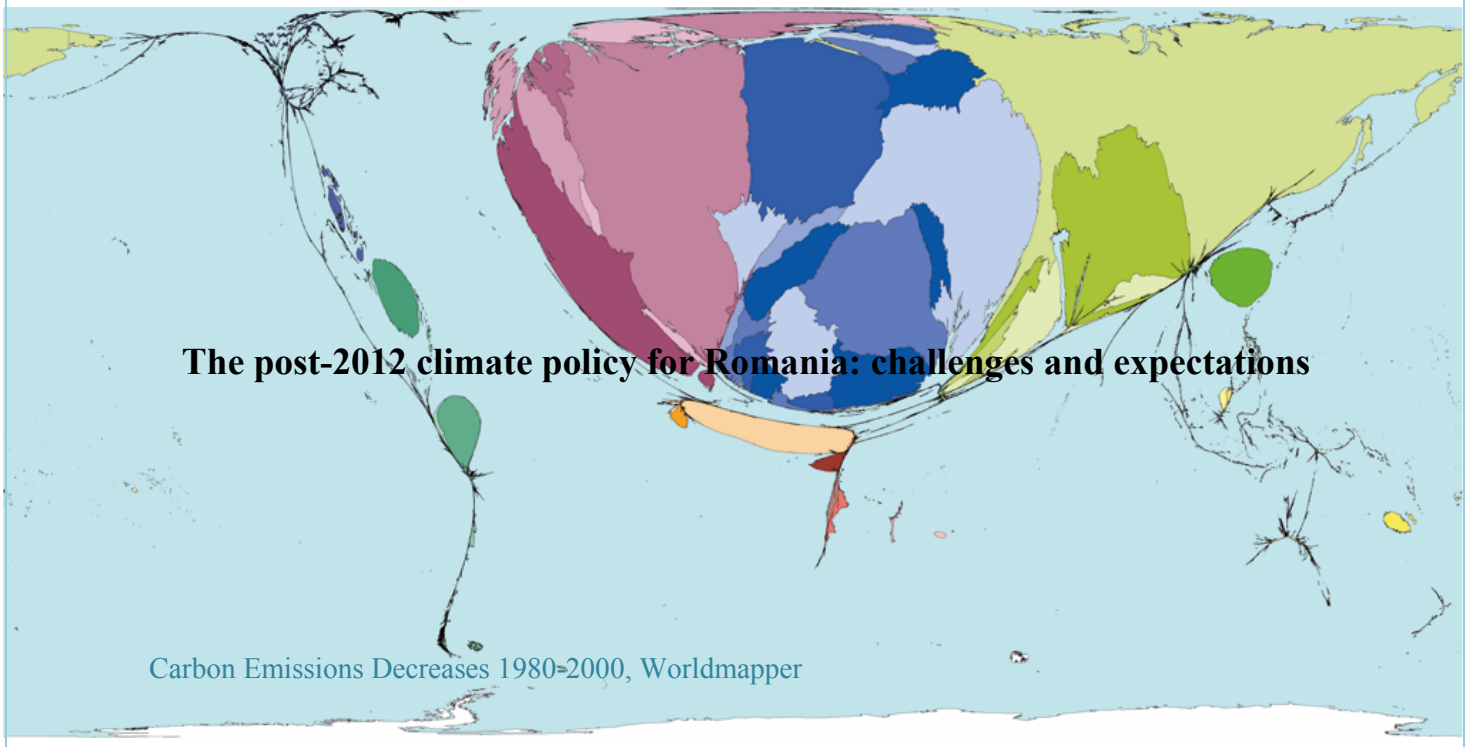

# The post-2012 climate policy for Romania: challenges and expectations

Carbon Emissions Decreases 1980-2000, Worldmapper

End studies Mémoire presented by
MILCU, Andra
With a view to obtaining the academic degree of
Master in Environmental Sciences and Management

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Director: Prof. Etienne HANNON

Université Libre de Bruxelles
Institut de Gestion de l'Environnement et d'Aménagement du Territoire
Faculté des Sciences
Master en Sciences et Gestion de l'Environnement

# La politique climatique de la Roumanie post-2012: défis et attentes

Mémoire de Fin d'Études présenté par
MILCU, Andra
en vue de l'obtention du grade académique de
Master en Sciences et Gestion de l'Environnement

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## *Motto :*

*"No problem can be solved from the same level of consciousness that created it".*

*Albert* ***Einstein***

*« Il reste qu'une perspective pour combiner niveau mondial économique et régulation sociale. Ce qui suppose une prise de conscience forte de l'identité à l'échelle de l'écoumène, le sauvetage de notre unique maison, la Terre ».*

*Christian* ***Grataloup***

*I dedicate this paper to* ***my teacher*** *Prof. Dr. Dan Manoleli. I am grateful for his believing in me without the slightest hesitation since my first year at the "Department of system ecology and sustainable development" of the Bucharest University. It is from him I heard for the first time the word "sustainability" and thanks to him it has the same powerful meaning to me ever since.*

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# Disclaimer

This dissertation paper is concluding two years of Master Studies, being prepared for the final examination for the degree in Master in Environmental Sciences and Management.
The views and opinions expressed herein do not state or reflect any official position of the Romanian authorities, but a personal assessment of the overall status of climate change governance as perceived during my little practical experience and my academic pathway. For the elaboration of this dissertation paper I have relied on my attendance at the recent conference in Copenhagen, on public positions expressed during the conference and on dialogues with a multitude of stakeholders at different moments of time before and after the preparation of the negotiations. For further details please see Chapter 2 dedicated to the methodology.

I apologise for any possible error in the references provided, which might arise from limited experience combined with a Brownian excitement of ideas. Finally I appreciate comments, suggestions, and updates from whoever will have time to take a look at my work.

# Résumé

Ce mémoire se propose de réaliser une monographie des éléments récents du cadre réglementaire, national et international, qui déterminent la politique climatique post-2012 en Roumanie. L'existence ou la non-existence d'un nouveau accord global se profile comme un des défis les plus important pour la politique climatique post-2012 du pays.

Comme point de départ, la synthèse bibliographique donne un aperçu du rôle de l'Etat dans la gouvernance mondiale du climat et suggère une typologie possible de la politique étrangère de l'environnement. Un bref passage en revue des principaux repères climatique de la Roumanie comme la vulnérabilité et l'adaptation, les émissions de GES, les scénarios de changement climatique, décrit le cadre spécifique de la Roumanie dans ce domaine. Afin d'étudier la façon dont la politique climatique de la Roumanie est parvenue à son état actuel post 2012, le mémoire fait un parallèle entre l'évolution de la politique nationale et le déroulement des négociations de la CCNUCC, en passant par la ratification du Protocole de Kyoto pour finir avec la Conférence sur le Climat de Copenhague.

Le régime post-Kyoto sur le changement climatique en Roumanie est décrit comme un processus complexe, influencé par la triple identité du pays: Etat Membre de l'Union Européenne, signataire du Protocole de Kyoto et un pays remplissant une période de transition. En tant qu'Etat Membre de l'UE, la Roumanie est tenue d'appliquer les dispositions du paquet climat-énergie portant sur le nouveau système européen d'échange de quotas d'émissions, les émissions de GES, les énergies renouvelables, le captage et le stockage du carbone, l'efficacité énergétique jusqu'en 2012. En tant que signataire du Protocole de Kyoto, la Roumanie est touchée par les politiques récemment élaborées par les autres pays signataires liés à leurs excédent de AAU. À l'avenir, la Roumanie peut faire l'objet de nouvelles décisions prises concernant le rapport des AAU et la poursuite de projets JI. Outre la volonté politique de prendre des engagements climatiques au niveau européen et international, le profil environnemental de la Roumanie est déterminée par ses besoins de croissance économique et la place occupée par les combustibles dans l'industrie nationale. Les principales difficultés économiques avec lesquelles la Roumanie est confrontée, liées à la crise générale et à son niveau de développement, influencent ses politiques intérieures et sa contribution financière à la lutte internationale contre le changement climatique.

La "boîte à outils" utilisé par le Gouvernement Roumain pour lutter contre le changement climatique est dévoilée par une sélection des plus pertinentes mesures existantes et prévues à l'avenir. Le système du certificat vert et son évolution législative turbulente ont été choisie comme exercice pour une analyse plus approfondie. Certaines recommandations récentes des politologues et sociologues imaginant le rôle idéaliste de l'Etat dans un futur accord global marquent la fin du mémoire dans une perspective altruiste.

# Summary

This paper is intended as a monograph of the recent national and international documents and regulations that shape the post 2012 climate policy in Romania. The existence or non-existence of a future global agreement is outlined as one of the most important challenges for Romania's post-2012 climate policy.

As a starting point, the critical review of literature provides an overview of the role of the state in the global climate governance and suggests one possible typology of environmental foreign policy. A concise survey of Romania's main climate change landmarks like: vulnerability and adaptation, GHG emissions, climate change scenarios, draws the country's national circumstances. In order to investigate how the climate policy of Romania has arrived to the current post 2012 profile, the paper makes a short parallel between the evolution of the national policy and the development of the UNFCCC negotiations, passing through the ratification of the Kyoto Protocol and coming to the Climate Conference in Copenhagen.

Shaping the post-Kyoto climate change regime in Romania is described as a complex process, influenced by the country's threefold identity: European Union Member State, Party to the Kyoto Protocol and a country completing a transition process at all levels including the environmental one. As a member state of the EU, until 2012 Romania has to implement the provisions of the climate and energy package regarding the new European Trading Scheme, GHG emissions, renewable energy, carbon capture and storage and energy efficiency. As a Party to the Kyoto Protocol, Romania is affected by other Parties' current policies related to the AAU surplus. In the future Romania may be subject of new decisions taken regarding the AAUs carry-over policy to a future commitment period and continuation of JI projects. Besides the political will to take on European and international climate change commitments, Romania's environmental path is driven by economic growth needs and a heavy role of fossil fuels in the national industry. The major economic difficulties Romania is facing, related to the general crisis overlapping with specific issues of its development level, influence its domestic policies and financial contribution in the international fight against climate change.

The Romanian Governmental "toolkit" for fighting climate change is brought into light by a selection of the most pertinent existing and planned climate change policies and measures. The Green Certificate system and its legislative turbulent evolution were chosen for a deeper analysis exercise. Some recent recommendations of politologists and sociologists are picturing the idealistic role of the state in a future global agreement and are closing the paper from an altruistic perspective.

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# 1. Introduction

Climate change is now everywhere. The idea that humans are altering the physical climate of the planet through their collective actions, an idea captured in the simple linguistic compound "climate change" is an idea as ubiquitous and as powerful in today's social discourses as are the ideas of democracy, terrorism or nationalism (Hulme, 2009:322). These ideas altogether make a perfect association. Climate change is a concept that carries as many different meanings and interpretations in contemporary political and cultural life as do other mobilizing and volatile ideas (*ibid.*, pp.322-323). But which meaning will win the battle on the social arena[1]?

Climate change concept circulates with mobilizing force in the world of business, law and international trade. It is an idea circulated with potency in the world of knowledge and invention, of development and welfare, of religion and ethics and of public celebrity. And it is an idea circulating creatively in the world of art, cinema, literature, music and sport (*ibid.*).

Jubb, Holper and Cai quote (2010:2) Hulme (2009) in addressing the question "Why we disagree about climate change?" and identify a range of behavioural and societal factors, such as perhaps **science** is not doing the job we expect of it. But Dessler and Parson answer (2006:87) in The *science and politics of global climate change: a guide to the debate,* four key questions about climate change: Is the Earth's climate getting warmer? Are human activities responsible for the observed warming? What substantial climate changes can we expect? What will the impacts of future climate change be? The answer to the first question is definitely yes. Dessler and Parson agree on the fact that multiple independent data sources confirm beyond any reasonable doubt that the Earth's surface warmed during the twentieth century, with particularly rapid warming over the last few decades. Added to this many other authors highlight that the publication of the Fourth Assessment Report of the IPPC (AR4) in 2007 leaves little doubt about the fact that the global mean surface temperatures have been increasing since the mid 1970s.

Tackling climate change implies **political** decisions. A political decision is subject to an indefinite number of compromises. If we can distinguish clearly between the scientific and political aspects of the problem, we can focus on reaching solutions that are acceptable to all. Unfortunately the distinction between science and politics can easily become blurred. This

[1] After an idea of Paul Marie Boulanger on the competition between social problems for a place on the social arena (based on the theory of social spaces) from his presentation held on February, 8th 2010, within the course of "Instruments and decision making in environment"; titular: dr. Edwin Zaccai.

invariably happens when the scientific results have uncertainties (Philander, 2000:3). Accepting the fact that "Between the idea./And the reality./ Between the motion./And the act./Falls the Shadow (T. S. Eliot, *The Hollow Men*) we can identify the shading cone of climate change in some scientific uncertainties that should not serve as a pretext for non action. The content of this paper will try to shed some light on policy aspects related to climate change in a transition country: Romania.

## 1.1 Motivation

Climate change is happening right now: during the period 1901-2006 the increase of temperature in Romania was of 0.5˚C compared to 0.74˚C at global level for 1906-2005 (Romanian Guide on the Adaptation to the Climate Change Effects, 2010:6). Not only are the physical climates of the world changing everywhere, but just as importantly, the idea of climate change is now active across the full parade of human endeavours, institutions, practices and stories. It is an idea circulating anxiously in the worlds of domestic politics[2] and of international diplomacy[3] (Hulme, 2009:323-322).

Despite the EU accession, understanding environment issues is often inappropriate in Romania. A weak national economy and a still developing public awareness of environmental issues are factors inherited from the pre-1989 period that strongly influence the present situation (Bokwa, 2007:113). The fall of communism[4] did not bring major changes to the perception of environmental standards and values. Fifteen years later, in the "Workshop on Capacity-Building on the Implementation of UNFCCC and Kyoto Protocol" in October 2005 (organised by the Regional Environmental Centre for Central and Eastern Europe), a questionnaire related to the capacity building needs showed that the most challenging difficulties of implementing climate change policies and measures are that climate change is not a priority for the government and the insufficient number of national well trained experts in the field. Hence rather than a crisis of the environment or a failure of the market, climate change may prove ultimately to be a crisis of **governance** (Hulme, 2009:310).

[2] Also learned during the internship completed at the Romanian Minister of Environment in July 2009.

[3] Also learned during the internship completed at the Permanent Representation of Romania to the EU from April to mid-May 2010.

[4] The fall of communism is assimilated to the fall of the regime of Nicolae Ceausescu after the revolution of December 1989.

## 1.2 Hypothesis

Looking from a global context perspective we may say that Romania will face specific challenges and has particular expectations from its post 2012 climate policy. As a party to Annex I of the UNFCCC, and as a party to the Kyoto Protocol, Romania is subject to a target of reducing its emissions of greenhouse gas emissions by 8% for the period 2008-2012 compared to 1990. The climate policy currently conducted in Romania is mainly orientated towards this short term objective, although, as member of the European Union it is also assigned a mid-term target (2020) in the context of the EU climate and energy package. The latter might be enhanced in case of a transition of the EU 2020 target from 20% to 30% in the context of a possible post-2012 agreement. Besides international agreements, the national circumstances of Romania play an important role in its full development of a market economy. Keeping in mind all these aspects and stages about Romania, climate policy will need revising and strengthening sooner or later.

## 1.3 Scope

This paper is intended as a monograph of the recent national and international documents and regulations that shape the post 2012 climate policy in Romania. The aim of this paper is to investigate how the climate policy of Romania has evolved during the last decade and arrived to the current post 2012 profile, with a view to its future positioning in the global context. Under this memoir, I will also try to analyze what are the constraints and opportunities for Romania after the political agreement in Copenhagen or in the event of a future post-Kyoto legal agreement. More specifically, I want to focus on answering pending, often overlapping questions: Which was Romania's profile in the negotiations? What are its specific interests? What impact will the European burden sharing have on Romania and especially the possible switching to an EU target of 30%? Which instruments is Romania considering in this context? What will be the role of domestic efforts in reducing emissions and what will be the part of off-setting (through JI projects, or the ETS)? Is the domestic political climate sufficiently ambitious and appropriate for achieving the post-2012 objectives? Therefore my aim is to disentangle Romania’s contribution to the process of alignment to the international and European requirements and its role in the fascinating process of climate policy making. My goal is also to be able to offer through this research a clear and comprehensive picture of this sector that could serve to other students, based on my level of knowledge in the field of climate policy.

# 2. Methodology

This dissertation raises the question of climate change policy from an **interdisciplinary** point of view. The fact that its author is an alumnus in system ecology and not a graduate of political or economic sciences represents its strength and at the same time its weakness. Thus, the coordinates of the conceptual framework are derived from the **holistic** approach to the study of ecological systems.

The study was conducted by analyzing a wide variety of sources, such as regulations, directives position papers, road-maps, as well as articles and research reports. In order to answer to the above mentioned questions, I looked at the legislative framework, elements of national and international governance, economic implications and trends. The research questions were not given a single answer but an evaluation of evidence on the one hand and an interpretation of approaches on the other. The content of this paper is thought from a temporal perspective leading to a chronological presentation; therefore some aspects might be recurrent.

Methods for data collection were mainly literature reviews and several interviews or questionnaires with civil servants, NGO representatives or university teachers. I based my work on documentary observation through **literature research**. This literature research focused primarily on documents issued by governmental institutions (official reports, legislation, plans and programmes) and second on specialised scientific literature. I conducted **interviews** with public institutions representatives (Romanian Ministry of Environment), representatives of NGOs (President of the Terra Mileniul III Foundation), diplomats (from the Permanent Representation of Romania to the EU) and people from the Academic environment (Prof. Dr. Dan Manoleli, University of Bucharest). Moreover, there was an intense exchange of e-mails with some authors of studies regarding Romania.

I also benefited of direct observation for my research project thanks to my participation in the first week of the **Copenhagen summit**. Before that, I had the opportunity to get a first impression of the climate change policy sector during my **internship** at the Climate Change and Sustainable Development Directorate of the Romanian Ministry of Environment during the summer of 2009. These first findings were complemented by an internship with UNDP Romania where I worked on the project "Raising awareness of the Romanian political class of climate change negotiations in Copenhagen". A final internship[5] within the "Permanent Representation of Romania to the EU" broadened my understanding of environmental

[5] Mentioned internships were **not** part of the ULB-IGEAT curriculum, thus none of them were awarded the correspondent number of ECTSs. The three month internship completed within the ULB curriculum dealt with ecotaxes and biodiversity issues and did not have any connection to climate change.

foreign policy. The conference and **public debate** organised by ULB students in February 2010 “Copenhague: coup dans l'eau ou coup d'envoi” had speakers from NGOs, business and politics who highlighted facts of the negotiations, gave me new ideas of other potential tracks to follow in my work.

Last but not least, the ULB **courses** of “Socio-political aspects of the environment”, “Historical aspects of the environment” and “Climate change” provided me with some interesting prerequisites. During the whole elaboration process, from the selection and analysis of primary data to the conclusion enouncement, I benefited from the advices of my coordinator, M. Etienne Hannon. For the purpose of this paper documents and events taken into consideration were written or occurred no later than July 2010.

All the various insights stimulated me in conducting a research case study for Romania. “The post-2012 climate policy for Romania: challenges and expectations” is the fruit of my continuous and consistent interest in one of the most fascinating challenges in the history of humanity and in the way it is handled by national governments in default of a world governance.

# 3. Critical Review of the Literature

*The role of the state in the global climate governance*

In 2009:37 Schroeder points out that the next decision on targets and timetables, or at least an agreement on some type of emission trajectory, is likely to be another highly political game compared with that during the Kyoto negotiations. Achieving **agreement** on any issue among approximately 190 sovereign governments is likely to be difficult. One possible reason might be the one stated by Giddens (2009:207): international institutions look weaker than they have been for some years, just at the time when the world needs more effective governance. No wonder since, instead of emphasizing common concerns and interests, negotiations are predominantly seen as a zero sum game, where one side "must loose" what the other one gains (Ott, 2007:17). All governments face deep dilemmas in reconciling climate change and energy policy with sustaining popular support, especially in times of economic difficulty (Giddens, 2009:230).

After Copenhagen some could say that the current defeat of international cooperation marks the need of its replacement with a simple **coordination** between states (Gemenne, 2009[6]) which sends us back to the legitimacy of world governance. COP 15 failures might redirect the right to exercise authority over the global climate system to the institution of national sovereign governments. What role for the **state** to play then? And how are other, non-governmental, interests represented in any climate governance regime: the interests of indigenous peoples, multinational corporations, religious and social movements, individual citizens, non-humans (Hulme, 2009:287)?

According to dr. Hermann Ott from the Wuppertal Institute in his 2007 discussion paper for the Tällborg Foundation[7] national politics comes into role when talking about **commitments**. This rejoins the concept of "economy of esteem" (Keohane and Raustiala, 2008:4) that is presented at the end of this thesis. The success of climate negotiations depends to a large extent on **domestic** climate policies. National and international policies are inextricably linked with each other, because without an effective climate policy at home, no government is in the position to seriously commit to stringent targets at the international level (Sachs & Ott, 2007 quoted by Ott, 2007:19). The other side of the coin is that in some cases ambitious international targets can be used to support climate policy at home (Harris' systemic approach) pushed for example, by the environment ministry against other ministries[8]. But normally government positions are formulated by cabinet decisions where considerations other than climate change play an important role. Since a handful of countries

[6] Idea that comes out from his book "Géopolitique du changement climatique" and that was evoked *per se* during his course on "Ressources, conflits et environnement".

[7] "How on Earth can we live together" is the motto of the Tällborg Foundation.

[8] The Romanian situation is the other way around.

have relatively effective national climate polices, only a handful of countries are in the position to push for substantial commitments (apart from the potential victims of climate change) (Ott, 2007:19).

Anthony Giddens is trying to offer an answer to the same question by pledging a return to **planning**. Therefore in responding to climate change, he recommends concentrating a good deal of attention on the state. Kyoto and Bali-style agreements, the EU targets, together with carbon markets, the activities of businesses and NGOs will no doubt be extremely important. However, it is indisputable that the state will have a major role in all countries in setting a framework for these endeavours (Giddens, 2008:7). Giddens explains further that a return to planning cannot mean going back to heavy-handed state intervention, with all the problems that it brought in its train. The role of the state (national and local) should be to provide an appropriate regulatory framework that will steer the social and the economic forces needed to mobilise action against climate change (*ibid.*, p.8). Giddens develops in the follow-up the definition of a green state and the institutionalisation of green values which is pointless to mention here, since Romania is an indefinite number of steps away from that stage.

So what happens if we are talking about a country with a certain historical burden or unfavourable economical particularities? Does the role Giddens advances remain the same?

Once more Hulme explains very well the importance of a country's past. Reasons we disagree about how climate may be governed, emerge from the exercise of political power, from the actions of nation-states seeking (economic) self-interest. These actions have a history. They emerge from different historical and ideological traditions of the relationship between state and citizen […] (Hulme, 2009:318). But does this historical and economical context can be used to justify political (non)-action?

Building on recent reviews of the climate change policy in Central and Eastern Europe countries and on a number of national studies that are revealing climate change policy environment over the past years, two theories of climate policies are presented: the Harris typology of environmental foreign policy and a recent modelling approach.

*Typology of environmental foreign policy and Harris*

The literature on the Romanian climate change policy is limited and fragmented. Consequently, some of its aspects can be deduced up to a certain point from reviews dedicated to other countries which share to some extent a similar past with Romania. Some of the aspects mentioned by Anita Bokwa for Poland in *Europe and Global Climate Change* are also valid for Romania. Besides, there are Romanian voices, like the Romanian Centre for European Polices (CRPE), arguing that Romania's main goal should be to make the most out of a scenario that it can barely influence. For this purpose it is recommended to build alliances around the position currently held by Polish and other Eastern European countries

(Nutu, 2010:3). These countries are likely to suffer from financial losses incurred by emission reduction targets.

In order to understand the present Romanian national and foreign policy on climate change it is necessary to be aware of its historical and political **background**. After the Second World War and until the collapse of communism in 1989, Romania was incorporated into a group of states whose foreign and domestic policies were dominated by the Soviet Union (USSR). Industrialisation became the utmost goal of the state economy and of all political activity (Bokwa, 2007:113), the same thing that is happening today with economical growth at any price, without knowing what "growth and development" really mean. This means Romania is a former communist state and at the same time a member of the European Union since January 2007.

As Anita Bokwa examined Poland's policies on climate change with reference to the theoretical typology of environmental foreign policy proposed by Burkdull and Harris in 2002, we could try to do the same using the adapted **typology** from Harris' *Europe and Global Climate Change* (2007:19). The necessity of this typology is underlined by the fact that interstate negotiation for the global governance of the climate is probably the most complex environmental diplomacy ever undertaken by the global political community (Okereke, 2009:45). This typology has two dimensions: one dimension related to the forces that policies are emphasizing: systemic, societal and state-centric and a second dimension which relates to the consideration of power, interest and ideas. **Systemic** approaches direct our attention to the structural characteristics of international relations (Harris, 2007:19) showing that states may arrive at their roles, identities and national interests as a consequence of the global configuration of power (Barkdull and Harris, 2002:68 quoted by Harris, 2007:18). **Societal** theories point to the preferences of domestic actors, which are translated into policies adopted and implemented by the government (Harris, 2007:20). Governments do not create policies independently; the international arena serves for the expression of policies as they result from the struggles among domestic social forces or political groups. **State-centric** approaches suggest that foreign policy is shaped by the structure of the government and by the goal-oriented often manipulative behaviour of the politicians in accordance with their preferences.

Within this typology of approaches to climate foreign policy, all of the three types can be useful in interpreting Romania's international position as we will see hereinafter. The pressure placed on Romania in the race for the EU membership acted like a Procrustean bed on its behaviour, mostly stretching rather than hammering its environmental and especially its climate policy ambitions. Hitherto Romania did not have coherent EU policies and positions, and participated as a passive spectator while its commitments as a Member State had become costly (Nutu, 2009:3). In Nutu's opinion (2009:23) Romania becomes a much more reliable partner if it takes on achievable targets and meets them, than if we agree to unrealistically high objectives and always fail to deliver in the end. In the same time we should

not forget the older "environmental hegemons" like the US or the newer ones that rose from the ranks in Copenhagen, like China. They are the ones which are determining the global climate change policies even in Europe.

Unfortunately social elites, civil society and the public expression of social feelings are feeble in Romania and not enough shaped. There is no strong ecological lobby to counterbalance the coal-energy lobby. Sometimes interest groups tend to confound with governmental interests. At the same time we could not say that the green movement is inexistent. Consequently, from the three theories of Harris, the societal approach is the less represented. A study on participatory planning in drawing the Rio Conventions in Romania also suggests that Romania currently fosters a civil society that is only in its nascent stage but as it develops further, this sphere could play a more important role in making societal theories become more decisive (Stringer *et al.* 2009:11).

The third theory, the state-centric approach, seems to justify some of the climate change measures; even though Romania's national climate policy is still much more the policy of the Ministry of Environment, than the policy of the whole Government. We find here the state of Giddens (2008:9) which is supposed to be the key player in forging international agreements (including the setting up of transnational carbon markets) needed to combat climate change, and also in enforcing them. In conclusion, the domestic climate policies of Romania derive from the perception of various threats to national interest by the leaders or from the degree to which climate change is important to bureaucratic actors to which the international forces could be added and, to a much lesser extent, the public pressure.

As Bokwa put it for Poland, the situation is quite similar for Romania. There is a clear difference between the foreign policy on climate issues and the domestic one: a lack of a strong political body representing the environment[9], a tireless disregard of Romanian science and education, an incoherent climate legislation and a poor implementation. This is also confirmed by Feiler *et al.* (2009:8): international action on climate change is of particular importance for new member states (n.r.: of the EU), as these countries typically implement only mandatory mitigation measures that derive from internationally agreed targets and their EU-level or country-level implementation. This is mainly due to the low level of political awareness on climate change and the political culture of the countries of the region. Nevertheless, as foreign climate policy is senseless without national climate protection measures, climate change will become the invisible hand behind economic decline, social erosion, and displacement (Sachs, Ott, 2007:21-22). If adequately taken into account in the national policy, it may contribute to economic recovery through systemic transition to a low carbon economy. Until now it seems that Romania might be up to a more or less bad start.

[9] At the 2009 Romanian presidential election, the candidate of the Green party (0,62) together with the candidate of the Ecologist Party of Romania (0,23) got less than 1% of the votes according to the Central Electoral Bureau.

*Climate policy reinterpreted through mathematical modelling*

Mathematical models can offer another theoretical approach of environmental policies, aiming to formulate a new (post 2012) long-term climate policy following the logic of sustainable development. A research led by Rodica Loisel analyzes the existing climate policies (centred on the Romanian National Allocation Plan for 2008-2012) and the relationship between environmental policies, incentives to invest in research and priorities for growth in an economy in transition. The peculiarity in the treatment of research and development policy is found in the introduction of spill over effects on the basis of sectoral policies to reduce emissions (Loisel, 2007:19). This protocol is part of the modelling of the endogenous growth theory. The endogenous growth theory, first published by Paul Romer in 1986, seeks to explain economic growth by micro processes. It arose in response to exogenous growth models which based economic growth on technological progress, without explaining the origin of this progress. Details of the model are not presented here as they do not represent the object of this thesis but it is important to emphasize that models of economic growth can offer a new interpretation of climate policies. Despite inherent limitations of the model, it gives useful guidance for modelling endogenous growth and evaluating climate policies in Romania (Loisel, 2007:22). While policies of research and innovation assimilated here with exogenous growth are necessary but not an adequate instrument for reducing $CO_2$ emissions in themselves, climate policies are indispensable in the pursuit of environmental and economic goals on the long term.

# 4. Climate Change in Romania

## 4.1 Romania and Climate Changes – National Circumstances

Shaping the post-Kyoto climate change regime in Romania is a complex process, affected by political, economic and natural factors. The difficult transition of Romania to a competitive system and the availability of major energy resources, coal in particular, have drawn a specific environmental path: on one hand the political will to take on European and international environmental commitments, on the other hand, economic conditions reflecting the needs of economic growth and strong contribution of fossil fuels to the development (Loisel, 2007:2).

Before particularising the history of climate negotiations with the case-study of Romania it is useful to have a quick overview of its main climate change landmarks like: vulnerability and adaptation, GHG emissions, climate change scenarios.

### 4.1.1 Vulnerability and Adaptation

Vulnerability to climate change depends on exposure to risks and on the capacity of adaptation. McLeman and Smit (2006:34) quoted by Gemenne (2009:65) have suggested a function of the vulnerability that took into account both its environmental component and the socio-economic one. The vulnerability is a function both of the exposure to risk and the adaptation capacity[10] for a given community. The conceptual model recognizes also that vulnerabilities are usually specific to particular types of climatic risk and particular locations or time periods.

South East Europe is particularly vulnerable to the effects of climate change. Rising global temperatures are already affecting the region's natural resources and national economies. Human health and biodiversity, the energy and agricultural sectors, forestry and fisheries, river basins and coastal zones are already suffering as a result of higher temperatures and decreasing precipitation (Feiler *et al*., 2009:28).

Cuculeanu V. *et al.* in „Climate change impacts in Romania: vulnerability and adaptation options" are assessing climate change impacts on different resource sectors using five climate General Circulation Models experiments for a double carbon dioxide atmospheric

[10] Set of instruments, resources and institutional structures necessary for the efficient implementation of the adaptation measures.

concentration, for a time slice up to 2075. General Circulation Models (GCMs[11]) are in the author's opinion the most widely used tools to develop climate change scenarios for impact assessment.

The results of **crop** simulation models under equilibrium scenarios showed that the climate change impacts on winter wheat and maize development, grain yield, and water balance depend on the local conditions of each site, the severity of climate parameters changes, and direct physiological effects of the double $CO_2$ concentration (Cuculeanu *et al,.* 1999:159). Winter wheat could benefit from the combination of $CO_2$ concentration increases and higher temperatures, while maize appears to be vulnerable to these changes, especially in the case of a warm dry climate (Cuculeanu *et al.* 2002:204). Referring to the south-eastern Europe, the IPPC 4th Assessment Report (WG II, Chapter 15) says that crop productivity (all other factors remaining unchanged) is likely to [...] decrease along the Mediterranean and in south-eastern Europe (2007:543).

As far as impacts on **forests** are concerned, three models used by Cuculeanu *et al.* assigned a share from 38% to 50% of the country's surface to the warm temperate thorn steppes. The warm temperate dry forests rank second in surface area, holding between 16% and about 26% (55% according to one of the models) of the country's surface. The cool temperate wet forest ranks third according to all scenarios, with percents between 3.7 and 10.

According to the article, the most affected **water resources** are where demands could exceed their availability, as in the case of the Arges River basin.

The European Commission funded several research programmes targeting impacts of climate change within the 6th Framework Programme under the Thematic Sub-Priority "Global Change and Ecosystems". One of them is CLAVIER (CLimate ChAnge and Variability: Impact on Central and Eastern EuRope). Its aim is to contribute to successfully cope with triple challenges of the ongoing economic and political transition, continuing vulnerability to environmental hazards, and longer term impacts of global climate change. Three representative countries of the Central and Eastern Europe were studied in detail: Hungary, Romania, and Bulgaria. The results confirmed the ones obtained by Cuculeanu *et al.*: impacts of climate change strongly depend on the **crop** type; hence, one certain climate parameter may affect different crops in different ways.

A second research project under the 6th Framework Programme is CECILIA (Central and Eastern Europe Climate Change Impact and Vulnerability Assessment). Its main objective is to deliver a climate change impact and vulnerability assessment in targeted areas of Central

[11] A General Circulation Model (GCM) is a mathematical model of the general circulation of a planetary atmosphere or ocean based on differential equations working with the basic laws of physics, fluid motion, and chemistry.

and Eastern Europe. Within this second programme a project for the assessment of climate change impact on **water resources** in the South-East part of Romania was conducted by simulating a monthly average flow in two river basins in the region. The study showed an average annual reduction of river flow with 20-30% (for 2021-2050) or by 30-40% (for 2070-2100) primarily due to higher evaporation and transpiration (Mic, 2010).

As to flooding, there have been some catastrophic **floods** in recent years (e.g. 2005, 2006 and 2010) which resulted in significant human, economic and ecological losses. Moreover, the frequency and proportion of these floods seem to increase. These flood events are assumed to be the result of climate change as well as anthropogenic activities such as modifications in riverbeds and unauthorised land clearance. The most vulnerable areas of Romania are situated inland (EC, 2009). A CEPS report (2010:8) predicts a greater risk of flooding from rivers due to a substantial rise in annual rainfall and precipitation. Romania will also have the same problem especially during winter, which will negatively affect various parts of its economy, particularly the agricultural sector.

Regarding **economic** impacts we could quote the PESETA (Projection of economic impacts of climate change in sectors of the European Union) based on bottom-up analysis study of the European Commission's Joint Research Centre (JRC). PESETA places Romania in the "central-southern Europe", with Austria, Czech Republic, France, Hungary, Slovenia and Slovakia. In these countries, economic losses attributed to global warming would lie between 0.1% and 0.6% of GDP. Despite these losses, the study says more warm days would bring to these six states additional income from tourism of 10 billion Euros (PESETA final report, pp.113).

The need to mitigate climate change has until very recently dominated the debate on global environmental governance. As mitigation efforts have been too little and too late, climate change adaptation has become a reality of world politics in the 21$^{st}$ century. This was transposed in Romania in the need for the elaboration and promotion of a „**Guide** on the adaptation to the climate changes effects", identified also into the National Strategy and National Action Plan on Climate Change, adopted in 2005. The objective of the guide is to increase Romania's adaptation capacity to the actual and potential effects of climate change through: the monitoring of the climate change impact as well as the associated social and economic vulnerability; the integration of the adaptation measures to the climate change effects into the strategies and the policies of sectoral development and their inter-sectoral harmonisation; the identification of special measures on the adaptation of the critical sectors. The guide gives general provisions, highlights recommendations and lays down adaptation measures for each sector of activity vulnerable to the effects of the climate change: agriculture, biodiversity, water resources, infrastructure, constructions and urban planning, transportations, tourism (seaside area and mountain area), energy, industry, health, recreational activities, insurances.

The guide mentions, as one of the most important steps being taken forward, the elaboration by the National Administration for Meteorology (ANM) of "The Code of Action for Reducing the Impact of Climate Change in Agriculture", by means of the European Project ACRETE – "Agriculture and Climate Change: How to reduce human effects and threats", co-financed by EU. Among other registered governmental progresses we note the elaboration of the "National Strategy on Flood Risk Management", the "Prefect's Handbook for the management of the emergency situations in case of floods", the "National Strategy to Reduce Long-term Effects of Drought", the programme for testing of new species/more tolerant breeds to water stress in the air or soil and/or tolerant to high temperatures. For dealing with health impact, it was elaborated the Joint Order on the approval of the Plan of Measures to achieve cooperation actions between the prefects and mayors, in their capacity of presidents of the county committees for emergency situations, and the authorities of public health, for the attenuation of the high temperatures effects on population. Still from the same guide we find out that during the last years, new financial instruments began to be developed nationally. In 2002 Law no. 381/2002 was adopted, on the provision of compensation in case of natural disasters in agriculture, a normative act that supports the agrarian producers.

The guide underlines that the identified aspects are based on a preliminary assessment, without having sectoral studies and climate scenarios sufficiently detailed for Romania.

### 4.1.2 Romanian GHG Snapshot and Projections

In 2008 the total greenhouse gas (GHG) emissions (including LULUCF) for Romania were 116,529.8 Gg $CO_2$ equivalent, according to the national GHG inventory. The GHG emissions **per capita** in 2007 were 7.1 t CO2-eq. / capita, according to the European Environmental Agency (EEA). In 2007 GHG emissions **per GDP**[12] (GDP in constant 2000 prices) were 2,475g $CO_2$-eq./euro according to EEA. Turkey, Latvia, Romania, and Sweden have the lowest GHG emissions per capita among all EEA member countries according to the EEA "Greenhouse gas emission trends and projections in Europe" (2009:23).

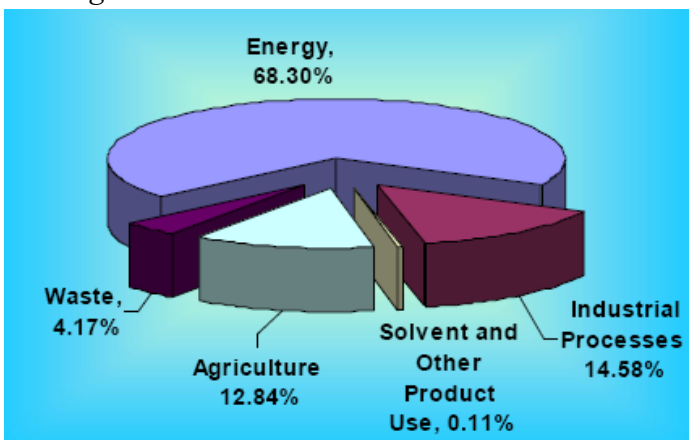
The largest contributor to the total national GHG emissions, in terms of average share, in the period 1989-2008 is $CO_2$ (71.29%) followed by $CH_4$ (17.36%) and $N_2O$ (10.58%) (National Inventory Report, 2010:23).

GHG emissions by sector of activity are the most representative for this thesis analysis. The Energy sector is by far the largest contributor to GHG emissions in Romania with nearly 70 % in 2007. It accounted for 68.3% of the total national GHG emissions in 2007. Industrial processes contributed to total GHG emissions with 14.58%. In 2007, 12.84% of the total

[12] Refers to the carbon intensity which is the amount of GHG (in terms of $CO_2$ eq) that is emitted per unit of added value (in terms of GDP unit). The carbon intensity is influenced by the fuel mix and energy efficiency of an economy.

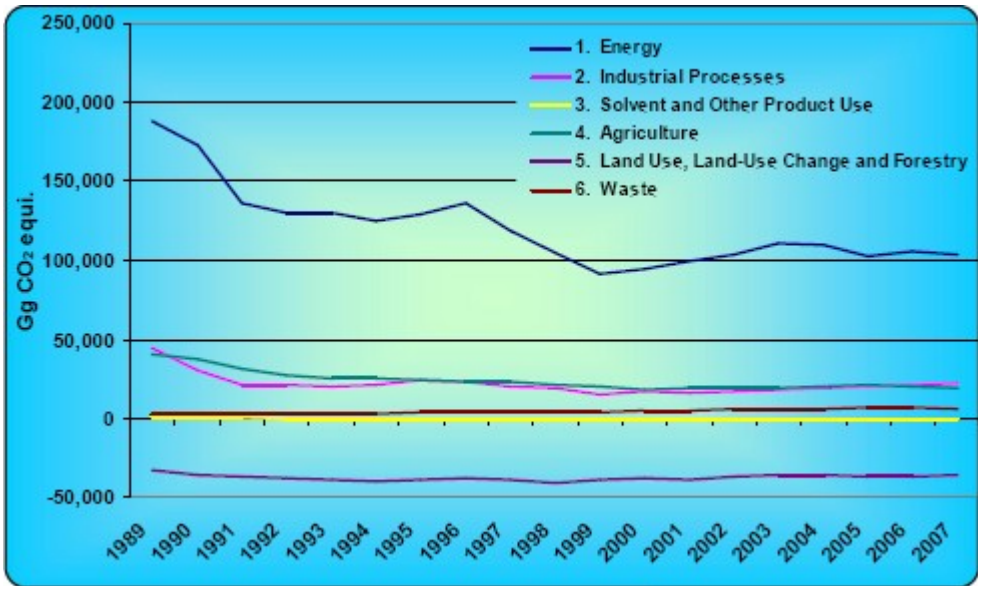
GHG emissions resulted from agriculture. Contribution of the waste sector to the total GHG emission was 4.17% in 2007.

*Figure 1: Sectoral GHG emissions in 2007*




Source: 5th National Communication of Romania, 2010:45

*Figure 2: Trends of GHG emissions by sector during 1989 to 2007*



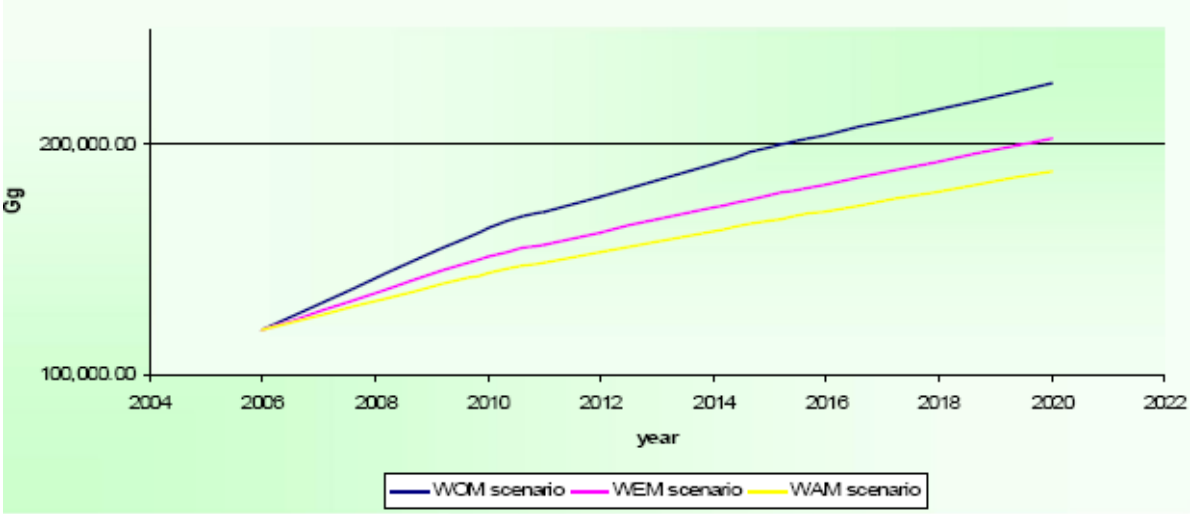

Source: 5th National Communication of Romania, 2010:44

Total emissions decreased significantly in the 1990s, following the **transition** process to a market economy but have been increasing since 1999. The GHG emissions resulted from the energy sector decreased with 44.79% compared with the base year (1989). The decrease in energy-related emissions was due to the decline of economic activities and energy consumption. Public electricity and heat production was by far the largest contributor to the emission decreases, followed by manufacturing industries and fugitive emissions from energy industries (EEA, 2009). The significant decrease of GHG emissions registered in the industry sector (49.61% decrease from 1989 to 2007) was due to the decline or the termination of certain production activities, in particular in the chemical, mineral and metal

industries. The GHG emissions from agriculture in 2007 were 51.13% lower in comparison with the 1989 emissions (5th National Communication, 2010:45). The decline of livestock populations, decreased use of synthetic fertilizer and the decline of cultivated areas and crop productions drove emissions down. LULUCF $CO_2$ removals by sinks are 11.68 % higher in comparison with the base year. Waste sector emissions increased in the period 1989-2007 (117.54%) due to consumption growth, an increase in the number of waste management sites and an increase in the percentage of the population connected to sewerage (EEA, 2009).

As to GHG **projections**, data is presented for several scenarios: "without measures" (WOM), "with measures" (WEM) and "with additional measures" (WAM), on a sectoral basis (taking into account Energy, Transport, Industrial Processes, Solvents and Other Products Use, Agriculture, LULUCF, and Waste categories). A list of measures can be found in Chapter 4.2.4.1.

*Figure 3: Greenhouse gas emissions projections*

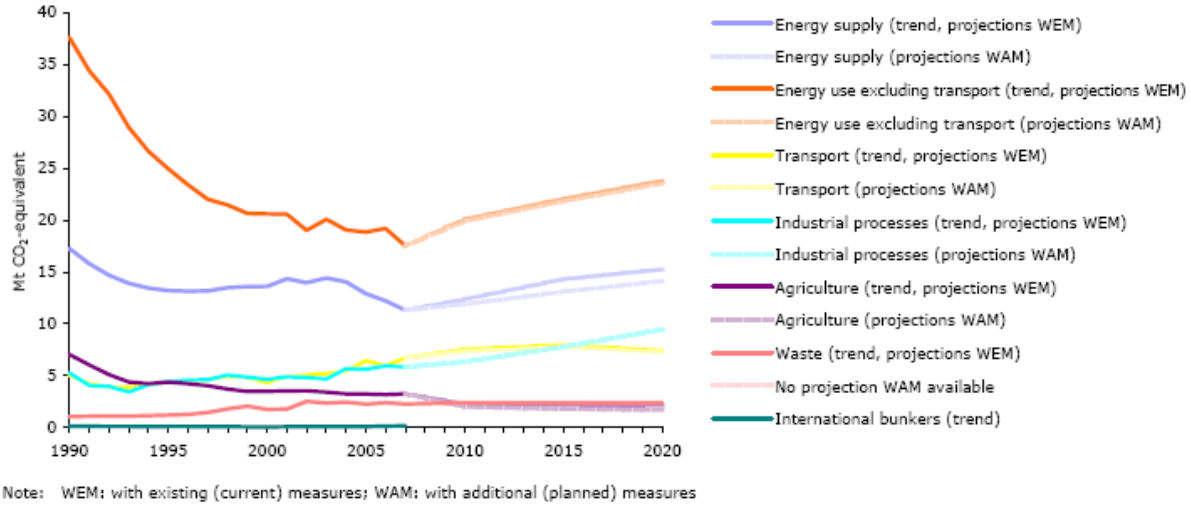



Source: 5th National Communication, 2010:15

GHG projection scenarios reflect the expected quantified effects of policies and measures that are or will be implemented to reduce emissions. Short-term, but more importantly long-term projections should reflect all major policies that will result in emission savings. Romania to some extent has taken into account in their projections the effects on domestic emissions of the measures included in the EU climate and energy package. These measures may also have an effect on short-term emissions, as the European climate and energy package includes annual emission targets applicable as soon as 2013. Romania projects that its emissions will increase until 2020 despite the implementation of all existing and planned additional measures (EEA, 2009:89).

The evolution of the sectors mentioned above, using the EEA classification in function of existing or planned measures is pictured below.

*Figure 4: GHG trends and projections emissions by sector for 1990-2020*




Note: WEM: with existing (current) measures; WAM: with additional (planned) measures

Source: EEA, 2009:167

### 4.1.3 Climate Change Scenarios for Romania

Climate models are based on well-established physical principles and have been demonstrated to reproduce observed features of recent and past climate changes. There is considerable confidence that Atmosphere-Ocean General Circulation Models (AOGCMs[13]) provide credible quantitative estimates of future climate changes, particularly at continental and larger scales. Confidence in these estimates is higher for some climate variables (e.g., temperature) than for others (e.g., precipitation) (IPPC, WGI, 2007, Chapter 8: Climate models and their evaluation, p.591). The horizontal resolution of a typical AOGCM is mainly limited by computer power and is typically in the range 100 to 500 km (IPPC, WGI Statement, 2000) which is insufficient for the study of climate change impacts on various ecosystems. Two main methods are known in order to obtain information on a finer scale (downscaling) (Christensen *et al.* 2007:921) quoted by Busuioc *et al.* (2008:15): a) the dynamic method represented by regional climate models and b) statistical method based on certain statistical relationships between observational data from climate variables at local/regional level and large-scale atmospheric variables. In both cases, the outcomes of **downscaling** global models depend on their quality. Both methods have advantages and disadvantages that are summarized, inter alia, in the Fourth Assessment Report of IPPC. It is ideal to use both methods in order to better estimate uncertainty for a certain region.

A team of the National Administration for Meteorology (ANM) has analysed climate change projections in Romania (air temperature and atmospheric precipitation) by applying the two methods of downscaling on global (AOGCM) or regional (RegCM) climate models under

[13] An AOGCM - atmosphere-ocean general circulation model is a type of General Circulation Model.

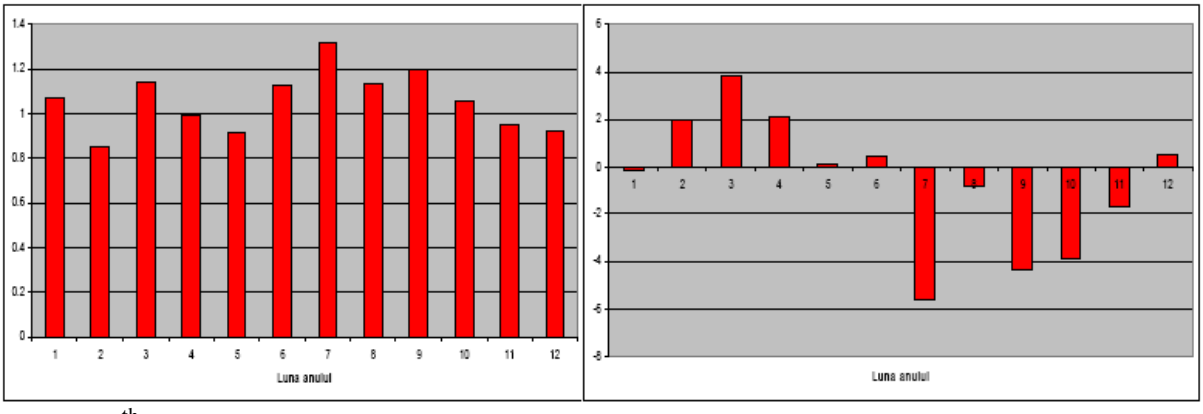
the A1B[14] emission scenario (which in the researcher's opinion involve a moderate increase of GHG concentrations in the atmosphere).

The results of **statistic** downscaling (calibrated on observations during 1961-1990), show for the period 2001-2030, an increase of about 1˚C of the monthly average air temperature from November to December and from May to September. Higher values (1.4˚C-1.5$^{o}$C) are projected in the mountains and in the south-western part of the country. In winter the increase in temperature will not exceed 1˚C. The annual average warming for the whole country is between 0.7˚C and 1.1˚C with the highest values being in the mountains (Busuioc *et al.,* 2008:17).

Monthly rainfall under the A1B emission scenario for the period 2001-2030, is projected to decrease in comparison with past decades, especially in winter. In June, a slight increase is projected in mountainous regions and a decrease in lowland and hilly regions. For other months uncertainty is greater and changes are not significant. (Busuioc *et al.,* 2008:18).

Results of the **dynamic** downscaling show that the average annual temperature increases by a south-east oriented gradient, where the maximum annual average warming reaches 0.8˚C. The western part of the country has an insignificant average heating between 0 and 0.2˚C (Busuioc *et al.,* 2008:21). Other results of the dynamic modelling for the period 2001 – 2030, against 1960 – 1990, show the following: air temperature is expected to decrease during winter, outside the Carpathians (1.5˚C) and to increase during summer (0.2˚C); during spring, the temperature will increase more (1.8˚C); during autumn, the temperature is expected to increase as well; increase of precipitations amount in summer, especially in the Western side; increase of precipitations amount in autumn; decrease of precipitation during winter.

*Figure 5: Changes of the monthly average temperature (˚C, left) and the daily ration of precipitations (%, right) for 2001-2030 (Scenario A1B) against 1961-1990, as average in Romania (Values obtained as a multimodel average)*




Source: 5$^{th}$ National Communication of Romania to the UNFCCC, 2010:132

[14] An A1B scenario is characterized by a balanced emphasis on all energy sources.

## 4.2 Climate Policy and Policy Climate in Romania

### 4.2.1 Romania from Kyoto to Copenhagen

*4.2.1.1 Evolution of the National Policy*

Climate policy making started later in Romania than in the other states which from the end of 1980s had already showed interest in fostering political-consensus on global warming, further to the historical context mentioned subsequently.

In 1992 Romania signed the United Nations Framework Convention on Climate Change (**UNFCCC**) and ratified it in 1994, by Law 24/1994. Further on, Romania signed the Kyoto Protocol in 1997[15] that was ratified in January 2001, by Law 3/2001 and became the first Annex I country[16] ratifying the Kyoto Protocol. It took eight years (until 2005) for the Kyoto protocol to be finally ratified by enough states, allowing for its entry into force. Simultaneously, steps were taken to harmonize its policies with those of the European Union and to implement EU Directives.

The **Kyoto Protocol** (KP) is an international treaty agreement adopted under the United Nations Framework Convention on Climate Change. The Convention sets an overall framework for intergovernmental efforts to tackle the challenges posed by climate change. The Kyoto Protocol sets binding targets for 37 industrialized countries and the European Community for reducing greenhouse gas (GHG) emissions. Reducing amounts to an average of five per cent against 1990 levels over the five-year period 2008-2012. The major distinction between the Protocol and the Convention is that while the Convention encouraged industrialized countries to stabilize GHG emissions, the Protocol commits them to reducing them. Under the Protocol, countries must meet their targets primarily through national measures. However, the Kyoto Protocol offers them additional means of meeting their targets by way of **three market-based mechanisms**, therefore allowing them much more flexibility.

The emission trading (known as "the **carbon market**") is the first flexible mechanism by which an Annex I Party may transfer emission units to or acquire units from another Annex I Party provided that it meets specific eligibility requirements. International emission trading (IET) is defined under Article 17 of the KP, therefore is part of Romania's national legislation.

[15] The Kyoto Protocol is the fruit of the third Conference of Parties to the Convention.

[16] Annex I Parties include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States.

Clean development mechanism (**CDM**) is the flexible mechanism through which developed countries may finance GHG reduction projects in developing countries and receive credits which are called Certified Emission Reductions (CER). They may use them to meet mandatory limits of their national emissions.

Finally the Joint implementation (**JI**), particularly interesting for Romania (see chapter 4.2.3.2) is the mechanism through which a developed country[17] may receive "emissions reduction units" (ERU) when it contributes to finance projects that reduce net greenhouse-gas emissions in another developed country (in practice a country with an "economy in transition") provided that it meets specific eligibility requirements. Article 6 of the Kyoto Protocol specifies conditions for a JI project based mechanism.

According to the provisions of the Kyoto Protocol, Romania bound to diminish emissions of greenhouse gases (GHG) by **8%** as compared to the levels in 1989 (the base year) in the first commitment period 2008 to 2012.

Since 2005 the climate change policy framework in Romania was grounded on the National Strategy on Climate Change[18] (**NSCC**) and the National Action Plan on Climate Change[19] (NAPCC). The Strategy represented the general framework for implementing climate change policies and measures during the period 2005 - 2007. The policies implemented as objectives of the National Strategy are still in place. The overall objective of the NSCC is in the first place to secure compliance with Romania's commitments under the UNFCCC, the Kyoto Protocol and climate change related commitments of the EU. Second its aim is to establish and implement Romania's voluntary objectives and activities as well as acquiring environmental and economic benefits by implementing Kyoto Protocol's flexible mechanisms. Another national priority in the NSCC is the implementation of EU related climate change activities and the participation in the EU Emission Trading Scheme (**ETS**). Section 7.5 of the Strategy is dedicated to the post 2012 regime where it is mentioned that the KP represents just a first step in addressing climate change issues.

**NAPCC** is the main instrument for the implementation of the NSCC. NAPCC assigns tasks and responsibilities for every stakeholder. The NAPCC provides clear deadlines for implementing actions and identifies potential funding sources (multilateral organisations, countries with which Romania has signed a Memorandum of Understanding, state budget, international donors, foreign investors, Green Investment Scheme) or specific actions. Action 2.6 of the Plan is "Preparation of the post-2012 negotiations and actions". At that time, stated priorities of Romania's participation in the post 2012 activities within the context of EU were broader international participation in reducing emissions, long-term

[17] Countries included in Annex B of the Kyoto Protocol (similar to Annex I of the UNFCCC).
[18] G.D. no. 645/2005.
[19] G.D. no. 1877/2005.

policies and measures to reduce emissions including technological innovation, distribution within the EU of emission reduction commitments post-2012. The general objectives of both mentioned documents are still valid, but the documents must be updated in the near future.

At the beginning of 2006 "Romania's **Report on Demonstrable Progress 2005**" in implementing the Kyoto Protocol was submitted to the Secretariat of the Convention. The report recognized that appropriately implemented policies and measures to reduce $CO_2$ and other GHG emissions could lead to indirect benefits, including improvement in air quality, reducing emissions of pollutants that are harmful to human health and environment.

Later that year the Government Decision no. 780 transposed and implemented keeping with the Romanian situation the EU Directive (2003/87/EC) establishing a scheme for GHG **emission allowance trading** and the amendments brought by Directive 2004/101/EC, which acknowledged the credits of JI and CDM. The regulation applied to greenhouse gases (GHG) emissions from the activities and installations listed in Annex 1 of the Directive and was effective from 1st January 2007. The operators who controlled an installation where an activity falling under the scope of this regulation was carried out were obliged to hold a greenhouse gas emissions permit, issued by the environmental protection authority. Based on the same regulation, the **National Allocation Plan** (NAP) for the emissions trading system for 2007 and for 2008-2012 was elaborated and submitted to the European Commission which approved it in October. The NAP determines the total amount of allowances that the Romanian government intended to allocate and how it would allocate them to individual installations.

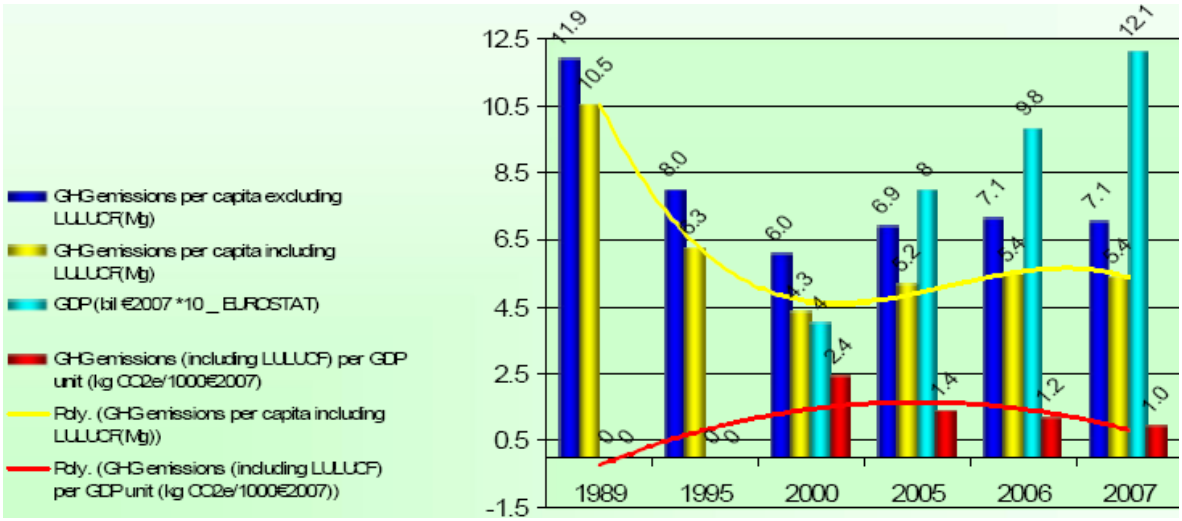
In Ma**y 2007** Romania submitted its **Initial Report** under the Kyoto Protocol[20] containing information required for the calculation of its assigned amount[21] which was a precondition for the participation in the Kyoto Protocol mechanisms. It was stated that NSCC and NAPCC were dynamic instruments that would be updated on a regular basis in order to reflect changing circumstances in the Romanian economy as well as the increased knowledge in the field.

As part of the commitments under the UNFCCC, Romania has submitted five **National Communications** (NC) so far, in accordance with Article 12 of the Convention. Quoting from the latest 5th NC submitted in February **2010**, the trend of decoupling GDP and the GHG emissions per GDP unit is obvious. While GDP value grew three times between 2000 and 2007, the specific emissions decreased to 40% of the value. GHG emissions per unit of GDP are continuing to decrease, due to technical improvements, applications of different policies and due to structural changes in the GDP.

[20] According to decision 13/CMP.1.

[21] Pursuant to Article 3, paragraphs 7 and 8.

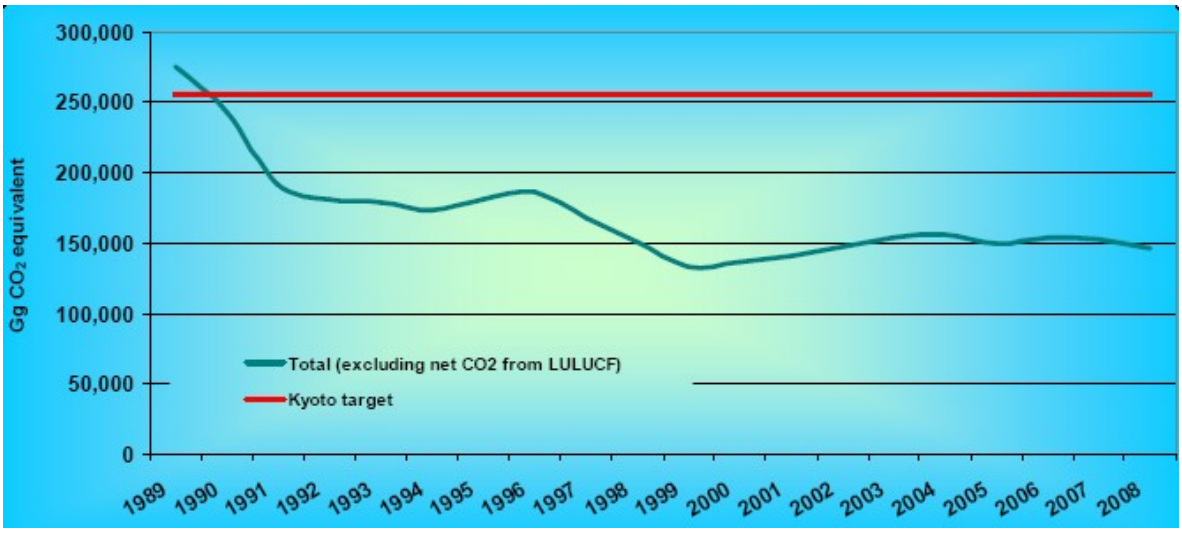
*Figure 6: GHG data and national circumstances*




Source: 5th National Communication of Romania (2010:10)

In April **2010**, in compliance with the reporting requirements (Articles 4 and 12 of the Convention), the National Environment Protection Agency (NEPA) coordinated the achievement of the ninth version of the National Inventory Report (**NIR**) submitted by Romania, covering the national inventories of GHG emissions/removals for the period 1989-2008.

*Figure 7: The total GHG emissions in $CO_2$ equivalent during 1989-2008*




Source: Romania's Greenhouse Gas Inventory 1989-2008 - National Inventory Report (2010:23)

The latest NIR (2010:24) states that in 2008, the GHG emissions without LULUCF have decreased with 46.89% since the base year and with 44.83% in the period 1989-2007. The emissions trend reflects the changes in this period characterized by a process of **transition** to

a market economy. The decline of economic activities and energy consumption in the period 1989-1992 had directly impacted on the decrease of the total emissions in that period. Emissions then increased until 1996, because of the economy revitalisation. But not all emission reductions can be considered consequences of the economic decline. After starting of the operation of the first reactor in Cernavoda nuclear power plant (1996) the emissions decreased again in 1997. The decrease continued until 1999. The increasing trend after 1999 reflects the economic development in the period 1999-2008. The limited decrease of GHG emissions in 2005, compared to 2004 and 2006 levels resulted from the record-breaking hydrological year that influenced favourably the production of energy in hydropower plants (NIR, 2009:44). A second unit of the Cernavoda nuclear plant was commissioned in 2007. A decrease of the emissions is expected after 2008, due to the economical and financial crisis.

Based on these observations, there is a high probability for Romania to meet the commitments regarding reducing the GHG emissions in the first commitment period, 2008-2012. This probability is confirmed by the EEA (2009) assessment of progress towards **Kyoto targets**. In Romania, average emissions over the period 2003–2007 were 45.0 % lower than the base-year level (1989), well below the Kyoto target of – 8 % for the period 2008–2012. Romania will therefore not face difficulties in reaching its target under the Kyoto Protocol. It will actually achieve significant **surplus emission** rights by the end of the Kyoto commitment period.

Over the years the **institutional** arrangements and competences shaped themselves. At institutional level the national responsibilities in the field of climate change are divided between: Ministry of Environment and Forests (National Focal Point) - coordinating the climate change activities; National Environmental Protection Agency (NEPA) - implementing strategies and policies on climate change, elaborating GHG inventories and National Communications; National Administration for Meteorology (ANM) - assessing vulnerability, impact and adaptation measures to climate change; National Environmental Fund Administration (AFM) - responsible for GHG emissions reduction projects database, GIS funds, under the coordination of the Romanian Ministry of Environment; National Commission on Climate Change[22] (NCCC) - advising the Ministry of Environment on policy decisions, actions and measures in applying the UNFCCC and KP provisions. Besides central institutions there are other regional and local authorities and research bodies. Other key actors in climate change policy include the Ministry of Economy, Trade and Business Environment having under its authority the thermal power plants company (S.C. Termoelectrica S.A), the hydroelectric power plants company (S.C. Hidroelectrica S.A.), the electricity company for distribution and supply (S.C. Electrica S.A.) and the system and

[22] Governmental Decision no. 658/2006 reorganized the National Commission on Climate Change, established in 1996 as an inter-ministerial body coordinated by the Ministry of environment and water management from that time, now the Ministry of environment and forests. Its main functions are: to analyze the objectives and provisions of the UNFCCC and subsequent protocols and amendments.

transport operator (S.C. Transelectrica S.A.); the Romanian Ministry of Foreign Affairs having an increasing role in the specific negotiations at state level; the Romanian Agency for Energy Conservation (ARCE); the Institute for Studies and Power Engineering (ISPE); the Energy Research and Modernization Institute (ICEMENERG) and the National Agency for Mineral Resources (ANRM) co-ordinated by the Ministry of Economy, Trade and Business Environment.

*4.2.1.2 The Development of International Negotiations*

Negotiations on mitigation targets post-2012 started at the first Conference of Parties to the Kyoto Protocol (COP/MOP1) in December 2005 held in **Montréal**. A working group was established to consider further commitments of industrialized countries under the Kyoto Protocol for the period beyond 2012 and to complete its work in Copenhagen in 2009: **AWG-KP** Working Group (Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol). The group was intended to discuss amendments to the Protocol. An earlier attempt by the EU to put post-2012 discussions onto the agenda of negotiations failed at COP 8 in New Delhi (2002) and caused serious disturbances in the relationship between EU and the developing countries organized in the group of 77 & China (Wittneben, 2006:90).

In 2007 Romania participated in the Climate Conference in **Bali**, for the first time under the "umbrella" of the European Union, following its accession in January 2007. At COP13, Parties adopted the Bali Roadmap, also referred to as the Bali Action Plan (BAP), which was a two-year process toward finalizing a new treaty (Schroeder, 2010:35), "recognizing that deep cuts in global emissions will be required to achieve the ultimate goal of the Convention". It contains key areas such as: emissions reductions from developed countries, limiting emissions in developing countries, adaptation, technology and capacity building, financing and a shared vision. Another tangible result of the Bali Conference was the agreement on establishing an Ad-hoc Working Group on Long Term Cooperative Action under the Convention (**AWG-LCA**) with the participation of USA and developing countries. It created the prerequisites for modifying the existing Convention or adopting a new protocol in Copenhagen. Hence discussions take place in parallel in the two ad-hoc groups: AWG-KP and AWG-LCA.

The year **2008** was one of missed opportunities and ended in a typical holding session–type COP where very little moved forward. Romania attended the Climate Conference in **Poznan**, Poland (COP14) which was indeed intended to be the midpoint of the negotiations, but one of the few key events at the Conference was an informal ministerial round table to share a vision on long-term cooperative action on climate change. Even the EU was criticised for focusing more on the negotiations of the "climate-energy" package in Brussels than on advancing in Poznan (Feiler *et al.*, 2009:8). Giddens (2009:195) notes that, as the crisis in financial markets started to bite, in October 2008 a rebellious group of member-states (n.r.: of the EU) pressed for a deferment of the date at which the EU's plans for

emission targets were supposed to be accepted as binding[23]. […] Besides Italy and Poland, the governments of Bulgaria, Hungary, Latvia, Lithuania, Romania and Slovakia all said they would resist attempts to railroad the targets through.

In June **2009** Romania attended the meeting in **Bonn**, held as part of the ongoing negotiations under the UNFCCC and KP. The EU proposed deleting the option on voluntary commitments for developed countries, stressing the need to establish binding targets in Copenhagen (Earth Negotiations Bulletin, 2009). Several developed countries opposed to applying a specific formula to determine Annex I parties' individual targets, which created a lack of consensus in the other working groups. Two rounds of negotiations followed immediately after Bonn. Government delegates met in Bangkok, Thailand in October and in Barcelona, Spain in early November 2009.

### 4.2.2 15th Conference of the Parties

"The United Nations Climate Change Conference" took place between December 7th and December 18th, 2009, in **Copenhagen**, Denmark. The conference included the 15th Conference of the Parties (COP 15) to the United Nations Framework Convention on Climate Change and the 5th Meeting of the Parties (COP/MOP 5) to the Kyoto Protocol.

At COP 15 all the major stakes of negotiations at international and European level were still open: the overall and specific targets for reducing emissions of developed countries; developing countries contributions to the efforts to limit emissions; the reference year/period of reduction targets; the commitment period; continued use of flexible mechanisms and the possibility of developing new mechanisms; sources and methods of distribution of financial commitments; how to carry over the surplus of assigned amount units[24] (AAUs) in the post–2012 period; how to move from unilaterally assumed EU target of reducing emissions of greenhouse gases of 20% to 30%; criteria for sharing inside EU the burden of financing commitments to reduce emissions and adaptation to climate change in developing countries; inclusion of all OECD countries and EU candidates or acceding to the EU among the countries with actual commitments to reduce emissions.

#### *4.2.2.1 The run-up to Copenhagen*

As part of the EU negotiating group, Romania held **bilateral consultations** with the Sweden Presidency of the EU Council in view of the preparation of the negotiations for an international post-2012 agreement in Copenhagen (COP 15). Besides bilateral consultations, the process of negotiations included coordination meetings with all the EU members

[23] Early 2008, the European Commission put forward a new Directive, setting out a framework for the EU in terms of 2020 targets that member states will be expected to achieve.

[24] A Kyoto Protocol unit equals to 1 metric tonne of $CO_2$ equivalent. Each Annex I Party issues AAUs up to the level of its assigned amount, established pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol. Assigned amount units may be exchanged through emissions trading (UNFCCC, Glossary of climate change acronyms).

preceding the Copenhagen Conference (2009). Meanwhile, EU's position for this conference was elaborated at political level during September - December 2009 and in the Environment Council on the 21st of October. Romania further supported the role of EU as a leader in the negotiations as well as the process established in the UNFCCC (the Bali Action Plan) and other discussions forums. Even if there was no progress in negotiating the amendments to the Kyoto Protocol, Romania believed that negotiations entered a new phase and that discussions on relevant issues such as reduction targets, the size and number of periods of commitment, the year considered as baseline were impossible to avoid. Before the Copenhagen conference, Romania was in favour of an intensive promotion of the EU proposals within the two working groups and of a more vivid dialogue with developed countries and candidate countries.

EU revealed its approach of the climate change by the adoption just a year before Copenhagen of the **climate and energy package** developed in view of a new climate agreement in Copenhagen. At that time there were voices saying that Europe hurried with the adoption of the package as it would suffer numerous changes after Copenhagen. In some researcher's opinion, it was even a possible cause for the failure of negotiations at COP 15. EU's playing card was too weak compared to the China's ace – the volume of its emissions. Leading by example, the European Union had committed to implementing binding legislation, even without a satisfactory deal in Copenhagen. But the force of their example was diminished by the paradox of all international climate negotiations: the most polluting states are also those who have the biggest weight in the negotiations. One could have thought that the force of positive example would pull up the negotiations, but this did not happen. The big polluting countries had much more power to put pressure on Europe.

#### *4.2.2.2 Romania at Copenhagen - General Position*

In Copenhagen, Romania subscribed to the **EU objective**: the conclusion of a comprehensive global agreement on climate change, a treaty under international law, even though efforts undertaken unilaterally by the EU would have high economical and social costs, nor would they have the desired impact at global level for the limitation of the adverse effects of climate change.

The EU objective was expressed with several occasions before Copenhagen and registered in different documents among which the Commission's Communication "Commission sets out proposals for global pact on climate change at Copenhagen". It stated that in view of a new global agreement post 2012, reduction targets by **developed countries** comparable with the EU targets were required. Reductions should be accomplished by limiting growth in their collective emissions to 15-30% below business as usual levels by 2020 (European Commission, January 2009). Similarly to EU's general position, Romania found necessary the inclusion of all OECD member states as well as EU candidates or acceding to the EU, together with the developed countries with specific emission reduction targets for the post-2012 period.

Romanian representatives felt that setting targets for developed countries should be based primarily on the criteria of GDP/capita[25] and recognition of the efforts already made in reducing emissions of greenhouse gases. Regarding the reference year for setting the commitments of developed countries, 1990 was thought to be a fair choice. Other reference years would be detrimental to states that have already made efforts to reduce emissions under the Kyoto Protocol. National experts also said that different reference years (2000/2005) for the reduction targets of developed countries would prove the inefficiency of Kyoto Protocol.

Romania requested binding commitments of all **developing states** in the global effort to limit emissions, particularly those with advanced economies. The literature supports also this request. Bożyk distinguishes between highly industrialised countries (2006:147) and newly industrialized countries (*ibid*., p.164). The several generations of NICs include South Korea, Taiwan, Hong Kong, Singapore, Brazil, Mexico, Thailand, Indonesia, Malaysia, Philippines, India, Egypt, Argentina and Chile. Newly industrialized countries (NICs) are nations with more advanced and developed economies than those in the developing world, but not yet with the full profile of a developed country.

This position was similar to the requests of other countries and the most often heard diplomatic discourses before Copenhagen. But the idea of revising the list of countries in Annex I emerged much earlier. One proposal that circulated in the academic circles as well as within the negotiations was the proposal to use Ukraine as a reference for countries inclusion in Annex I (Gemenne, 2009:152). Forty-six developing countries have a GDP per capita higher than that of Ukraine, which is an Annex I Party. This group of non-Annex I Parties includes six of the top fifteen major emitters, namely Brazil, China, Iran, Korea, Mexico, and South Africa (Australian Government, 2009).

#### *4.2.2.3 Key Issues and Ancillary Aspects for Romania at COP 15*

Romania's three major priorities at Copenhagen Conference were: the shift to a European target of 30%, the carry-over policy of AAUs and the distribution of financial efforts at international level and consequently within the EU. These three aspects are respectively influenced by three main levels: EU, international and country specific (transition country characteristics).

The main element that could generate requirements for Romania and is still likely to happen are the new targets of reducing emissions of greenhouse gases, following a switch in the EU objective from **20% to 30%.** Reducing emissions of greenhouse gases by 20% is to be achieved through the mechanism agreed by the EU in December 2008 in the climate and energy package. EU was willing to go further and sign up to a 30% reduction target in the

[25] Except Bulgaria, Romania had the lowest GDP/capita in 2007 in the EU: 41.6 GDP/capita in Purchasing Power Standards (PPS) (EU-27 = 100); Source: Eurostat, 2010.

context of a sufficiently ambitious and comprehensive international agreement that provided for comparable reductions by other developed countries and appropriate actions by developing countries (COM(2009), 39final). That is fitting, yet precise and verifiable commitments (after Moussis, N., 2009). This is an expression of the „common but differentiated responsibility" principle[26] which recognises historical differences in the contributions of developed and developing states to global environmental problems, and differences in their respective economic and technical capacity to tackle these problems (CISDL, 2002). Bearing in mind a second principle of permanent negotiation instituted by the Convention, EU may takeover also interim targets as a result of evaluating the results of future international negotiations.

Romania was favourable to the maintenance of the current provisions of the Kyoto Protocol, which allows carryover of unused surplus of **AAU**s to the next commitment periods that would be established under the Protocol. It also lobbied the main principles of banking the AAUs surplus in any of the possible forms of a post Kyoto agreement among Eastern Member States with a similar situation (with surplus of AAUs). The European Commission in its communication „Towards a comprehensive climate change agreement in Copenhagen" expressed concern over the considerable volumes of surplus emissions permits, issued to Russia and the Ukraine under the Kyoto Protocol (AAUs), that could be carried forward for use in the post-2012 regime. The EU communication states that possible surpluses of emission rights from before 2012 need to be taken into account in order to ensure that the 30% target is met through real reductions after 2012 (see also chapter 4.2.3.2). However, the environmentalists[27] say the introduction of the EU-ETS combined with the recent recession led to EU's generating large volumes of „hot air". Other international players particularly important for the outcome, such as Russia and Ukraine (which have 2/3 of existing AAUs surplus in the world, the rest being in possession of the Eastern Member States) did not manifest any intention in supporting a contrary position to the carry forward of AAUs[28].

With respect to the distribution at international level and consequently within the EU of the global **financial** contribution to the future agreement between Parties (emission reduction and adaptation to climate change in developing states), Romania supported the need to achieve in a short time an EU internal agreement on means for member states to support public spending.

Romania supported the importance of continuing the **JI** mechanism in the post-2012 period and its improvement to increase effectiveness and efficiency. JI goal should be extended to

[26] The principle was first stated as such in the Rio Declaration in 1992 at the United Nations Conference on Environment and Development (Earth Summit) and can also be found in the text of the UNFCCC and several international treaties.

[27] For example the Sandbag campaign organisation focused on emissions trading.

[28] At meetings held on 10.12.2009 under the AWG-KP, Micronesia, member of the AOSIS negotiation group welcomed the cancellation of surplus AAUs and she wasn't the only one to do so in the process.

allow the approval of internal, programmatic and sectoral projects. JI mechanism must be prepared for new participants, especially host countries, taking into account the possibility of inclusion in the future of new countries with binding emission reduction commitments in the Annex B to the KP.

Other ancillary aspects, not on the top list of priorities for Romania, were also discussed at Copenhagen.

Regarding the **CDM** reform, Romania backed the EU's general position on reforming the CDM mechanism and the establishment of more stringent application rules for these mechanisms. Meanwhile, Romania supported the development of **sectoral mechanisms** (trading and crediting), provided that the EU would do more to explain them to developing countries. A wide variety of arrangements and policies undertaken on a sectoral basis could contribute to the post-2012 climate effort in different ways (Bodansky, 2007:3). The term "sectoral crediting mechanism" has been introduced by Martina Bosi (IEA) and Jane Ellis (OECD) in their 2005 report *Exploring options for "sectoral crediting mechanisms"*. Under a sectoral crediting mechanism (SCM), the reduction of GHG emissions below a defined level is credited for an entire sector. Credits are issued for the difference between actual emissions in the sector and a defined crediting baseline. The credits can be used by industrialized countries to comply with their emission reduction commitments and would therefore have a value in the carbon market. Hence, the mechanism sets an incentive to reduce GHG emissions in a sector below a defined baseline. The mechanism is not binding (Scneider and Cames, 2009:7). Sectoral trading is a cap-and-trade scheme applied to a whole sector or a sub-sector within a country. The scheme is aimed at countries that are not yet ready to take on binding national targets but are prepared to take on binding targets in key sectors such as power and industry. If the government took on a binding target for the sector, the sectoral cap-and-trade scheme would be mandatory in principle (CEPS task force report, 2009:11).

Romania considered necessary to increase the role of **LULUCF** (land use, land use change and forestry) in climate change mitigation. The result of human actions reflected in the LULUCF (forest management and afforestation) should be included in the calculation of emission reductions of greenhouse gas in the future post-2012 agreement. In Romania and in other EU countries forestry production fund increased during the implementation of the Kyoto Protocol and is expected to rise further. It is essential to maintain the possibility of estimating and reporting the removals by sinks of carbon dioxide resulting from "forest management" in accordance with Article 3, §4 of the Kyoto Protocol.

Romania has to recover in the coming years, significant differences in most indicators of agricultural production in comparison to more developed EU countries. The direction for Romanian agriculture is on one side to ensure food security by increasing agricultural production and creation of export availability and on the other side to sustain implementation

of renewable energy. Therefore, in the future estimating and reporting the removals by carbon dioxide sinks resulting from the "crops management" (also under Art. 3, §4 of the Kyoto Protocol) might be taken into account.

Regarding Reducing Emission from Deforestation in Developing Countries (**REDD)** Romania felt it is relevant especially in the context in which forests are an important carbon sink and in which halting the deforestation and the degradation/destruction of forests in developing states is on the international agenda of climate change.

Finally Romania believed reducing emissions of greenhouse gases from international business aviation and maritime transport (**bunker fuels**[29]) is to be taken into consideration in a post-2012 global agreement. The existing Kyoto Protocol approach is that Parties report without these emissions being accounted in the total emissions of greenhouse gases for methodological reasons.

In the last two days of negotiations, in his speech on December 17th, the **President of Romania**, Traian Băsescu stressed that Romania's involvement in the fight against global warming is demonstrated by the progress towards meeting the Kyoto targets in the period 1990-2007 and the current level of emissions of greenhouse gases, which fell by 37%[30] below the target that our country assumed. The Romanian President underlined that the principles and mechanisms established by Kyoto Protocol should be included in post-2012 agreement. In the same vein, Romania expected the new agreement to tackle the surplus of assigned amount units (AAUs) so that it would be a non-discriminatory trading system whose application should not affect the integrity of the environmental agreement. It was also shown that Romania wanted to build her advantages in the context of „greening" freight transport by developing a European strategy for integrated development in the Danube region and the unification of navigation schemes on the Rhine and Danube, in view of an economic connection of the Black Sea to the North Sea.

Last but not least, it was hoped that the challenge the international community is facing would be overcome in less than one year so that the outcome of Copenhagen could be reflected in a legally binding agreement for the period starting 1st of January 2013.

As a whole, the national delegation[31] supported Romania's priorities and actions on climate change presented in the plenary of COP 15 by the Romanian President.

[29] Fuels consumed for international marine and air transport.

[30] Average emissions from 1990 to 2007 were app. 45% lower than 1989, below the 8% reduction target.

[31] For the complete list of delegation's members please consult the COP 15 provisional list of participants, pp. 140-141.

*4.2.2.4 Some other Players' Position at COP 15*

As Pettenger (2007:5) emphasises, if you look at the different political agendas of the participants you will notice each has diverse answers for the following questions "What actions can best reduce climate change ?", "Who should pay for such changes ?".

During the climate conference the report "Compilation of information relating to possible quantified emission limited and reduction objectives" was distributed in the context of the AWG-KP. This informal note by the secretariat also contained assumptions of reduction targets for Norway, Russian Federation and the USA.

**USA** is the largest GHG polluter (World Resource Institute, 2009) but with the lowest reduction target among the developed countries. The internal objective announced by Barack Obama on 25th November (incorporated in the Waxman-Markey legislation passed by the House of Representatives on 26th June) is to achieve an estimated reduction in $CO_2$ emissions of 17% below 2005 levels by 2020 (figure equivalent to approximately 4% compared to 1990 levels). Without the U.S. the objective of limiting global warming to below 2 ˚C can be achieved only if higher targets are assumed by the other developed countries. Although some stakeholders tried to present the measures envisaged by the U.S. as significant „commitments", it was clear that these measures were not commitments, but only estimates, which are still far from being comparable with the firm commitments made by EU or Japan.

**Group 77** + China stressed the importance of an "open, transparent and inclusive" Copenhagen process focusing on the implementation of the Bali Action Plan, expressing concern about the modest commitment made by developed countries at Copenhagen. They criticized the inconclusive progress of negotiations, the approach of some "states" (referring indirectly to highly polluting developed countries) of a so called active engagement against climate change outside the Copenhagen process. This undermined the credibility and effectiveness of the multilateral negotiations. It is worth mentioning that China's State Council announced on the 26th of November 2009 that China was going to reduce the intensity of carbon dioxide emissions per unit of GDP in 2020 by 40 to 45 percent compared to the levels of 2005. During the Copenhagen summit, China did not show ready for a dialogue with U.S. The Chinese showed themselves willing to participate in the fight against climate change, but under their own terms, conditions and timing (excerpt from the class course of Dr. François Gemenne).

The **Japanese** Prime Minister Yukio Hatomaya announced in September 2009 the national target of 25% reduction of GHG emissions by 2020 compared to 1990 levels and South Korea announced in November 2009 the commitment of a 30% by 2020 compared to 1990.

The **Russian Federation** did not engage emission reduction targets in the negotiations, waiting for the U.S. and other developing countries with emerging economies, to announce

precise reduction commitments. It reported that a 25% reduction target would be taken if other developed countries would do so. At the EU-Russia summit on 18th November 2009, the Russian President Dmitry Medvedev announced a target of 20-25% reduction below 1990 levels by 2020.

**AOSIS** (alliance of small insular states) and **African** countries put forward constantly the scientific results of the Intergovernmental Panel on Climate Change (IPCC) and called on developed countries in Annex B of the Kyoto Protocol to reduce, collectively, their GHG emissions by at least 45% by 2020 compared to 1990 levels, and over 95% by 2050.

Other targets for reducing GHG emissions were: Australia 5-25% compared to 2000 levels (3%-23% from 1990 levels), Canada 20% below 2006 levels (3% from 1990 levels), Norway 30-40% compared to 1990, Switzerland 20-30% below 1990, Ukraine 20% compared to 1990, New Zealand 10-20% below 1990 levels, Kazakhstan 15% compared to 1992 levels, as they result from the submitted information relating to possible quantified emission limitation and reduction objectives compiled in the informal note of the UNFCCC Secretariat on 8th of December 2009.

*4.2.2.5 The Copenhagen Accord*

The main outcome of the multilateral negotiations on a new global agreement on climate change at the UN Conference on Climate Change (COP15) was a **political agreement**. In its Decision 2/CP.15 the Conference of the Parties, took note of the Copenhagen Accord. The long-awaited document with the purpose of regulating the international framework for cooperation in the field of climate change for the post-Kyoto period is not a legal instrument setting out obligations for Parties to the UNFCCC. It does not include concrete commitments to reduce emissions of GHG after 2012.

The main difficulties of the negotiations were to ensure a balance between commitments to reduce emissions, financing commitments and mitigation measures taken by developing countries. Because the negotiating groups could not surpass the blocking of the negotiations to adopt a post-2012 legal agreement, in the last two days of the Conference they began negotiating for a political settlement, whose main elements are cited below. Just before 01.00 on Saturday morning, a number of heads of state and of government concluded on a climate agreement as announced by the Swedish Presidency of the Council at that time. The final document was proposed and agreed as a first phase by a group of five countries only (USA, China[32], India, Brazil and South Africa). It had 2,5 pages of text and two empty annexes for quantified economy-wide 2020 emissions targets for Annex I parties and nationally appropriate mitigation actions (NAMAs) of developing country.

[32] Some authors speak about a Chinese Dictatorship. China dictated the terms of the Copenhagen Agreement and prevented the other four countries: USA, Brazil, India, South Africa to quantify what they intend to do at home. Moreover China strongly rejected a binding mechanism of reporting and verifying emissions, interpreted as a way for the U.S. or other developed countries to control China's economic development.

The political agreement recognized the critical impact of climate change on developing states and the need to reduce GHG emissions in order to maintain global average temperature increase below **2°C** (long-term goal of GHG reduction, respectively in 2050, was not included in the political agreement). Another element of the Accord is the strengthening of international cooperation on adaptation to climate change to help vulnerable countries, in particular the least developed, the insular states and Africa, by providing sustainable financing and technology transfer. Until January 31st, 2010, Annex I Parties had to submit GHG reduction commitments for 2020 and non-Annex I parties had to announce national actions to reduce GHG emissions, actions that would be subject to verification and reporting through national communications every two years.

Another element of the agreement was the recognition of the crucial role of the reduction in emissions from deforestation and forest degradation, namely the establishment of a mechanism in this field to ensure adequate mobilization of financial resources. But the Copenhagen accord could not reach an agreement on accounting for LULUCF emissions.

The Copenhagen Accord also announced voluntary **financial contributions** from developed countries - U.S. $30 billion (€21 billion) - for the period 2010-2012 (fast start financing). It also committed developed countries to mobilize around U.S. $100 billion (€70 billion) per year by 2020 from public and private sources, to finance adaptation measures in developing countries. An important part of this funding would be carried out by "Copenhagen Climate Green Fund". The creation of global mechanisms under the auspices of the UN Framework Convention ("High Level Panel", "Copenhagen Climate Green Fund", "Technology Mechanism") to ensure management actions on adaptation, finance, access to technology, institutional capacity building was also mentioned.

The Swedish EU Presidency as well as the European Commission considered that the result of the Copenhagen Conference fell well short of the European Union's goal. Swedish Prime Minister Fredrik Reinfeldt said of the Accord: "This will not solve the threat of climate change. But it is a first step, an important step." The European Commission President, José Manuel Barroso, stated "This accord is better than no accord" expressing disappointment over the absence of any reference to a future agreement being legally binding. This is a **political failure** for the EU, which had assumed the leadership of actions related to combating global climate change and the most important commitments to reduce emissions. This role was not recognised at international level, which implies a detailed evaluation of the EU negotiating strategy for the next stages of international negotiations. In contrast, the U.S. and China, whose positions were among the most visible "causes" of failure, appeared to be the promoters of the conclusion in Copenhagen.

In his resolution of 10 February 2010 on the outcome of COP 15, the European Parliament noted that only 28 states outside the EU have communicated by the deadline of 31.01.2010 greenhouse gas emission targets for 2020 by the deadline of 31.01.2010 and that some of

them only communicated efficiency targets that would not lead to reductions at all. On the contrary, Andris Piebalgs, European Commissioner for Development, in his speech from 29th March stated that more than **100 submissions** received until beginning of March from both developed and developing countries (both available of the UNFCCC website), many of them including targets or actions, demonstrated a broad and still growing support for the Accord. The European Commission adopted on 9 March 2010 a Communication intituled "International climate policy post-Copenhagen: Acting now to reinvigorate global action on climate change" which sets out an EU strategy to help maintain the momentum of global efforts to tackle climate change.

So far 109 Parties (including the EU and its Member States) have officially expressed their support for the Copenhagen Accord. This includes almost all Annex I parties except Switzerland, Turkey and Ukraine. Among developing countries, all BASIC countries (Brazil, South Africa, India and China) have supported the Accord and have submitted national actions, although neither China nor India have formally asked to be associated with the Accord. Cuba, Ecuador, Nicaragua, Kuwait and Nauru officially notified their objection to the Copenhagen Accord (COM(2010) 86final, p.8).

The Communication states that Submissions by Annex I parties under the Copenhagen Accord confirmed previously announced pledges with a few exceptions: Canada reduced its offer from a 20% reduction from 2006 to a 17% reduction from 2005 by 2020 (i.e. from -3% to +3% compared to 1990); Iceland increased its offer from -15% to -30% compared to 1990 levels; Switzerland and Ukraine have not yet made a submission. The overall level of emission reduction from 1990 level for all countries listed in Annex I to the UNFCCC (i.e. including the US) is in the range of **-13% to -18%**. This is insufficient to achieve the 2°C objective and would be further reduced if the questions of possible surplus of AAUs (for more details please see chapter 4.2.3.2) and LULUCF accounting rules are not adequately addressed.

**After Copenhagen**, AWG-KP and AWG-LCA meetings took place in Bonn from 9 to 11 April 2010 and from 31 May to 11 June. Multilateral negotiations for finalizing the legal framework post-2012 will continue in 2010 and a comprehensive agreement is expected to be adopted at the 16th Conference of States Parties to the UNFCCC, which will take place in Cancun, Mexico, in December 2010. But the agreement in itself does not set a deadline for concluding negotiations in 2010.

#### *4.2.2.6 The Copenhagen Accord for Romania*

The political agreement in Copenhagen maintains the integrity of the main objectives pursued by Romania in the multilateral negotiations on climate change. For Romania the maintenance of the competitiveness of European industry especially in the conditions of the current economic crisis is essential. Therefore it is necessary to assess all measures to avoid the risk of relocating companies from Member States. Romania will most probably be highly

exposed to carbon leakage[33] as it is located at the border of the European Union (see section 4.3.2.1.1).

In a joint letter with the Spanish Presidency of the Council, the European Commission has formally notified on the 28th of January the EU's willingness to be associated with the Accord and its commitment to an independent quantified economy-wide emission reduction target of 20% by 2020, compared to 1990 levels. This target could be increased to 30% under certain conditions. Conditions are not met now, but the EU should maintain the option for moving to a 30% target and should be ready to act whenever the conditions are right to take this decision (COM(2010) 265final).

Given that the European target of 20% from which the Romanian commitment of + 19% in 2020 compared to 2005 generates significant obligations for Romania, a possible shift to a European target of **30%** will raise the cost of implementation, as the majority of Romanian experts agree[34]. Regarding the management of post-2012 **AAUs** surplus owned by some Member States there is no unanimous opinion yet, in spite of political declarations. In the context of **financial support** from developed countries, the EU committed to a short-term funding worth €2,4 billion, out of a total of €21 billion which would have notable implications for Romania. A more detailed analysis of Romania's threefold identity that can be linked to its different levels of relations and impacts can be found in the next section.

### 4.2.3 Romania and its Threefold Identity

As a member state of the EU, Romania will possibly be subject to a new burden-sharing of a European reduction target superior to 20% and will continue its participation in the ETS. As a Party to the Kyoto Protocol and to the UNFCCC, Romania will be subject to the decisions taken regarding the carry-over policy of AAUs and will continue to be involved in JI projects (subject to decisions to be adopted by the CMP). Finally, the specific circumstances facing Romania, enveloped in the term "transition country" will influence its domestic policies and its financial contribution in the fight against climate change.

#### *4.2.3.1 Romania and its European Identity*

Romania is a member of the European Union since January 2007. Since the negotiations on the future climate *régime* still have to answer complex questions, the implications of the future regime for the new member states of the European Union are hard to interpret. However, the EU framework for post-2012 emission reductions (the climate and energy package), with its **two-level commitment** (two possible scenarios), provides a background for preparations and allows new member states to identify crucial points that they will have

[33] Sectors exposed to carbon leakage are those in which production costs increase due to purchasing certificates or those who have to face competition from non-EU companies, where such rules do not apply.
[34] Findings of the interviews conducted for this paper.

to face in this context (Feiler *et al*., 2009:28). The two scenarios are the absence of an international agreement in which case the target of EU reductions is set at 20% and the existence of an international agreement in which case the target of EU reductions is shifted to 30%. As part of the final compromise, subject to compliance with other major national priorities, Romania should be ready to accept a new burden sharing for a European reduction target of 30%. This will require a new negotiation within the EU, taking into account the mechanism agreed in December 2008, including the four basic components of the package.

The **climate and energy package**, EU's unconditional and unilateral commitment in the fight against climate change, was agreed by Heads of State/Government at the European Council (11-12 December 2008) and adopted by the European Parliament on December 17th, 2008. This package is also called the "**20-20-20 plan**" on account of the EU's climate and energy targets for the year 2020 (after Moussis, N., 2009). The existing measures for the "without" scenario are planned to result in a 20% reduction in greenhouse gas emissions as against 1990 (14% compared to 2005): ETS reduction by 21% from 2005 levels, and non-ETS sectors reduction by 10% from 2005 levels), a 20% improvement in energy efficiency, and a 20% share for renewables in the EU energy mix. The core of the package comprises four pieces of complementary legislation.

**Implementation of the new ETS in Romania**

The first piece of specific legislation is a revision and strengthening of the Emissions Trading System (EU ETS) by amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community by Directive **2009/29/EC**[35]. The allocation of EU allowances specifies an overall cap on emissions for those installations covered by the trading schemes[36] which will apply from 2013 and will be cut annually by a linear factor of 1.74%, using 2010 emissions as baseline (Art. 9). This will reduce the number of allowances available to businesses to 21% below the 2005 level by 2020. The free allocation of allowances will be progressively replaced by **auctioning** beginning in 2013 and rising to 70 % auctioning in 2020 and 100% auctioning in 2027 (Art. 10, §11). The Directive requires that 50 percent of all auction revenues be used for specific purposes cited in the Preamble §18 and Art. 10, §3.

Art. 10c introduces **exemptions** for companies which either are poorly interconnected to the Union for the Coordination of Transmission of Electricity (UCTE) system (up to 400 MW) or obtain over 30% of energy from one fossil fuel or have a GDP not exceeding 50% of the EU GDP. These countries will be entitled to a free allocation of 70% to zero in 2020. If these concessions were necessary to give Eastern Europe time to move to low carbon generation technologies, for governments these concessions reduce the number of

[35] G.D. no. 133/2010 transposes Directives 2009/29/EC.

[36] The categories of activities to which this Directive applies are found in Annex I of the Directive.

certificates to be auctioned and, as a matter of consequence, the auction income that could be used to stimulate investment in low carbon emission technologies (European Institute of Romania - IER, 2010:33).

Furthermore the Directive provides exemption from auction requirements for those industries that are determined to be exposed to a significant risk of **carbon leakage** which will benefit of a 100% free allocation, based on a methodology for benchmarking, subject to ongoing review (Art. 10b, §2). This last provision is in fact an unspecified price cap, which many economists recommended in order to avoid extreme economic dislocation as a result of efforts to control carbon emissions (Cole, 2009:3-40).

The compromise also allows small installations (below 35 MW and 25,000 tonnes reported emissions in $CO_2$ equivalent, in each of the three years preceding the entry into force of the revised scheme ETS) to be excluded from the system, on condition that policy steps for equivalent emission reduction are taken (Art. 27). The ETS system for phase III[37] includes also the aviation sector and two other greenhouse gases additional to $CO_2$**:** nitrous oxide and perfluorocarbons**.**

The increases in the percentage of allowances to be auctioned by Romania pursuant to Article 10(2)(a) of Directive 2009/29/EC, for the purpose of Community solidarity and growth in order to reduce emissions and adapt to the effects of climate change is **53%** (out of 10%). It is the second largest increase after Latvia's 56%, as it results from Annex IIa of the Directive. All the other countries except Bulgaria (53%) and the Baltic States got increases inferior or equal to 41% (Slovakia). The distribution of allowances reflecting early efforts of some member states to achieve 20 % reduction of greenhouse gas emissions is **29%** for Romania (Annex IIb). It is the biggest percentage among the other states: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovakia.

Hence the European cap has **three components** for each member state (Directive 2009/29/EC, preamble §17)**:** 88% allocated on the basis of the percentage of member state emission in the total of EU verified emission for 2005. For Romania the reference year is 2007. A percentage of 10% are distributed among 18 member states based on the principle of solidarity. 2% are distributed among member states with at least 20% lower emissions in 2005 than in 1990.

The Directive does not change the basic architecture of the ETS, but sets new emissions reduction goals and substantially increases the central EU authority for allocating allowances (Cole, 2009:3-39). With respect to the ETS sector, new member states can do very little directly. Indirectly, the main form of influence can be the reduction of the energy demand of the non-ETS sector from the ETS sector. A transition period for the continued free allocation

[37] EU ETS Phase I lasted from 2005 to 2007, EU ETS Phase II began in 2008 and will end in 2012.

of allowances is possible for new member states if they can provide an energy sector modernisation plan towards a **low carbon society**: "The Member State concerned shall submit to the Commission a national plan that provides for investments in retrofitting and upgrading of the infrastructure and clean technologies. The national plan shall also provide for the diversification of their energy mix and sources of supply (Art. 10c). Early transition from carbon intensive technologies (if possible) to lower carbon intensity is imperative in Feiler's *et al.* opinion (2009:13), despite the fact that governments and lobby groups still have difficulty facing the inevitable long-term transition to a low-carbon society.

Before moving on to the impact of this new scheme on the Romanian economy it is valuable to know that in October 2007, the Commission approved Romania's National Allocation Plans for 2007 and 2008-2012 after it set annual allocation at 75.9 million tonnes of $CO_2$ allowances instead of 95.7 million allowances annually, that is 20.7% less than proposed (European Commission, 2007). The NAP lists almost 250 installations, around 150 of them being in the energy sector which total 60% from the emissions covered by the ETS Directive.

*Table 1: The distribution of the allocation of allowances to the ETS sectors 2008-2012*

| | | |
|---|---|---|
| Energy | 208 674 068 | 59.43% |
| Refineries | 28 818 122 | 8.21% |
| Production and processing of ferrous metals | 61 654 319 | 17.56% |
| Cement | 4 908 313 | 1.40% |
| Lime | 41 251 885 | 11.75% |
| Glass | 1 618 308 | 0.46% |
| Ceramics | 1 753 842 | 0.50% |
| Pulp and paper | 2 449 411 | 0.70 % |

Source: IER, 2010:77 (after ISPE, 2008).

The Commission in fact rejected nine of the first ten Phase II NAPs[38] for 2008-2012 with instructions to reduce ETS caps by nearly 7 percent (63.9 million tons) in the aggregate. Latvia was required to reduce its total Phase II allocation by 57.7 percent, Lithuania by 46.9 percent, Luxembourg by 31.9%, and Sweden by 9.5 percent, Netherlands by 5 percent. Only the UK, France, Slovenia and Spain received Commissions approval of their Phase II NAPs without cuts (Cole 2009:3-34). There has been a significant amount of law cases related to EU ETS, the majority of which concerns Commission decisions on Member States' proposed National Allocation Plans. Many applications by Member States[39] are currently pending before the European courts as well as Case T-484/07, **Romania v Commission** (pending, application OJ [2008] C51/57 of 23/2/2008). The applications to the Court

[38] ETS phase III refers to the period 2013-2020.

[39] Bulgaria, Romania, Latvia, Slovakia, Czech Republic, Lithuania.

typically seek the annulment of Commission decisions regarding National Allocation Plans of the first and/or second phases of the EU ETS (Dari-Mattiacci, van Zeben, 2010:8).

Apart from various analyses carried out by the different ministries involved in climate policies, two other main studies (IER and ISPE) assess the economic impact of the new emission trading scheme for 2013-2020 and of the old emission trading scheme for 2008 - 2012 respectively.

Before Copenhagen, the European Institute of Romania (IER) conducted the evaluation of the implementation of the climate-energy package on the Romanian economy, under the coordination of Dr. Aureliu Leca[40]. As resulting from the meetings with the General Direction of Energy Policies / Ministry of Economy, main challenges arising from the ETS Directive seemed to be linked to safe power supply, producers' relocation and financial costs.

Full auctioning of allowances for the power sector from 2013 on (Directive 2009/29/EC, preamble §19) creates a sudden pressure on electricity producers from fossil fuels**.** As a result, the substantial reduction of capacity reserve in the EU could endanger energy security. Reducing indigenous coal-based production is another element impacting on Romania's **safe power supply** (IER, 2010:80). The fact is also recognized by the European Commission: for some MS at the periphery of the EU with easy interconnection to countries outside the EU, there could be an impact on energy security (COM(2010) 265final).

Moreover Romania will be highly exposed to **carbon leakage** as it is located at the border of the European Union. Investors in the metallurgy and the cement sector[41] might prefer to relocate their business to neighbouring non-EU countries, such as the Republic of Moldova or Ukraine, where similar commitments to reducing emissions have not been undertaken (Constantin, 2010:109). Migration will be facilitated by UCTE joining of the two countries. The effect on emissions reduction will be insignificant as emissions produced in Romania will be pushed towards its borders (IER, 2010:81).

Maintaining Europe's industrial competitiveness, especially under the present economic crisis conditions, is essential for Romania. European companies must not be disadvantaged compared to the companies from developing countries which are not engaged in meeting comparable reduction targets within the EU, therefore current provisions on carbon leakage must be kept at least until a future global binding agreement is concluded (Response to DG

[40] Head of the Energy-Environment UNESCO Chair at the Polytechnic University of Bucharest.

[41] Two of the activities covered by the new ETS Directive as showed in annex I of the 2009/29/EC Directive.

Climate on the public consultation in preparation of an analytical report on the impact of the international climate negotiations on the situation of energy intensive sectors[42], 2010).

Europe's position on the subject is linked to the price of carbon. The fact that the carbon price has been lower than originally foreseen has consequences for the carbon leakage debate. In addition, due to the fall in emissions, energy-intensive sectors already in the ETS before 2013 are likely to end up with a very considerable number of unused freely allocated allowances at the end of the second period of the ETS in 2012, which can be carried over into phase three (2013-2020). This will put them into a comparatively better position when facing international competition compared with 2008 estimations (COM(2010) 265final).

Europe estimates the impacts of its **20%** target, when others implement their low pledges, to be less than 1%, with the organic chemicals, inorganic chemicals and fertiliser sectors hardest hit with production losses of respectively 0.5%, 0.6% and 0.7%. Only the sector "other chemicals" has an even higher impact of 2.4%. Compared to the EU's unilateral implementation of the 20% target, some EU energy-intensive sectors would actually be in a slightly better position, while for other sectors it would make no difference at all. Given the uncertainties related to the actual implementation of the Copenhagen Accord, the Commission considers that the measures already agreed to help energy-intensive industries – free allocation and access to international credits – remain justified at present (*ibid*.).

The EU did a macroeconomic analysis of the **30%** target. Unfortunately it addresses the whole EU and it doesn't mention country specific constraints. The analysis shows that the incremental impact of stepping up the EU effort to 30% while the others remain at their low pledges in comparison to the current climate and energy package on the output of the EU's energy intensive industry would be limited, as long as the special measures for energy-intensive industry stay in place. Stepping up to 30% would entail extra estimated production losses of around 1% for the ferrous and non-ferrous metals, chemical products and other energy intensive industries compared to the 20% target. Impacts for the sectors of organic chemicals, inorganic chemicals, fertiliser and "other chemicals" increase to 0.9%, 1.1%, 1.2 and 3.5% respectively. The more the major trading partners implement their high-end pledges, the lower the risk of carbon leakage (*ibid*.).

As for **financial costs** assessed by Romania, the IER study mentions some figures for ETS sectors provided by the impact assessment of the 2008-2012 National Allocation Plan carried out by the Ministry of Economy. Supplementary costs for ETS sectors at a minimum price of emission certificates are endangering the competitiveness of products and lead to uneconomical functioning of installations.

[42] The ananalytical report assessing the situation with regard to energy-intensive sectors or subsectors that have been determined tobe exposed to significant risks of carbon leakage is mentioned in Art. 10b § 1 of the 2009/29/EC Directive

*Table 2: Supplementary costs for certificate acquisition under ETS for 2008-2012*

| **Industry Sector** | **Supplementary costs for certificate acquisition at a minimum price of 17.5 €/tonne in million €** |
|---|---|
| Refineries | 130.8 |
| Production and processing of ferrous metals | 280 |
| Cement | 186.7 |
| Lime | 24.5 |
| Glass | 8 |
| Ceramics | 8.3 |
| Pulp and paper | 11.25 |

Source: after IER, 2010: 81-82

In 2008 the Institute for Studies and Power Engineering has assessed the impact of the application of the emission trading scheme[43] on the industrial activities competitiveness. Elements of the methodological analysis were: €20/emission certificate, 20% deficit of certificates, business as usual scenario for costs and revenues, revenues based on medium profit per industrial sector, investment costs not taken into account. ISPE divided the EU-ETS influence on **production costs** for the Romanian industry as follows: MRV[44] (monitoring, reporting and verification), acquisition and trading costs and increase in electricity price.

*Table 3: 2008-2012: Impact of EU ETS (MRV + certificate acquisition cost + electricity price increase) on production costs*

| **Sector** | **MRV cost + acquisition cost** | **Increase in electrical energy cost** | **Total** |
|---|---|---|---|
| Electrical energy | 12.1% | - | 12.1 % |
| Electrical and thermal energy | 11.3% | - | 9.0 % |
| Refineries | 0.37 % | 0.06 % | 0. 43 % |
| Production and processing of ferrous metals | 0.36 % | 0.67 % | 1. 03 % |
| Cement | 4.95 % | 0.75 % | 5. 7 % |
| Lime | 5.63 % | 0.99 % | 6. 62 % |
| Glass | 3.08 % | 1.39 % | 4. 47 % |
| Ceramics | 0.56 % | 0.16 % | 0. 72 % |
| Pulp and paper | 1.82 % | 1.45 % | 3. 27 % |

Source: ISPE, 2008

[43] Established by Directive 2003/87/EC.

[44] In both of the Directives 2003/87/EC amended by 2009/29/EC monitoring principles can be found in Art. 14.

MRV costs have little influence on production costs, generally less than 0.02%. The heaviest influence is on the production cost of cement (0.21%). The conclusions of the study showed that acquisition and emission allowance trading costs for 2008-2012 would have a high impact on the following: energy, cement, lime, glass; a moderate impact on pulp and paper sectors; and a low impact on petroleum refining, production and processing of ferrous metals, ceramics. The impact of the increased electricity prices, although its influence is not excessive, also leads to a similar classification: high impact on sectors pulp and paper, lime, cement, manufacturing and processing of ferrous metals, glass; medium impact on areas like ceramics and low impact on petroleum refining (ISPE, 2008:12)

The average **selling price** of electricity (only for transport and distribution) for the whole energetic national system may increase by approximately 5% (for a price of emission allowance of €20 and a percentage of acquisition of 20%) (ISPE, 2009). Consequently, this may bring a disadvantage to the Romanian economy and generate **social** costs which will affect the final consumer. Regarding the supportability of the bills, the IER study (2010:66) mentions the main findings of the Energy Program for Romania - Phase 3[45] in 2005-2007. The cost of heating is too high versus the quality of service due to a high rate of interruptions. Consumers could bear up to 40% increase of the 2007 heating bills. Meanwhile costs of heating and gas during the winter exceed 50% of family income. About 600,000 **consumers** were disconnected from district heating for non-payment or installing individual boilers. Only 1.66 million apartments are connected to district heating which represents 57% of the total.

Another social impact was identified by Cole (2009:3-41): by auctioning allowances, the amendments send price signals to energy producers and through them to consumers, which should create greater incentives to economize on energy use.

The lack of available finance might push countries towards actions that are carried out more easily but could prove more costly in the long run. Also, social decisions and compromises on options such as the use of **nuclear** energy or carbon capture and storage (the fourth legislative act of the package) should be decided in all countries. Romania has a large-scale nuclear development programme. At the Cernavoda nuclear power plant, two units began operating in 1996 and 2007. One of these units yields an annual four million tonnes of GHG emission reduction (Feiler *et al.*, 2009:25).

Feiler *et al.* (2009:16) distinguished two different phases in the scenarios for emission reduction towards a low-carbon society. In the first phase, emission reductions can be achieved at relatively low cost tinkering around the edges of technology to reduce emissions and buying carbon credits (n.r. known as zero-cost or no regret measures). When the cheap abatement opportunities are exhausted and demand is still growing for greater emission cuts,

[45] Coordinated by an American consultancy company for the Romanian Government.

further choices emerge; countries should then make structural and qualitative changes in major areas of life and economy impacting the whole society. Such measures can be taken if they are spread over time, simply because of the magnitude of the changes and because of the financing needs which pose a challenge on state budgets over decades. In the meantime the EU-ETS is not likely to actually lead Romania towards decarbonisation.

From the sources quoted above, the implementation of the ETS in Romania may be perceived primarily as a constraint on prices, competitiveness, economy, security of supply etc. Romanian sources do not present any benefits resulting from the integration of the system nor are they assessing the reduction potential of **no regret** measures. Low cost actions and their benefits are more taken into consideration by the Romanian administration mainly in relation with energy efficiency (please see further in chapter 4.2.3.1).

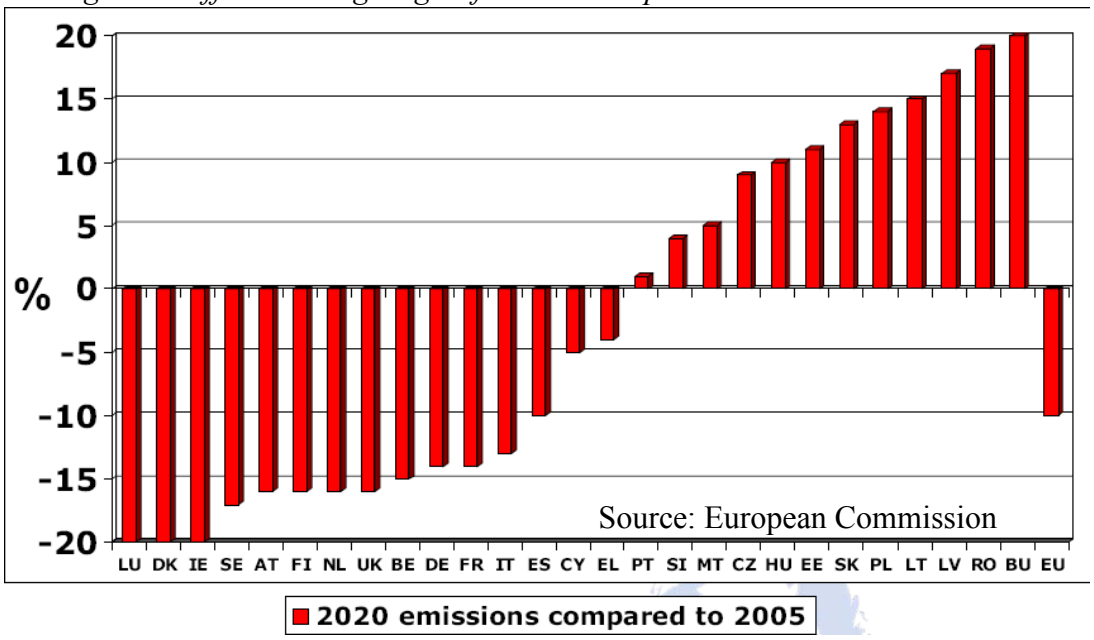
**The Effort Sharing Decision**

The second pillar of the climate and energy package is an Effort Sharing Decision governing GHG emissions from sectors not covered by the EU ETS, such as transport, housing, agriculture and waste which are approximately 60% of current European emissions. Under this Decision each Member State has agreed to a binding national emissions limitation target for 2020 which reflects its relative wealth. The targets range from an emissions reduction of 20% by the richest Member States to an increase in emissions of 20% by the poorest. These national targets will cut the EU's overall emissions from the non-ETS sectors by 10% by 2020 compared with 2005 levels according to the European Commission. Legally binding targets for Romania to meet by 2020 in change of emissions from sectors not covered by EU ETS (from 2005 level) is **+19 %** according to Decision no. 406/2009/EC, percentage seen by the Romanian authorities as an "advantage". One important element of the package is that member states' binding annual non-ETS GHG emission levels should annually be limited in a linear manner as understood from Article 3.2 of the decision.

As Feiler *et al.* (2009: 13) presents the situation in the non-ETS sectors of the economy, national governments still have more to say about mitigation policy, although total freedom is only an illusion: EU regulations have an impact on more or less the whole spectrum of emissions, from buildings to waste. There is still space for policy development in the non-ETS sector, and this is where emission reduction targets are not likely to be so tight in the period up to 2020.

The most important difference between the first two legal acts is that the target for the ETS sector is one community target whilst in the non-ETS sector a **burden sharing** for all 27 Member States in separate targets has been agreed (Werring, 2009:4).

*Figure 8: Effort Sharing targets for 2020 compared to 2005 emissions levels*




Because of the economic structure, the emission structure designed by the EC namely 40% of emissions from installations covered by the ETS Directive and 60% non-ETS emissions is not applicable to Romania. In 2007, 48% of emissions were covered by the ETS (NAP, 2007:14). Since 2013, these percentages will change, taking into account new areas that will fall under EU-ETS (Ministry of Environment, 2008), reaching about 60% (IER, 2010:64).

In the same time a number of non-ETS sectors that fall under this decision will be subject to binding regulations, namely the reduction of $CO_2$ emissions from transport, the 120g $CO_2$/km target for cars, energy efficiency for buildings (Ministry of Environment, 2008).

The "advantage" of 19% can be valorised on condition that the service sector and the small and medium enterprises with significant contribution to the GDP grow. In the same time, it seems that the acceptance of the new **ETS versus non-ETS** structure would primarily disadvantage the Romanian energy sector (IER, 2010:86).

Regarding the impacts of the package on the non-ETS sectors, the most important ones are on transport, building sector, services, agriculture, and waste.

From 2013, aviation will be included in the ETS category, but the percentage of emissions from aviation in the Romanian economy is relatively reduced. Incentive programme for the renewal of the vehicles fleet[46] is extremely important for the **transport** sector. It began in 2005 and continues today, having allowed the withdrawal from circulation of a large number

[46] Information about the programme is detained by the Romanian Environmental Fund Administration (AFM) which provides financing of this programme as well as for other programmes. AFM is under the coordination of the Romanian Ministry of Environment.

of polluting vehicles. To the extent that the program will continue after 2013, it will maintain a high percentage of low-emissions vehicles. Another way to reduce emissions from the transport sector is the use of biofuels. G.D. 1844/2005 and G.D. 456/2007 set intermediate targets and require manufacturers of diesel and gas to include till 2010, 5.75% of biofuels in conventional fuels, according to which Romania must produce at least 330 000 tons of biofuels (bioethanol and biodiesel) annually (Ministry of Agriculture and Rural Development, 2008).

Alongside with measures promoting clean vehicles, there are no visible measures strengthening the provision of public transport[47]. On the contrary the Romanian fleet increased by 9% in 2007 from 2006, by 10% in 2008 from 2007 and by 5% in 2009 reaching 5,324,348 vehicles for a population of 21.5 million people at 31st of December 2008 (Directorate for Driving and Vehicle Registration, 2010). The growth trend is expected to slow down during the economic crisis.

The **pollution tax on cars** has generated avalanches of protests since its introduction in January 2007 until today. At that time the large number of purchased and matriculated second-hand cars was excessive. Therefore the pollution tax on cars was initially conceived as a support for the Automobile Manufacturing Industry and for the Incentive programme for the renewal of the fleet. Since 2007 the tax and its calculation method was modified many times starting with a tax only for second-hand cars, passing to a tax based on cylindrical capacity and on the age of the vehicle and moving to a tax depending on the stages of the European Emission Standards (Euro 1-5). In 2009 the former Minister of Environment announced that a new version of the tax is in preparation taking into account the "polluter pays principle" and the European criteria of 120g $CO_2$/km. In 2010 the new form of the tax is in stand-by as it is not a priority in today's crisis economy (Personal Communication, 2010).

The dependence of **building** industry on cement and lime industries, transport prices, and indirectly on electricity prices make this sector vulnerable to the effects of implementing the climate and energy package. The direct effect of the package is the need for more rigorous construction standards (IER, 2010:109).

**Services** like IT and the financial sector are also affected by the implementation of the European package. The second one is influenced by energy and transport costs on one hand and on the other hand by the need for a local market for carbon allowances which should be treated as tradable goods accessible to all potential polluters by 2013 (*ibid.,* p.110).

[47] Public transport is not taken into account by the "Sustainable transport strategy for the period 2007-2013 and for 2020, 2030".

Given the diminishing importance of **agriculture** in the economy, the positive effect of reduced GHG may diminish in the context of investments in the common agriculture policy that might boost agricultural activity. As far as LULUCF is concerned, there is a lack of coherent afforestation policies. Bad management of deforestation and inappropriate timing led forests to becoming inefficient in attracting and storing of $CO_2$ (*ibid.,* p.112).

The National **Waste** Management Strategy (NWMS) for 2003 – 2013 was approved in 2004 and set the grounds of a sound economic framework for developing and implementing an integrated waste management system. The NWMS implies the existence of county and regional Waste Management Plans. In the context of increasing urban demography, constructions and demolitions in the urban environment, etc., the evolution of waste emissions may be on an ascendant trend (NEPA).

**Renewable Energy Directive**

The third element of the package, Directive **2009/28/EC**[48] consists of binding national targets for renewable energy which will lift collectively the average renewable share across the EU to 20% by 2020. The national targets range from a renewable share of 10% in Malta to 49% in Sweden. The targets will contribute to decreasing the EU's dependence on imported energy and to reducing greenhouse gas emissions. The Directive confirms the 10 % target for energy from renewable sources in transport (preamble, §8) and is setting sustainability criteria for biofuels.

The legally binding target for Romania to meet for the share of energy from renewable sources in gross final consumption of energy[49] by 2020 is **24%**. The share of energy from renewable sources in gross final consumption of energy in 2005 was **17.8%** according to Annex I of the Directive[50]. These two objectives are marked in the Draft of the Romanian National Action Plan for Renewable Energy (2010:29) waiting for the approval of the Commission.

In accordance with Article 4 of Directive 2009/28/CE, Member States have to adopt a National Action Plan for Renewable Energy (NAPRE) setting out the share of renewable energy consumed in transportation, electricity, heating and cooling by 2020, taking into account effects of other energy efficiency policies on final energy consumption.

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**48** Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

49 Final Energy Consumption is the energy finally consumed in the transport, industrial, commercial, agricultural, public and household sectors. It excludes deliveries to the energy transformation sector and to the energy industries themselves.

**50** The Annex states the national overall targets for the share of energy from renewable sources in gross final consumption of energy in 2020.

*Table 4: National targets for the share of energy from renewable sources consumed in transport, electricity and heating and cooling in 2020*

| **Share of renewable energy in:** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heating and cooling | 17.46 | 17.28 | 17.82 | 17.25 | 16.76 | 16.91 | 17.38 | 18.21 | 18.9 | 20.39 | 21.84 |
| Electricity | 28.67 | 31.55 | 34.87 | 37.87 | 40.89 | 42.55 | 42.78 | 42.46 | 42.8 | 43.14 | 43.53 |
| Transportation | 5.82 | 6.26 | 6.68 | 7.10 | 7.52 | 7.96 | 8.37 | 8.81 | 9.23 | 9.67 | 10 |
| Global share of energy from renewable sources | 17.50 | 18 | 19.04 | 19.35 | 19.66 | 20.13 | 20.59 | 21.21 | 21.83 | 22.92 | **24** |

Source: Romanian Action Plan for Renewable Energy, 2010:34

According to the National Action Plan (2010: 29), the energy potential of RES in Romania is estimated at 14,718 ktoe. According to the National Energy Strategy (2007:9) the technical potential[51] of these sources is much lower, due to technical constraints, economic efficiency and environmental restrictions. In order to meet the 2020 target set by Directive 2009/28/CE, Romania will have to **use 50%** of this total potential presented in Table 5. Romania considers that it can achieve this overall target without transfer of RES energy from or to other Member States. In other words no national surplus or deficit of energy from RES is expected (NAPRE, 2010:29).

*Table 5: The energy potential of national renewable energy sources*

| **Source** | **Annual potential** | **k toe** | **Application** |
|---|---|---|---|
| Solar energy | 60 PJ[52]<br>1.2 TWh | 1,433.0<br>103.2 | Thermal energy<br>Electrical energy |
| Wind energy | 23 TWh | 1,978.0 | Electrical energy |
| Hydro energy | 40 TWh | 3440 | Electrical energy |
| Biomass and biogas | 318 PJ | 7,597.0 | Thermal energy<br>Electrical energy |
| Geothermal | 7 PJ | 167.0 | Electrical energy |
| Total | | **14,718** | |

Source: Romanian Action Plan for Renewable Energy, 2010:6 (with data provided by The Energy Research and Modernization Institute - ICEMENERG)

[51] The theoretical potential is reduced due to geographical restictions, technical limitations as conversion efficiencies, resulting in the technical potential (Hoogwijk and Graus, 2008:6).
[52] PJ – petajoule; Peta is a prefix in the metric system denoting $10^{15}$.

According to the action plan (*ibid.,* p.29), the estimated energy potential from national renewable energy sources does not take into account the economic constraints or the market environment. The effort to achieve the target will require a substantial investment.

*Table 6: New renewable energy capacity and the total investment effort for 2011-2015*

| **Renewable energy sources** | **2011-2015** | |
|---|---|---|
| | **New capacities** | **Investment (millions €)** |
| Solar – thermal energy | 16 000 tep | 93 |
| Solar – electrical energy | 9.5 MW | 48 |
| Wind energy | 280 MW | 280 |
| Hydro energy (<10MW) | 120 MW | 120 |
| Biomass – thermal energy | 3,487,800 tep | 200 |
| Biomass – electrical energy | 379.5 MW | 400 |
| Geothermal energy | 23,900 tep | 12 |
| Total | 789 MW | 1.153 |

Source: Romanian Action Plan for Renewable Energy, 2010:7

It is worth mentioning that the 2008 energy from renewable energy sources was produced almost exclusively in hydroelectric power plant. The share of wind power was insignificant and the other renewable energy sources were absent during 2008 (*ibid.,* p.21).

*Table 7: Total production of energy from renewable energy sources for 2008*

| **Total production of energy from renewable energy sources** | **16 918 GWh** | **100%** |
|---|---|---|
| Hydro >10 MW | 16 144 | 95.4% |
| Hydro between 1 and 10 MW | 661 | 3.9 % |
| Hydro < 1 MW | 102 | 0.6% |
| Total Hydro | 16 907 | 99.9 % |
| Wind energy | 11 GWh | 0.1% |

Source: Romanian Action Plan for Renewable Energy, 2010:21

Romania has substantial **hydropower** potential which could comprise up to 30% of the energy mix (Constantin, 2010:110). Latest estimations show that Romania's technical hydropower potential is approx. 40,000 GWh/year of which, in 2007 energy market prices, about 30,000 GWh / year may be capitalized within economically efficient conditions. The National Energy Strategy for the period 2007-2020 (2007: 10) states that the present technical hydropower potential is capitalised at 48% and the hydropower economical potential at 57,8%.

In the National **Energy Strategy** for the period 2007-2020 electricity production from thermal power plants is expected to grow from 36.7 TWh in 2008 to 45.9 TWh in 2020. Although production from natural gas and oil will decrease, coal use for electricity production will increase from 25.7 TWh in 2008 to 34.9 TWh in 2020. A considerable focus in the Strategy is on nuclear energy, given the fact that two more units (706 MW installed capacity each) are planned to start operating by 2015 within Cernavoda nuclear power plant.

The assessment of the **2009/28/EC** Directive done by the European Institute of Romania is limited to a qualitative analysis. It reveals that the Directive's main influences are on the energetic system, economy in general, on the consumers and on the urban systems.

The difference between the two reference values mentioned above, 17.8% in 2005 and 24% in 2020, needs to be covered by the new investments. According to the study (IER, 2010:122), the measures, including the investment ones (see Table 6), for the strengthening of the transport and of the distribution network to meet the challenges imposed by the Directive are pertaining mainly to wind power plants. This brings additional vulnerabilities in the national electricity system in order to pass the difficult moments of the fall in electricity production caused by the sudden drop in wind speed. The appearance on the electricity market of a larger "green" power that has priority access (Art. 16b "Access to and operation of the grids") to the network translates into two types of effects: i) the decrease of the share of conventional electricity that enters into competition on the open market resulting from the increase of renewable energy share; ii) the increase of the marginal cost of the system by increasing the rate of injection of electricity with costs higher than the average due especially to technical efforts for surpassing fluctuations of the wind flow.

Some sectors of the economy, in particular, construction industry will be affected by setting special conditions from 2015 on new **buildings,** starting with the architecture up to the heating system which will require using renewables (IER, 2010:123).

There is also an impact on **consumers** through the new prices containing internalizations specific to renewable sources and through mandatory renewable energy quota for electricity consumption, which is called the Green Certificate system. A more detailed analysis of the tradable green certificates as a policy instrument (Heinzel and Winkler, 2010) and about the evolution of its legislative framework can be found in chapter 4.2.4.2. Added to the social impact of the green certificate system there may be an inevitable increase of subsidies for vulnerable social categories (IER, 2010:124).

An impact on **urban** systems is also envisaged. The Directive indicates in its Article 13, §3 that Member States shall recommend to all actors, in particular local and regional administrative bodies, to ensure equipment and systems are installed for the use of electricity, heating and cooling from renewable energy sources and for district heating and cooling when planning, designing, building and renovating industrial or residential areas.

Member States shall, in particular, encourage local and regional administrative bodies to include heating and cooling from renewable energy sources in the planning of city infrastructure, where appropriate.

**Carbon Capture and Storage**

The fourth piece of legislation of the climate and energy package is a framework to promote the development and safe use of carbon capture and storage (**CCS**). In 2009 Directive **2009/31/EC** was adopted, on the geological storage of carbon dioxide. The CCS Directive establishes the objectives and general requirements necessary for exploration and storage permits, liabilities and closure procedures for CCS sites. The details of implementation of the CCS Directive are left to the individual Member States. According to the Directive, Member States retain the right to decide whether to allow CCS in their territory and, in the case they do, they are allowed to choose the areas where to realize CCS. The Member States that decide to allow CCS in their territory shall perform a characterization and an assessment of the potential storage complex and of the surrounding area.

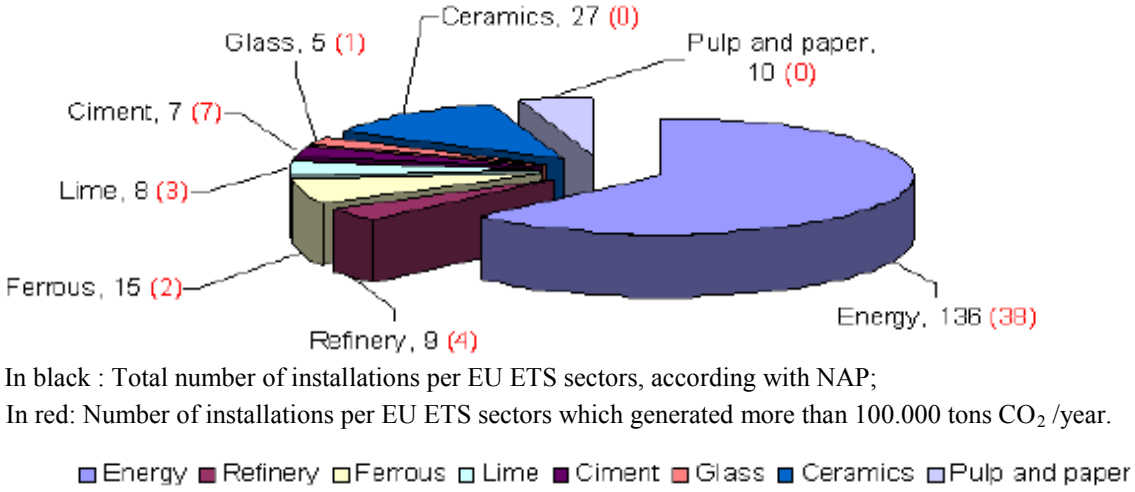
Until May 30th 2011, authorities must implement the CCS Directive, to assess the storage capacity, to harmonize the legal framework and to notify the Commission regarding these actions. During the seminar organised by the British Embassy in Bucharest in June 2009 "Opportunities for Romania - Innovative technology for carbon capture and storage" representatives of the Romanian Ministry of Environment stated that there is an "Action Plan to Implement a Demonstration Project Regarding Carbon Capture and Storage in Romania" subject of a Memorandum signed between the ministers involved and by Prime Minister, (Bellona Europa aisbl, 2010:4)[53]. The action plan provides for studies and projects to be carried out pertaining to the assessment of the storage capacities of Romania, with a view to evaluating the likelihood of the opportunity for Romania being involved in a demonstration project. At the seminar, representatives of the Institute for Studies and Power Engineering insisted that in order to take this EU supported project, Romania must implement the Directive before 2011.

Although CCS can be regarded as a way to postpone the transition to a low-carbon economy and could serve as an alibi for burning more fossil fuels, there is a significant number of studies prepared in Romania that are in favour of such a technology. On the other hand, as Cole (2009:3-41) debates in detail, there is likely no mechanism for substantial reduction of carbon emissions over the short run (up to 2030 for example) that does not involve the capture and storage of carbon dioxide emissions from power plants and other major industrial sources.

[53] Approved by the Government meeting dated February 17th, 2010.

According to the European Technology Platform for Zero Emission Fossil Fuel Power Plants (ZEP[54], 2010:5), only a part of EU ETS Romanian's installations (38 out of 244) generated a quantity of verified $CO_2$ emissions higher than 100.000 tons/year and may be suitable for implementing CCS technologies. The higher number of installations is in the energy sector (38) which has a significant and a long term potential to reduce $CO_2$ emissions by implementation of CCS technologies, as presented in the following chart.

*Figure 9: No. of ETS installation suitable for implementation of CCS in 2007*




In black : Total number of installations per EU ETS sectors, according with NAP;
In red: Number of installations per EU ETS sectors which generated more than 100.000 tons $CO_2$ /year.

Source: ZEP country profile (2010: 5) after"Promoting CCS in Romania", ISPE & GeoEcoMar

In October 2009, newspapers announced the association of the gas producer Romgaz with Transgaz, the national gas carrier and the electricity producer Craiova Energy Complex in view of the first project of carbon capture and storage in the country, in partnership with Norway. The project is currently in preparation under the pre-feasibility phase for a new unit of 500 MW using local lignite in CEN Craiova – Isalnita designed "capture ready"[55].

**Energy Efficiency**

The third target to be considered in the analysis of the climate-energy package for Romania is related to energy efficiency. The value of the Romanian energy intensity[56] in 2005 was three times higher than the European average. The comparison with developed countries (in particular European countries) is more favourable, if energy intensity is calculated by using purchasing power parity (PPP). In this case, primary energy intensity of Romania in 2005 was 0.243 toe/€1000, respectively 1.6 times higher than EU-25 average (IER, 2010:176).

[54] The European Technology Platform for Zero Emission Fossil Fuel Power Plants (ZEP) is a coalition of stakeholders for CCS as a key technology for combating climate change.

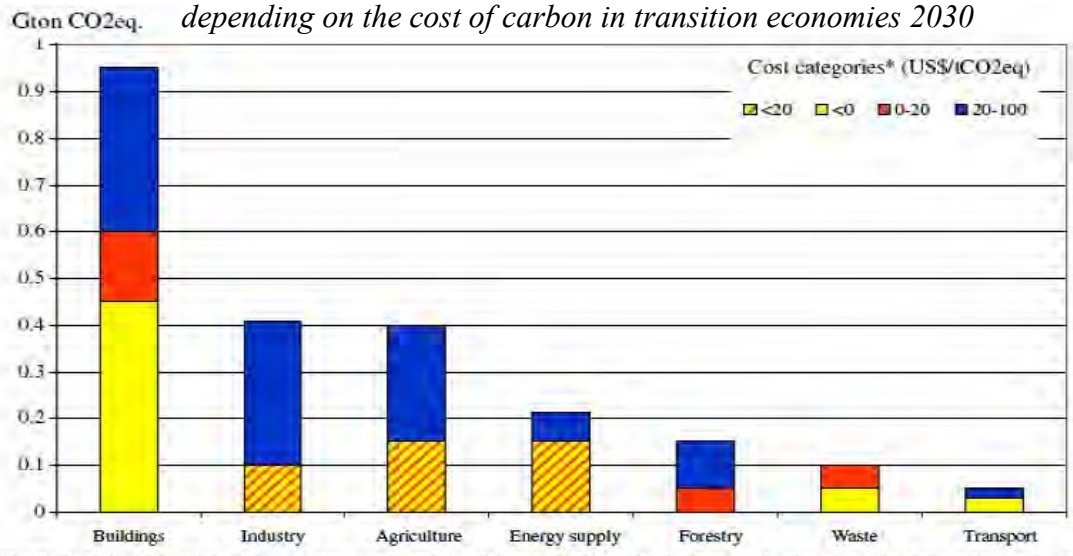
[55] A capture ready plant is a plant which can be retrofitted with $CO_2$ capture when the necessary regulatory or economic drivers are in place (IEA, 2007:5).

[56] Energy intensity is usualyy defined as the ratio of Primary Energy Supply to Gross Domestic Product.

The great advantage of energy efficiency measures is the existence of "no cost" actions and even benefits. This is especially important for the economies considered still in transition, including Romania, which are unable to implement the measures that require large investments, which essentially influence the cost of carbon on a broad market (*ibid.,* p.125).

The IER study shows that in 2030 the highest potential to reduce $CO_2$ emissions from economic sectors in transition economies is found in the building sector. Figure 10 shows that negative cost potentials in the buildings sector in economies in transition are larger than those in all other sectors combined. This holds also true when mitigation opportunities costing less than \$20/t$CO_2$e are considered. This is caused by subsidized energy prices maintained for long periods that prevented economically optimal levels of investments into energy efficiency. More concretely, in most of the economies in transition energy prices were heavily subsidized for decades during the communist era, resulting in a very poor building stock from an energy perspective (Ürge-Vorsatz and Metz, 2009:91). In transition economies, investments into improved efficiency, especially in the building stock, can help reduce the burden of increasing energy prices and the result of the removal of energy subsidies over the last two decades (*ibid.,* p.92). Meanwhile, when speaking of energy efficiency, Dore Iremie, member of the working group for the preparation of Romania's participation in international negotiations, mentions primarily households heating where Romania scores 26 in the EU-27. This is because about 67% of the existing building stock in Romania has been built after 1960 and consists of blocks of flats made of poor materials in most cases. Heat losses are notoriously high (Nutu, 2009:19).

*Figure 10: Potential to reduce GHG emissions from sectors depending on the cost of carbon in transition economies 2030*




*For the buildings, forestry, waste and transport sectors, the potential is split into three cost categories: at net negative costs, at 0-20 US$/tCO2, and 20-100 US$/tCO2. For the industrial, forestry, and energy suppy sectors, the potential is split into two categories: at costs below 20 US$/tCO2 and at 20-100 US$/tCO2.

Source: IER, 2010:128 after Ürge-Vorsatz and Metz, 2009:92 (calculated based on IPCC, 2007)

For Romania, the national potential for saving energy and $CO_2$ emission reduction by thermal rehabilitation of buildings is estimated at 19.7 billion kWh/year (or 1.7 million toe/year) and 4.1 million tons $CO_2$/yr. Its turning into value can be made by implementing the "National Programme for the thermal **rehabilitation of buildings**". Rehabilitation cost is recovered in 8-12 years by reducing energy consumption (IER, 2010:127).

There were several Government attempts to help those willing to rehabilitate their buildings and thereby consume less. The legislation for **energy performance** of buildings was first introduced by the Emergency Ordinance 174/2002 which was amended by Emergency Ordinance 187/2005 providing for financing for thermal insulation programs by the central government, local governments and users, in varying proportions.

The percentages were changed again in 2009 by a new Emergency Ordinance 18/2009 which provides for a subsidy of 80 % from the state budget (local and central government). The owners' association is responsible for 20% of the costs (Art. 13), therefore coating the exterior walls needs coordination of all private owners of apartments. Regardless of the sharing percentages, the completion of one block of flats requires cooperation of local and central governments, plus the availability of funding from owners. This explains why the program has been severely delayed. By the end of 2009, only 35,000 apartments were finalized (2-3% of the total number of 84,000 blocks) (Nutu, 2009:20). Emergency Ordinance 69/2010 provides financing through bank loans with governmental guarantee.

*Figure 11: Comparison between rehabilitated and non-rehabilitated buildings*

Source: www.dobro.ro

As the two previous studies (IER and Ürge-Vorsatz and Metz), Nutu also agrees that in order to meet the 20% target of energy efficiency, Romania needs to use energy saving sources that are **economically efficient.** For this purpose in Table 8 she reiterates the economic potential for raising energy efficiency of four sectors calculated in the National Energy Strategy (2007:13). In the strategy (*ibid.*), an estimated reduction in energy intensity of 3% per year by 2015 was established, if measures for improving energy efficiency are implemented "from cradle to grave": choice of natural resources, production, distribution

and final consumption. Population has the highest economic energy saving potential and is coherent with the efficient emission reductions from the building sector. The energy savings refer to the consumption of electrical energy for 2005 mentioned in the National Action Plan for Energy Efficiency (2007:9).

*Table 8: Cost effective economic potential for energy saving*

| Sector | Ktoe | % of total | Potential savings (%) | Potential Savings (ktoe) |
|---|---|---|---|---|
| Industry | 10,505 | 41.85 | 13.0 | 1590 |
| Population | 8,055 | 32.09 | 41.5 | 3600 |
| Services, etc | 2,298 | 9.15 | 14.0 | 243 |
| Transport | 4,244 | 16.91 | 31.5 | 1390 |
| **Total** | **25,102** | **100.00** | **100.0** | **6823** |

Source: Nutu (CRPE), 2009:13

The National Action Plan for Energy Efficiency and its proposed targets are a reaction to the Energy Efficiency Directive 2006/32/EC: Member States shall [...] achieve an overall national indicative energy savings target of 9 % for the ninth year of application of this Directive (Art. 4, §1) but in aiming to achieve their national indicative target, Member States may set themselves a target higher than 9 % (preamble, §13). The intermediate target for reducing energy consumption corresponds to 4.5% of average consumption for 2001 – 2005, namely 1.5% per year. The target of energy savings adopted by Romania for 2016 represents 13.5% of average consumption for 2001 – 2005, namely 1.5% per year (from 2006 to 2015).

*Table 9: Targets for energy savings*

| | |
|---|---|
| Average for period 2001-2005 [thousands toe] | 20,840 |
| Target of 9% energy savings by 2016 [thousands toe] | 1,876* |
| Target of energy savings adopted by Romania by 2016 [thousands toe] | 2800** |
| Intermediate target for 2010 [thousands toe] | 940*** |

* minimum figure in conformity with Directive 2006/32/EC
** 13.5% of average consumption for 2001 – 2005, namely 1.5% per year
*** 4.5% of average consumption for 2001 – 2005, namely 1.5% per year
Source: The National Action Plan for Energy Efficiency, 2007:10

There is however a significant difference between the Directive's targets and the climate and energy package. While the first one requires at least 9% reduction (Art.4, §1) from 2001-2005 average by 2016 (Romania assuming a target of 13.5 as shown before), the 20/20/20 package requires a reduction in energy consumption of 20% from 2005 levels by 2020. Practically consumption would be reduced by about 6.5% in the last four years (2017-2020), i.e. with an average of 1.625% per year, which is an effort particularly difficult. 2009 and 2010 may be considered uncharacteristic years, with reduced consumption due to the

economic crisis and less to energy-saving measures (IER, 2010:135). The compiled efforts were expressed in money by the World Bank and in CRPE's opinion the **efforts** to meet the EU energy efficiency objectives require projects in several sectors simultaneously. The total expense would amount to:

*Table 10: Energy efficiency investment needs, € million (cumulative)*

| | 2010 | 2015 | 2020 |
|---|---|---|---|
| Target energy savings (cumulative ktoe) | 940<br>4.5% | 1,880<br>9.0% | 4,180<br>20% |
| Investment needs | 1,600 | 4,000 | 8,000 |
| Funds allocated | 800 | 1,600 | 1,600 |
| Funding gap | 800 | 2,400 | 6,400 |

Source: Nutu (CRPE), 2009:13 after World Bank, 2008: 19 (Based on Compilations from various documents of the Government)

The IER study continues the analysis by underlining that given the reported consumption for the whole economy to the reference year 2005 with a consumption of 25.1 million toe, the 20% reduction leads to 5.02 million toe energy savings which are likely to be translated into **savings** of around €17-20 billion/year (obviously depending on the price of fuel mix of the country). This calculation did not take into account measures for the 2009 uncharacteristic year because of the economic crisis. Besides "low cost" actions mentioned at the beginning of the section, effective measures are considered only projects with an internal rate of return on investment of at least 15%. Therefore, the study does not produce precise figures for investments necessary to achieve the economies considered above, but advances the value of €4-5 billion for the whole period until 2020, as a plausible figure (IER, 2010:134).

The funding needs for Romania's ambitious energy efficiency and renewable energy program is estimated by the World Bank in its report "Design Options for Romania Greening Facility" (2008:6) at over €12.5 billion through 2020, of which about €6.1 billion would be needed between 2008-15. Romania is advised to examine the experience of other EU member countries in this regard and adopt appropriate mechanisms, including policy, legal/regulatory, institutional frameworks, which support rapid roll out of such large investments.

An Action Plan for Romania's preparation to implement the climate and energy change package was developed under the coordination of the European Affairs Department and approved by a Government's memorandum on the subject but it isn't accessible publically. The plan sets measures to achieve the national objectives set by the package.

**Conclusions for the Climate and Energy Package**

In conclusion with more than 70 % of Romania's **energy mix**[57] coming from fossil fuel (EU energy policy data, 2007) and with an increase in greenhouse gas emissions in the near future, in the context of the economic growth, Romania is one of the Member State that will be most affected by the Package, particularly the energy sector and the energy-intensive industry (Constantin, 2010:110). Therefore Romania should have coherent policies to meet the 20-20-20 EU Strategy obligations (Nutu, 2009:3). This means that Romania should maximize the leverage of existing financing sources and pass on to other sectors the experience with energy-efficient projects undertaken so far.

Nutu mentions the World Bank recommendation for the establishment of an **institutional actor** to facilitate the transfer of know-how across sectors and coordination of energy-efficiency measures, within the existing organizational framework (that is, without creating additional structures or bureaucracy) (*ibid.*). Meanwhile, the IER's study proposes the establishing of a "National Strategic Planning Institute", under the subordination of the Government, whose main role will be to develop proposals and pursuing economic and social development strategies for Romania, in conjunction with the supporting capacity of the natural capital in the medium and long term, the coordination of the interdependent sectoral programmes and insuring the consistency of the government programs and of those with Community funding (IER, 2010:135). EIR recommendation is for an institute of strategic nature that is setting directions while Nutu from the CRPE suggests a practical approach in order to ensure coordination between existing players.

The fact that a legally binding agreement for the post 2012 regime would not be achieved in the near future puts Romania in an **unfavourable position** according to members of the working group that prepares Romania's participation in international negotiations. Romania will still have to comply with what it committed at European level targets that not only do not contribute decisively to reduce emissions and global warming, but bring disadvantages to the EU economic competitiveness. Nonetheless, "the with international agreement scenario" namely the European shift to 30% GHG reduction, constrains Romania to even higher efforts compared to international pledges, simultaneously with Romania's economic and social catch up.

Following the judgment from Feiler *et al.* (2009: 28) the phenomenon of **carbon constraint** will be new at government policy level. Translating the new pressure of carbon constraint into genuine, targeted climate policies will be a significant challenge. Such policies will need to do more than relieve the constraints of the given moment and will result in the development and implementation of "transition blueprints" that last for decades. However, if they implement the transition blueprints without looking further ahead, after 2020 these countries may face severe difficulties as a result of missed opportunities.

[57] Synonym to Primary Energy Supply - the quantity of energy consumed within the borders of a country.

*4.2.3.2 Romania as Party to the Kyoto Protocol*

**AAU Trading**

AAUs surplus is a common feature for countries in Central and Eastern Europe and the former Soviet Union. The so-called „economies in transition" hold a surplus of AAUs in the Kyoto commitment period (2008-2012) resulted from economic decline in the 1990s that followed the fall of the Soviet Union. The large amount of tradable emissions available from these countries is referred to as **hot air** because they resulted from an unintentional deviation from business as usual (BAU) emission patterns, rather than new investment in clean energy (Murphy *et al.*, 2009:4). The term is vehemently opposed by the seller countries, which instead emphasise the huge social and economic costs of the transition from planned to market economy which have enabled these reductions (Point Carbon, 2009:1). This is the main reason why carry-over policy of AAUs post 2012 is a vital matter for them.

Although hot air is essential to obtaining the participation of reluctant states, excessive hot air is troubling because it reduces actual emissions cuts: hot air given to reluctant states will merely shift more of the burden of real abatement to committed states. However, as a political matter this cuts both ways. Those who want to see swift and aggressive emissions reductions will resist the granting of hot air, but the enterprises and other entities in the industrialized democracies that will actually be taking on the largest commitments will favour it, as it will reduce the price of permits they will need to buy in a cap-and-trade system (Keohane and Raustiala, 2008:12). That is why critics asserted that an excessive reliance on AAUs would significantly diminish the credibility of the Protocol. Meanwhile participants who have made investments that are contingent on the system's integrity will have a continuing stake in the success of the system (*ibid*, p.9) i.e. having strong green preferences drives governments to enforce domestic restrictions and to accept the granting of hot air permits to reluctant states (*ibid.,* p.19).

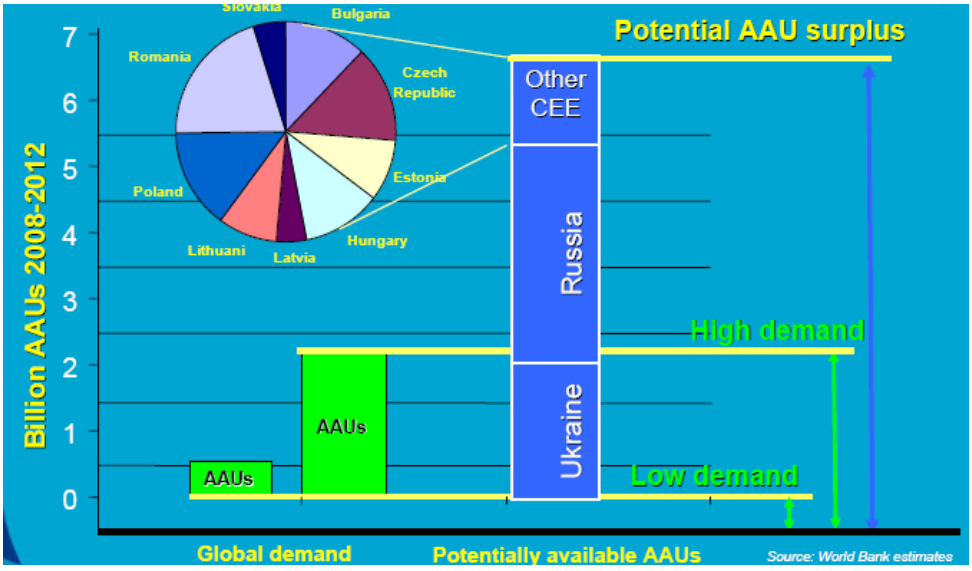
The question of the environmental **integrity** of the entire system, and the compatibility of the reduction objectives with the required reductions at global level was clearly approached by the EU on 9th December at COP 15. EU highlighted that even before the AAU surplus and accounting rules, global current pledges (situated in a range of -13% to -18%, see also chapters 4.2.2.5 and 4.2.2.3) are insufficient to achieve reductions necessary to meet the IPCC range of a 25-40% reduction from 1990 levels by 2020 necessary to stabilize atmospheric concentrations to 450 ppm $CO_2$e in order to keep global warming below 2°C. This fact is also commonly accepted by the majority of climate stakeholders and vividly criticized by insular states and environmental NGOs.

Later on EC's approach of this issue was reinforced. Due to falling emissions, the 1990 benchmark means that over 10 billion tonnes of GHG emission units will likely remain unused during the 2008 to 2012 commitment period, especially in Russia and the Ukraine.

Simply continuing the Kyoto Protocol would mean banking this "surplus", with the effect that headline cuts in emissions would be undermined. Full banking of these units into a second commitment period would cut the ambition of developed country targets by around 6.8% in relation to 1990, i.e. reducing the ambition from 13.2% to 6.4% for the lower end of the pledges, or from 17.8% to 11% for the higher end of the pledges (COM(2010) 86final, p.7). EU-15 opposes the carryover of pollution rights by Eastern Europe also because they would create a disadvantage to its industries, creating **distortions** on the internal market (Nutu, 2009:9).

Feiler *et al* in „Shaping the post-2012 climate regime: Implications for Central and Eastern Europe and Turkey" (2009:17) confirms the existence of an AAU surplus. He estimates AAUs surplus in new member states at 1.8 billion and the demand for AAUs in the EU-15 at 0.7 billion, even if the project based flexible mechanisms of the Kyoto Protocol are used. If we suppose that the member states only trade among themselves with AAUs, some 1.1 billion AAUs will remain, which can be reduced by purchases by Japan which is expected to have a shortfall of up to 1 billion AAUs by 2012 (Dawson and Spannagle, 2009: 245). Illustrative information on the global offer and demand of AAUs can be found in the next figure.

*Figure 12: Potential demand for and availability of surplus AAUs 2008-2012*




Source: Grzegorz (EBRD), 2009 after World Bank estimates

The magnitude and availability of surplus AAUs depends in future on the post-2012 climate regime which is under international negotiations. It is possible that Romania's emissions cap is reduced from current levels in the next climate regime, which would correspondingly reduce its AAUs surplus. Therefore, many experts and some officials in the Government believe that Romania should consider selling some of its surplus AAUs now and use the proceeds towards greening activities that reduce emissions (World Bank, 2008: viii).

Romania's commitment under the Kyoto Protocol is to reduce 8% of the 1989 emissions by 2012. Accordingly, Romania has a total AAU amount of 1,279,835,099 t $CO_2e$[58], with a commitment period reserve[59] calculated at 780,545,734 t $CO_2e$ as reported in Romania's initial report review (2008:26). Due to the economic contractions since 1989, the base year relative to which the Kyoto Protocol targets of the GHG emissions reduction are set for Romania, actual emissions of greenhouse gases will be lower and the country is expected to have a significant surplus of unused emission allowances. The surplus in emission allowances, represented by AAUs, is likely to have great economic value. Romania has been eligible to participate in International Emissions Trading since 28 April 2008 (UNFCCC Eligibility List under Articles 6, 12 and 17). Government Decision 432/2010 (Article 4) sets the maximum number of emission allowances that can be traded during the first commitment period at **300 million AAUs**.

In 2009, Nutu (CRPE) identified two ways of using Romania's AAU surplus: first to cover an expected increase in emissions, in line with future GDP growth or to deal with a possible further cut in emissions agreed at Copenhagen and second, to sell them to other countries which cannot meet their emission reduction targets.

According to Nutu's (2009:22) review the GDP growth or the agreement for future reductions would still not exhaust Romania's AAUs, so most likely, at least a part of them could be sold to other countries (Japan, Western Europe). During past years, the Romanian government did not decide regarding the two options and is currently facing a difficult choice: to sell AAUs at a possibly low price in the next months (after the necessary legislation is passed), or to sell them at higher price, but with an increased risk of losing them altogether if a potential new international post-Kyoto agreement would not allow AAUs to be carried forward after 2012. In 2009, Romania finally decided to prepare the legislation, in order to sell about 200 million AAUs, with the goal of obtaining additional money for the budget. However, the legislation was delayed from May 2009 onwards because the Government coalition could not agree on which Ministry should benefit from the funds: the Ministry of Environment or the Ministry of Economy. Both ministries had prepared lists of projects: the Ministry of Environment – for projects that would reduce $CO_2$ emissions and the Ministry of Economy – for rehabilitation of Cogeneration Plants (combined heat and power, CHP).

According to recent media reports, Romania aims to sell 200 million AAUs and could start selling AAUs during 2010 (ICIS Heren, 2010). According to representatives of the

[58] In other words, Romania is allowed to produce 1.279 billion t $CO_2$ between 2008 and 2012.

[59] In order to address the concern that Parties could "oversell" units, and subsequently be unable to meet their own emissions targets, each Party is required to maintain a reserve of ERUs, CERs, AAUs and/or RMUs in its national registry. This reserve, known as the "commitment period reserve", should not drop below 90 per cent of the Party's assigned amount or 100 per cent of five times its most recently reviewed inventory, whichever is lowest (UNFCCC).

Romanian Ministry of Environment, the government is working to create a legal framework that would facilitate the sale of the AAUs. Meanwhile the EU-15 countries and Japan are expected not to achieve their Kyoto targets without participating in IET. Some of the countries that are likely to be short in AAUs have signalled interest to purchase AAUs from Romania's surplus. Most likely, Romania would sign a bilateral/multilateral AAU sale-purchase agreement with the governments or private companies currently purchasing AAUs. It is less likely that AAUs will be directly allocated to private entities, as they are not authorized to use AAUs for compliance under the EU ETS and because of the administrative difficulties required for relatively small transactions (World Bank, 2008:104).

The Romanian Government estimates between €1.2 billion and €1.5 billion could be generated up to 2012, and up to €2 billion by 2015. This means that Romania is theoretically considering a price of **€10.00/t $CO_2$e** for the 200 million AAUs to sell. ICIS Heren estimates that Poland, for example, is seeking €8.00/t $CO_2$e. The same source mentions that the Slovak government sold some 15 million AAUs for €6.05/t $CO_2$e. One does not need to forget in case the final decision is not to carry forward the AAUs, countries such as Russia and Ukraine with the largest AAUs surpluses would sell their remaining credits which could lead to significantly lower prices.

In the past years, the prices for emissions have been very volatile from a minimum of €0.5 to €30. Nevertheless Oliver Schaefer, the Policy Director of the European Council for Alternative Energy (EREC), in an interview from March 2009 for Green Report Romania, estimated that there will be a robust price for carbon emissions in the future. He presumed that the carbon trading system in Europe and soon, worldwide, would stabilize the price of emission allowances. His estimation was around €20 per tonne of $CO_2$e.

**Joint Implementation Mechanism in Romania**

The continuation of the Joint Implementation Mechanism (JI) set by the Kyoto Protocol is another priority for Romania's post 2012 climate policy.

A REC report (2004:5) ranked Romania's JI potential 4$^{th}$ after Poland's, Czech Republic's, Bulgaria's[60] and Estonia's. Indeed JI had a promising start in Romania which continuously remained supportive of JI and is one of the few EU countries that include a set-aside for JI in its NAP (NAP, 2006:66). The set-aside covers already approved projects and additional projects expected to be approved.

Beginning with 2001, based on the provisions of the UNFCCC and its Kyoto Protocol, Romania started a series of bilateral cooperation programmes signing 10 Memoranda of Understanding (MoU) with different developed countries (Switzerland, the Netherlands,

[60] Czech Republic and Bulgaria are sharing second place.

Norway, Denmark, Austria, Sweden, France, Italy and Finland), as well as with the World Bank's Prototype Carbon Fund. These Memoranda provide the legal framework for implementing JI projects aiming at reducing GHG emissions in Romania and improving at the same time some social aspects of life, for example the providing of comfortable conditions at reasonable prices (5th NC, 2010:78).

Until January 2010, **16 JI projects** were approved and are in different stages of development. The total quantity of emission reductions to be generated by these projects is about 14 million tones of $CO_2$ equivalent (for the period 2008-2012 and onwards, in some cases starting before 2008). The main projects approved are in the local authorities' area, such as: district heating systems (including the use of renewable energy sources – sawdust and geothermal energy), closing up of urban waste landfills (*ibid.*).

*Table 11: List of JI projects in Romania*

| No. | **JI projects** | | **Total estimated emission reduction** | **Status** |
|---|---|---|---|---|
| 1 | Afforestation of 7000 ha degraded agricultural lands | World Bank | 1,000,000 (2002-2017) | Letter of Approval (finalized project) |
| 2 | "Sawdust 2000" DHSs on biomass (Intorsura Buzaului, Gheorghieni, Huedin, Vlahita, Vatra Dornei) | Denmark | 720,000 (2000-2010) | Letter of Approval (finalized project) |
| 3 | Geothermal energy use in DHSs of Oradea-area 2 and Beius | Denmark | 200,000 | Letter of Approval (finalized project) |
| 4 | Rehabilitation of District Heating System in Fagaras | Norway | 170,000* | Letter of Approval (finalized project) |
| 5 | Landfill gas recovery in Focsani and Targu Mures city | Denmark | 425,000 | Letter of Approval (project under implementation) |
| 6 | The development portfolio of Hidroelectrica Module 1 | Netherlands | 1,280,000 | Letter of Approval (project under implementation) |
| 7 | Landfill gas recovery in 4 cities (Oradea, Baia Mare, Satu Mare, Sf. Gheorghe) | Netherlands | 1,250,000 | Letter of Approval (project not implemented) |
| 8 | Biomass use for energy production in Neamt County | Denmark | 2,480,000 | Letter of Approval (project under |

| | | | | |
|---|---|---|---|---|
| | | | | implementation) |
| 9 | Modernization of 3 units in Portile de Fier I Power Plant | Netherlands | 1,675,000 | Letter of Approval (finalized project) |
| 10 | Modernization of 4 units in Portile de Fier II Power Plant | Netherlands | 850,000 | Letter of Approval (project under implementation) |
| 11 | Upgrading of Alesd and Campulung cement plants | Netherlands | 800,000* | Letter of Approval (finalized project) |
| 12 | Rehabilitation of CET Timisoara Sud | Sweden | 175,000 | Letter of Approval (finalized project) |
| 13 | Improving efficiency for steam boilers in Holboca CHP II Iasi | Denmark | 130,000 | Letter of Approval (finalized project) |
| 14 | Municipal Cogeneration at CET Targoviste | Netherlands | 400,000 | Letter of Approval (project under implementation) |
| 15 | Efficiency improvement in DHS of Drobeta Turnu - Severin | Denmark | 335,000 | Letter of Approval (project under implementation) |
| 16 | Rehabilitation of Timisoara Centru CHP | Netherlands | 558,000 | Letter of Approval (project under implementation) |

Source: Personal Communication, 2010

In Romania, the JI projects may be developed based on the clear procedures in accordance with those in **Track I and Track II**. If a host Party meets all of the eligibility requirements, Track I allows the host country to use national guidelines for approving projects and for monitoring and verifying GHG's emission reductions. Therefore Track I allows host countries of JI projects to introduce national simplified procedures in comparison to JI Track II which must be in accordance with procedures establish by the Joint Implementation Supervisory Committee (JISC). Since 2008, Romania can approve JI projects using its Track I procedures (Ministerial Order 297/2008).

Track II applies if host country complies with only three conditions: is Party to the Kyoto Protocol, the assigned amount is calculated, and a national registry is in place. Under Track II, international oversight under a framework of very strict rules and guidelines has the key role in validation and verifying the emission reductions from a JI project ($5^{th}$ NC, 2010:79), that is an independent entity accredited by the JISC has to determine whether the relevant requirements have been met before the host Party can issue and transfer ERUs (UNFCCC).

The final decision about issuing a Letter of Endorsement or a Letter of Approval belongs to the Minister of Environment and Water Management, taking into account the National Commission's on Climate Change (NCCC) advice.

With the EU ETS the EU has complemented the international mechanisms of JI and IET with an internal emissions trading scheme. The Community *acquis* imposes severe restrictions on the JI potential (Mariotte, 2006:136) and limits the flexibility of implementing and approving JI project activities. Unlike the participation in JI or the sale of AAUs under IET, the implementation of the EU ETS is mandatory.

In the context of JI, "**double counting**" occurs if a JI project reduces emissions that are accounted for under the EU ETS. The JI/CDM limit[61] as it results from the approved NAPII for 2008-2012 for Romania is 10%. Nutu (2009:14) in the CRPE report explains this situation very clearly. ERUs are accepted in the EU ETS. The World Bank report (n.r.: Design Options for Romania Greening Facility) shows that JI projects initially had a substantial impact, but decreased in importance after the implementation of EU ETS because of the double counting issue. Briefly, the reduction of emissions in a JI project cannot be rewarded twice. Thus, JI can be carried out in any installation if it reduces $CO_2$ emissions, and gives an ERU in return. If the JI happens to be in an installation included in EU ETS, and no account is given for these reductions, the operator can also sell the EUAs that were avoided through the JI project. In short, the government hands out two credits (1 ERU and 1 EUA[62]) in return for a reduction of only one tonne of $CO_2$, which conflicts with EU state-aid rules. To avoid this, corresponding EUAs are cancelled, to make sure the operator gets rewarded only once for the emission reduction of 1 ton of $CO_2$.

Directive 2009/29/EC points out that the Kyoto framework does not enable ERUs to be created from 2013 onwards without new quantified emission targets being in place for host countries. Once there is an international agreement on climate change, additional use of CERs and ERUs should be provided for, by countries which have ratified that agreement. The EU ETS establishes that in the absence of such an agreement, the use of ERUs should be consistent with the goal set by the Community of generating 20 % of energy from renewable sources by 2020, and promoting energy efficiency [...] (Preamble, §28).

De Sépibus (2008: 14) explored the the new ETS Directive[63] from the perspective of linking the EU-ETS to JI, CDM and post-2012 international offsets. In the absence of a global climate agreement JI/CDM credits from all types of project established before 2013 and accepted in the Community Scheme during 2008 and 2012 may be exchanged for allowances

[61] The JI/CDM limit is expressed as a percentage of the member state's cap and indicates the maximum extent to which companies may surrender JI or CDM credits instead of EU ETS allowances to cover their emissions.
[62] EU Allowance Unit. AAU and EUA are similar, but not identical. They both represent the right to emit 1t $CO_2$, but AAUs cannot be used by private companies to meet obligations under EU ETS.
[63] Before the adoption of the climate and energy package.

of the third trading period up to the remainder of the level which they were allowed in the second trading period (Art. 11a §2) and may be used in the third trading period (Art. 11a,§3).

The Commission's reason for allowing the exchange of CDM and JI credits is in de Sépibus's opinion, that it gives operators the certainty that they may use them after the end of the second trading period. Clearly, the Commission also wanted to avoid a price collapse similar to the one seen in the first trading period. This risk is all the more real, as the number of JI/CDM credits considerably exceeds the reduction required from operators with respect to their 2005 emissions. Moreover, if the Member States which required the annulment of the Commission's decision regarding their NAPs (see section 4.2.3.1.) were to win their legal challenge, another significant quantity of allowances would flow into the EU ETS and diminish further the relative scarcity of allowances imposed by the Commission (De Sépibus, 2009:15).

According to De Sépibus (*ibid.*) the ETS-Proposal has foreseen that upon the conclusion of a future international agreement the ETS-Directive should provide for an automatic adjustment of the use of credits from JI/CDM projects and potentially additional types of credits and/or mechanisms envisaged under such an agreement. Operators may use in addition to the credits provided by the ETS Directive, CERs, ERUs or other approved credits from third countries which have ratified the international agreement on climate change (Art. 28, §3).

In a report of the World Bank (2008:96), it is shown that in order to maximize the benefits from JI, Romania should consider the following recommendations: programmatic approaches, domestic and unilateral JI, non $CO_2$ emission reductions, demand side measures.

JI could support Romanian programs targeted at emission reductions, e.g. in the agricultural or forestry sector. Work undertaken in the context of sectoral (see chapter 4.2.2.3.) and **programmatic** (Programme of Activities - PoA) CDM could be used to devise methodological approaches because the PoA[64] concept was originally developed for the CDM, but is equally applicable to JI projects. The development of programmatic and government backed JI schemes may have the advantage over the allocation of AAUs in that ERUs might fetch higher prices than AAUs on international markets and can be sold into the EU ETS.

Romania should consider the use of **unilateral** JI and domestic offset projects. Such projects may allow for more cost-effective domestic abatement opportunities. A unilateral JI project is carried out in the investor country and no other country is involved. Domestic JI creates

[64] PoA is defined in annex 38, §1, of the report of the CDM Executive Board's 32nd meeting. PoA is a voluntary coordinated action by a private or public entity which coordinates and implements any policy/measure or stated goal (i.e. incentive schemes and voluntary programmes), which leads to anthropogenic GHG emission reductions or net anthropogenic greenhouse gas removals by sinks that are additional to any that would occur in the absence of the PoA, via an unlimited number of CDM programme activity.

the flexibility to engage in GHG emissions abating, projects regardless of the existence of any external funding. It also works as a tool to promote GHG abatement initiatives that complement other domestic policy initiatives (JI Action Group, 2008:6).

In promoting JI, Romania should be aware that a focus on non-$CO_2$ emission reductions will avoid the problem of double counting (methane avoidance and capture, $N_2O$ destruction) (WB, 2008:97).

A focus should also be placed on developing projects that are unlikely to be developed without further support of the Government. JI projects could be implemented in the housing and building sector (on the demand side), preferably based on programmatic approaches. Such projects will fall under the EU ETS's definition of indirect[65] double counting. Accordingly, the issuance of ERUs has to be accompanied by a cancellation of EUAs from the Governments set-aside. Alternatively such measures could be supported by the sale of AAUs instead of JI projects (*ibid.*).

**Green Investment Scheme**

The establishment of programmes that link emission reductions to the sale of AAUs have become known as "green investment schemes" or GIS. GIS has no legal basis in either the United Nations Framework Convention on Climate Change (UNFCCC) or the Kyoto Protocol. Its design depends solely on the agreement between the seller and buyer of AAUs (WB, 2008:98) The lack of actual international regulations should be regarded as an asset, subject to the negotiation between the Contracting Parties. The Green Investment Scheme is one of the **instruments** which, if properly designed, can ensure that revenue generated through the sale of AAUs is not misused and is spent instead on projects that will provide long-term benefits at the local, national and international level (Andrei *et al.*, 2006).

Compared with JI, AAU transfers have the advantage that they can be realized quickly and feasible greening activities can be implemented in anticipation of future funding. AAU trading may therefore present an effective tool for industrialized countries to mitigate their risk of non-compliance while reducing the demand on institutions to evaluate and monitor individual projects in other countries. AAUs also do not carry the project performance risk that is inherent to JI transactions; i.e. generation of credits are not dependent on the performance of specific projects that may be affected by factors such as construction delay, etc. (WB, 2008:98).

[65] The EU ETS Directive 2003/87/EC as amended by Directive 2004/101 made a distinction between direct and indirect double counting of emissions. Under Art 11b §3 of the EU ETS Directive, direct double counting occurs if a JI project leads to a reduction of $CO_2$ emissions in one or more specific EU ETS covered installations. Under Art 11b(4) of the EU ETS Directive, indirect double counting occurs if a JI project does reduce the $CO_2$ emissions of EU ETS installations, but the affected installations cannot be identified with certainty.

Even though in Romania, the discussion on GIS has been going on for more than six years a final decision taken by the government of Romania was delayed for several years. In the National Action Plan on Climate Change for Romania, from 2005, action 4.4 addresses the Development of the basis and implementation framework for a Green Investment Scheme. In 2006, the report "Developing a Green Investment Scheme in Romania" (Andrei *et al.*, 2006) proposed a general design for GIS in Romania, including institutional set-up for GIS after 2008 and priority areas. A draft Governmental Decision was developed by the end of 2008, based on the Regional Environmental Centre REC study (Andrei *et al.*, 2006). Trusca (2008) and Andrei *et al*. made a distinction between hard and soft greening projects. Hard greening projects relate to investments in technology, equipment and activities leading directly to quantifiable GHG emissions reductions and can be energy or non-energy projects. Soft greening projects enforce capacity-building, awareness raising, education, projects where GHG emissions reductions cannot be quantified. Ürge-Vorsatz *et al,*. (2008:92) mentioned the strong political will demonstrated by the Romanian Government regarding the development if GIS back in 2008. However the scheme has been discarded due to various reasons including the lack of an appropriate legal framework (Tuerk *et al,*. 2010:16).

The Government Decision 432/2010 on the initiation and development of green investment schemes was adopted only in May 2010. Article 10 states that the amounts resulting from the sale of surplus AAUs, are used as follows: 98% for green investments and 2% for information and awareness campaigns, as well as research studies on climate change. Revenues resulting from the sale of the AAUs surplus are revenues to the Environment Fund and are managed by the Environment Fund Administration (AFM).

#### *4.3.2.3 Romania as a Transition Country*

According to Annex I of the UNFCCC and Annex B of the KP, Romania is undergoing the process of transition to a market economy, process which influences its environmental and its climate conduct and this brings about specific political issues in the context of a post-Kyoto agreement. Romania still lacks the necessary financial means and political will to support further GHG reductions nationally and outwards, since environmental protection is still not a priority.

**Financial Contribution to the International Fight against Climate Change**

Article 10 of the Copenhagen Accord establishes the Copenhagen Green Climate Fund as an operating entity of the financial mechanism of the Convention. The Copenhagen Accord (Article 8) also announces voluntary financial contributions from developed countries -U.S. $30 billion (€21 billion) - for the period 2010-2012 (**fast start financing**). On the long term the agreement commits developed countries to mobilize around U.S. $100 billion (€70 billion) per year by 2020 from public and private sources, to finance adaptation measures in developing countries. As announced by the European Council in December 2009 and by the Council of the European Union in May 2010, EU committed to a short-term funding worth

€2.4 billion per year, (€7.2 billion[66] for 2010-2012) out of the total of €21 billion. Romania considers advisable participation in these commitments, but with a very limited contribution (including in cases of obtaining funds from auctioning emission allowances, because these funds will be used to implement national actions).

This is because Romania faces in this period major economic difficulties related to the general crisis overlapping with specific issues of its development level. This transition nevertheless led to major reductions in emissions of greenhouse gases of 45% (37% below its Kyoto target). Romania began the transition from Communism in 1989, with a largely obsolete industrial base and a pattern of output unsuited to the country's needs. Over the past decade economic restructuring has lagged behind most other countries in the region. Currently, a series of macroeconomic indicators, including GDP per capita, have a similar or even lower value than in some developing countries considered.

For Romania establishing the EU's financial commitments and Member States' contribution to funding fight against climate change in developing countries is a sensitive issue. The distribution of burdens is a perennial question in the EU climate policy: What is the fair share of new member states? The definition of "fair" will be different for old and new members of the group, and this will result in difficult negotiations at the Council in Brussels in the coming years when Romania might put forward its economic status. Old EU members prefer the "**polluter pays**" principle[67]: each country in the EU contributes to helping poor countries to the same extent to which they pollute. New members (Hungary, Poland, Czech Republic, Slovakia, Slovenia, Bulgaria, Latvia, Lithuania and Romania) are opposed to a contribution-based (solely) on the share of $CO_2$ emissions (Nutu, 2009:8).

**Poland**, another vulnerable country to any decision advancing aggressive promotion of emission reductions, stated its position in October 2009. In Nutu's opinion Poland's firm position is an obvious advantage for Romania, all the more that 95% of energy produced in Poland comes from fossil fuels. However Romania supports the relevance of the principle "polluter pays" at international level, the weight should be lower than the ability to pay (**GDP / capita**) when calculating the financial contribution of each Member State.

A good illustration of the meaning of the two criteria for the new member states is found again in Feiler *et al.* (2009:18). The proportion of the financial burden that falls to new member states is a hugely important matter for them. As mentioned before, the principle of division can be either the responsibility for the emissions or the share of the respective country in the EU-27 GDP, but it is likely to be a combination of the two due to the influence of political factors. Feiler *et al*. (2009) uses a hypothetical case when the EU

[66] $2.52 billion in 2010, $2.59 billion in 2011, $2.70 billion in 2012 according to World Resources Institute's Summary of Climate Finance Pledges Put Forward by Developed Countries, June 2010.

[67] It was first mentioned in Principle 16 of the Rio Declaration on Environment and Development.

should contribute around €10 billion from its taxpayers' pockets. The table below illustrates the two basic burden-sharing possibilities.

*Table 12: Financing €10 billion — the share of new member states (€ millions)*

| | BU | CZ | EE | HU | LT | LV | PL | RO | SK | SI | NMSs |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP based | 19.8 | 90.6 | 10.0 | 80.2 | 11.8 | 18.9 | 220.9 | 72.1 | 34.8 | 26.0 | 585.0 |
| Emission based | 135.3 | 281.4 | 40.5 | 155.0 | 21.0 | 43.6 | 771.1 | 297.0 | 92.5 | 39.2 | 1,876.7 |

Source: Feiler *et al.* (2009: 18)

Feiler *et al*. points out that a significant difference can be observed between the financing shares if we compare the ability to pay algorithm to the polluter pays principle based on 2005 GHG emissions. The reason for the significant difference is that the carbon intensity of production is roughly three times higher in the new member states than the EU average.

In the process of international negotiations, several proposals for attracting more public funding sources are assessed. Two of them have the heaviest say and are most likely to be considered.

The Mexican proposal is based on direct contributions from the Party States who agree to contribute annually. Their contribution should be based on an agreed formula, based on several criteria including level of economic development, responsibility for emissions and population. The proposal is designed to create a global fund for the management of attracted resources, but can function as a framework for further bilateral or multilateral funds, subject to reporting, evaluation and verification of the contribution of each state. Norway's proposal aims at auctioning a small percentage of AAUs allocated to developed countries to obtain funds to be used in financing adaptation measures to climate change and reductions of greenhouse gases emissions in developing countries. Norway's proposal involves indirect public resources, but has the disadvantage of not ensuring a predictable income and a broad participation. It would imply only the participation of states that have already committed themselves to emission reduction targets.

At Copenhagen, Mexico and Norway launch a **joint model** that has potential to substantially increase the amount of predictable funding available for climate change actions in developing countries, enabling developing countries to move towards a more climate resilient development path. The scale of the **Green Fund** could start around $10 billion per year in 2013 and increase to $30-40 billion in 2020. Contributions to the Green Fund should come from different complementary financing sources: budget funding, international and domestic auctioning of allowances and other comparable sources, and should go to results-based mitigation actions and adaptation efforts (Office of the Norwegian Prime Minister, 2009). The joint model proposed by Mexico and Norway would pick up in 2013, where the

"fast start" agenda ends – though fast start is part of a larger climate change fund meant to eventually reach $100 billion by 2020.

According to the Romanian Minister of Foreign Affairs, (2010[68]) despite the current economic situation and the imposed financial restrictions, the developing countries will be annually offered **€5 million** over 2010-2012, for the fast start financing. The World Resources Institute (WRI, 2010) gather financial pledges put forward by developed countries as follows: Denmark $65 million/year, Finland $36.67 million/year, France $502 million/year, Germany $421 million/2010, Ireland $40 million/year, Netherlands $123 million/year, Spain $151 million/year, Sweden $319 million/year, UK $800 million/year.

No prognostic is out for Romania's contribution to the long term financing of mitigation and adaptation measures in developing countries. As per COM(2009)0475, for the period after 2012, and as part of the package of proposals for the next financial framework, the Commission would make a proposal for a single, global EU offer, including whether to fund such an offer from 2013 within the budget, or whether to establish a separate Climate Fund, as part of the package of proposals for the financial framework post-2013, or a combination of the two. In the event of using the EU budget, a temporary solution for the year 2013, covered by the current financial framework, would also need to be proposed. Direct contributions from individual Member States could also form an important source of EU funding as part of the overall EU effort. EU estimated international public finance needs for developing countries (assuming an international deal consistent with limiting global warming to no more than 2°C above the pre-industrial level) at around €100 billion per year by 2020 (*ibid.,* Art. 2).

**Elements of Domestic Policy**

The fact that Romania is still building a full market economy deviates her from a straight trajectory towards a low carbon economy. Even though they are not a climate policy *per se*, many of the Governmental decisions influence the Romanian policy climate. One of the most criticised decisions was the creation of two integrated companies on the Romanian electricity market**.**

Governmental Decision 56/2010[69] establishing certain measures for reorganizing thermal and **electrical producers under the authority** of the Ministry of Economy, Trade and Business Environment by establishing the Electra National Company - SA and Hidroenergetica National Company - S.A, was adopted in January 2010[70]. Electra would

[68] Foreign Minister Teodor Baconschi was attending the meeting of the Parliamentary Assembly of the Council of Europe (PACE) Committee on Environment, Agriculture, Local and Regional Issues.
[69] Modified and completed by G. D. 357/2010.
[70] Before this, Romania's Government announced in October 2008 the set up of a much-delayed integrated energy holding estimated at about 24 €billion. The company should have been named Electrica with an

include the 3 energy complexes (Turceni, Rovinari, Craiova); two units from Hidroelectrica (Vâlcea, Slatina); nuclear (Units 1 and 2 Cernavodă); the lignite company (SNLO); and a part of Electrica. Its structure consists of 34% nuclear, 10% hydro, the remaining thermal and would represent 48% of the electricity generation in Romania. Hidroenergetica will comprise the largest part of Termoelectrica (Deva, Paroşeni, ELCEN); the part of Hidroelectrica not contained in Electra; the hard coal company (CNH); ROMGAZ; the remaining part from Electrica. Its production structure would be 38% hydro, the rest thermal, and the company would have 44% of the generation market (SAR, 2009:1). The Minister of Economy announced that the two companies would become functional until the end of the current year.

As a reaction to the domestic policies, Nutu (2009:3) recommends Romania to abandon plans that go against EU obligations and which have no justification in economic terms. The current proposals to create one or two integrated companies, in which thermoelectric power generation could benefit "cheap coal" or cross-subsidies from hydro power plants, would distort the economic incentives for improved efficiency and emission reductions. In addition, the government simply does not have enough money for investments needed to meet Romania's environment obligations. However, the private sector is very interested in privatizations of existing generation units (Turceni, Rovinari, Craiova) which would attract the necessary funding to improve the efficiency of these units and meet environmental obligations to keep them running and reduce emissions.

The Academic Society from Romania (SAR, 2009:2) reckons there are several reasons to worry about the new approach in reorganizing the energy sector some of them with direct relation to the environment. **Funds** would probably be redirected from Hidroelectrica (chronically underfinanced) to the energetic complexes Turceni and Rovinari (coal based), in a desperate attempt to save them from closure, even though this is no longer justified in economic terms. ENEL, EON, CEZ, PETROM (private electrical companies) are interested in investing in generation capacities and in bringing non coal-based technologies that would highlight the inefficiency of the energy complexes. Turceni and Rovinari would probably have to be gradually closed in the following years, as they were not upgraded timely to meet the environmental standards agreed with EU during negotiations. SAR notes that here is demand from investors for privatization proceeds from state owned companies even during the crisis (*ibid.,* p.5).

Analysts say Romania has a sound **mix** of hydro, nuclear and coal fuelled energy but producers across the spectrum need costly technological upgrades to meet stringent environmental standards in the European Union and boost production. Unfortunately, according to Oliver Schaefer in an interview for Green Report Romania, electricity operators

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installed capacity of 10,000 MW. In January 2009 the Ministry of Economy decided cancellation of the integrated energy company that has been taken by the previous Government. In July 2009 the new Government decided to create two integrated companies on the Romanian electricity market**.**

continue to invest in coal even though they know that energy production will be more expensive in the future. That is because there are no oligopolistic competitors on the energy market. Nobody tells them about the risks. "If you invest in a coal-fired thermal plants, will be relatively cheap now, but over 30 years of coal and carbon prices will be higher than today". SAR (2009: 4) adds that hydro, thermal and nuclear power plants can enter a direct competition and the consumers, on a competitive market, would purchase an energy mix, to diversify their sources and minimize the potential losses caused by a draught season, for example (when hydro and nuclear electricity are not produced). In their turn, producers can invest in different generation capacities, depending also on what they consider to be more profitable and less risky.

The question of **transparency**, also approached in the Renewable Energy Directive is again brought into discussion by SAR (*ibid.,* p.2). The new holdings would contain also important shares of other sectors (mining, gas), which brings even greater concerns about transparency. One could easily hide subsidies to the bankrupt mining sector, even though the state aid for hard coal should be discontinued in 2010, according to the negotiations for EU accession. The National Hard Coal Company (CNH) owes RON 3 billion to the state, including penalties which pressure the government for debt rescheduling and the extension of the subsidies until 2014-2018.

#### *4.2.4.1 Climate Change Policy and Measures (CCPM)*

A selection of the most pertinent climate change policy and measures (CCPMs) compiled from the EEA database and the 5$^{th}$ NC is presented below. In general we note that Romanian CCPMs refer to strategic orientations and less to specific action plans. Details of the first three mentioned measures and policies have already been discussed in the previous chapters. Many of the adopted strategies need adjusting to the new targets set for 2020 for example the National Energy Strategy 2007-2020, the National Strategy for Energy Efficiency 2004-2015 or the National Strategy for Renewable Energy Sources 2003-2015.

CCPMs like: Romania's increased participation in the "Intelligent Energy Europe" programme, the promotion of cogeneration and energy efficiency in district heating, the management of GHG emissions from transport, the promotion of energy recovery from landfills, integrated land-use introduction, are taken from Chapter 6 of the National Action Plan on Climate Change of Romania: "Policies and Measures to reduce emissions". The general objectives of the mentioned document are still valid, but they must be updated in the near future together with the National Strategy on Climate Change of Romania.

In general, the below measures refer to WEM (With existing measures) + WAM (With additional measures) projection scenarios, with the exception of the planned policies which are assimilated to WAM scenarios.

*Table 13: Existing and planned climate change policies and measures*

| Sector | Name | Details | Type | GHG | Status |
|---|---|---|---|---|---|
| Cross-cutting | Joint Implementation | See chapter 4.2.3.2 | Economic | $CO_2$ | implemented |
| Cross-cutting | EU-Emission Trading Scheme | See chapter 4.2.3.1 | Economic | $CO_2$ | *ongoing* |
| Cross-cutting | Green Investment Scheme | See chapter 4.2.3.2 | Economic | $CO_2$,$CH_4$, HFC, $N_2O$, PFC, $SF_6$, | expired |
| Cross-cutting | National Research, Development and Innovation Strategy for 2007–2013 | Objectives:<br>- clean technologies for products and processes, with particular application in construction, transport and energy production;<br>- new eco-efficient technologies for waste management by using product's life-cycle analysis in the framework of environmental impact assessment;<br>- scientific and technological support for the conservation, reconstruction and strengthening of the biological and ecological diversity;<br>- sustainable territorial development. | Research | $SF_6$<br>PFC<br>HFC<br>$N_2O$<br>$CH_4$<br>$CO_2$ | adopted |
| Cross-cutting<br>Energy consumption<br>Energy supply | Increase Romania's participation in the "Intelligent Energy Europe" programme | Action 6.1 - National Action Plan on Climate Change of Romania<br>See chapter 4.2.1 | Economic<br>Regulatory | $CO_2$ | adopted |
| Energy | **Green certificate system** | See chapter 4.2.4.2 | Economic | $CO_2$ | adopted |

| | | | | | |
|---|---|---|---|---|---|
| supply | | | Regulatory | | |
| Energy supply | **Law no. 220/2008 for the establishment of the system to promote energy production from renewable energy sources** | See chapter 4.2.4.2 | Planning<br>Regulatory | $CO_2$ | implemented |
| Energy consumption<br>Energy supply<br>Cross-cutting | National Energy Strategy 2007-2020 | See chapter 4.2.3.1 | Planning | $CO_2$ | implemented; needs adjustments |
| Energy consumption<br>Cross-cutting | The National Action Plan for Energy Efficiency 2007-2010 | See chapter 4.2.3.1 | Planning | $CO_2$ | adopted; needs adjustments |
| Energy supply | The Romanian National Action Plan for Renewable Energy | See chapter 4.2.3.1 | Planning | $CO_2$ | adopted; needs adjustments |
| Energy supply, waste | Promote energy recovery from landfills | Action 6.6 - National Action Plan on Climate Change of Romania<br>See chapter 4.2.1 | Information<br>Planning<br>Regulatory | $CH_4$, $CO_2$ | implemented |
| Energy consumption | Promote cogeneration and energy efficiency in district heating | Action 6.4 - National Action Plan on Climate Change of Romania<br>See chapter 4.2.1 | Economic<br>Education<br>Regulatory | $CO_2$ | implemented |
| Energy consumption | Romanian Energy Efficiency Fund | The main activities of the Romanian Energy Efficiency Fund are the management of the funds | Economic | $CO_2$ | implemented |

| | | | | | |
|---|---|---|---|---|---|
| | | from GEF granted to Romania through the International Bank for Reconstruction and Development, and the financing of investment projects aiming the efficient use of energy. By March 2008, the Romanian Energy Efficiency Fund perfected a number of 20 financing contracts with a total value of $11.431 million and an estimated annual energy saving of 36,533 toe. | | | |
| Transport | Capacity building programme for the authorities on policies and measures in managing GHG emissions from transport | Incentive program for the renewal of the vehicles fleet<br>See chapter 4.2.3.1 | Education<br>Information<br>Planning | $CO_2$ | *ongoing* |
| Transport | Review of existing transport strategies on climate change aspects | In order to efficiently perform this action, the Ministry of Transport has developed separate strategies for the railway system, road infrastructure, naval transport and air transport aiming for restructuring in accordance with EU standards. | Economic | $CO_2$ | *planned* |
| Transport | Development priorities of the transport infrastructure - Law 203/2003 | The Law no 203/2003 established the development priorities of the transport infrastructure on medium and long term horizon (2015). | Planning<br>Economic | $N_2O$<br>$CO_2$ | implemented |
| Agriculture, Forestry | Introduce integrated land-use systems | Action 6.7 - National Action Plan on Climate Change of Romania | Information<br>Research | $CO_2$ | implemented |

| | | | | | |
|---|---|---|---|---|---|
| | | See chapter 4.2.1 | | | |
| Agriculture<br>LULUCF<br>Cross-cutting | National Strategic Plan for Agriculture and Rural Development for 2007-2013 | Objectives:<br>- increased competitiveness in agriculture and forestry: the setting up and upgrading of farms, assistance provided to farms entering the market;<br>- improving the environment in rural areas: securing the sustainability of the environment and farming land used in areas of concern for the preservation of traditional landscapes;<br>- better life standards in rural areas and diversification of the rural economy. | Planning<br>Economic | $CO_2$<br>$CH_4$<br>$N_2O$ | implemented |
| Waste | National Waste Management Strategy and National Waste Management Plan 2003-2013 | See chapter 4.3.2.1.2 | Planning<br>Regulatory | $CH_4$, $N_2O$ | implemented |
| Cross-cutting | National Strategy for Sustainable Development 2008-2030 | The National Strategy for Sustainable Development, horizons 2013 – 2020 – 2030 adopted in 2008 provides that industrial development policies will follow the strategic directions and general objectives of the Romanian economy and fundamental elements of evolutions inside EU. | Planning | $SF_6$<br>PFC<br>HFC<br>$N_2O$<br>$CH_4$<br>$CO_2$ | adopted |

Source: after EEA PAM database (accessed 21st July, 2010); EEA Greenhouse gas emission trends and projections in Europe 2008 – Romania profile; 5th National Communication of Romania, 2010.

In the 5th National Communication the total effect of policies and measures was calculated as the difference between the "with measures" and „without measures" levels of the emissions scenarios. The effects are presented in terms of GHG emissions avoided/sequestered, by gas (on a $CO_2$ equivalent basis) and by sector, within Table 14.

*Table 14: Total GHG emissions avoided/sequestered*

| Emissions/removals category/Year | Total GHG emissions/removals avoided/sequestered (Gg $CO_2$ equivalent) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2020 |
| Energy | -9066.4 | -10331.6 | -11098.8 | -12537.7 | -14057.7 | -16101.8 | -18980.8 |
| A. Fuel combustion | -8558.2 | -9779.3 | -10500.3 | -11916.1 | -13440.3 | -15471.8 | -17838.4 |
| 1. Energy Industries | -4008.3 | -4212.5 | -4412.5 | -5708.4 | -7107.4 | -8611.6 | -9605.4 |
| 2. Manufacturing Industries and Construction | -908.3 | -1610.4 | -1515.6 | -1314.6 | -1219.8 | -1120.9 | -2126.1 |
| 3. Transport | -1110.4 | -1210.4 | -1513.6 | -1818.8 | -1918.8 | -2420.9 | -2420.9 |
| 4. Other Sources | -2531.2 | -2746.0 | -3058.6 | -3074.3 | -3194.3 | -3318.4 | -3686.0 |
| B. Fugitive Emissions from Fuels | -508.2 | -552.3 | -598.5 | -621.6 | -617.4 | -630.0 | -1142.4 |
| Industrial Processes | -1904.4 | -1835.4 | -1871.3 | -1971.3 | -1942.4 | -1849.4 | -1562.8 |
| Solvent and Other Product Use | -20.0 | -10.0 | -20.0 | -10.0 | -20.0 | -10.0 | -10.0 |
| Agriculture | -1449.3 | -1423.8 | -1528.6 | -1677.1 | -1778.1 | -1849.8 | -1779.0 |
| LULUCF | 10.0 | 15.0 | 20.0 | 15.0 | 35.0 | 40.0 | 65.0 |
| Waste | -443.1 | -592.2 | -702.4 | -791.6 | -892.3 | -957.8 | -1336.3 |
| **Total HFC, PFC and $SF_6$ emissions** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| **Total GHG emissions without LULUCF** | **-12883.2** | **-14193.0** | **-15221.1** | **-16987.7** | **-18690.5** | **-20768.8** | **-23668.9** |
| **Total GHG emissions including LULUCF** | **-12893.2** | **-14208.0** | **-15241.10** | **-17002.70** | **-18725.50** | **-20808.80** | **-23733.9** |

Source: 5th National Communication, 2010:111

#### *4.2.4.2 Green Certificate System (GC)*

The Green Certificate system from the Romanian climate governance „toolkit" is investigated hereunder. The Green Certificate system stands for the „system for promoting electricity from renewable energy sources" (Art 1 §2, Law no. 220/2008).

**Green Certificate Systems in Various Countries**

A green certificate system may be set up as a voluntary system where demand is more or less directly linked to consumer preferences (e.g., the Dutch system) or as a mandatory system with quota obligations and penalties (Nilsson and Sundqvist, 2007: 50). Quota obligation schemes based on tradable green certificates have become a popular policy instrument to expand power generation from renewable energy sources (Heinzel and Winkler, 2010: 1). Green certificates or **quota obligations** are used in several countries within the European Union (such as Sweden, Romania, Belgium etc.) and are based on the principle of imposing minimum shares of renewable electricity on consumers, suppliers or producers (Ragwitz *et al.*, 2006:2 quoted by Zamfir, 2009: 528). The quota obligation can be implemented on the supply side (e.g., Italy, Romania) or on the demand (user) side as has been done in the UK (quota obligation on retailers) and Sweden (quota obligation on end-users) (Nilsson and

Sundqvist, 2007: 50). Compared to feed-in tariffs which is another type of promotion scheme for renewable energy sources, quota systems are sometimes classified as a strongly market-oriented policy system (Ragwitz *et al*., 2006), based on the interaction between the supply and demand of certificates. There is a risk of supporting only lower-cost technologies of renewable electricity generation, as forecasting the price of green certificates over a long period of time is difficult (Zamfir, 2009: 528).

**The Theory**

In contrast to other well established market-based environmental-policy instruments, such as cap-and-trade systems, Tradable Green Certificates based quota obligation schemes have received their first scientific description in the second half of the 90s. However, a debate on their **justification** has never been led at scientific level. According to basic welfare economics, every policy intervention needs stands on a market failure; and every market failure requires one policy instrument which should mitigate the distortion in question without increasing another distortion (Stiglitz, 2000 quoted by Heinzel and Winkler, 2010:2). According to reflexive governance this would be impossible because rationalist governance seen as rationalist problem solving, leads to unintended consequences often more difficult to handle (Voß and Kemp, 2006:5). Coming back to an idealized world TGC cannot be justified as a first best response to a market failure (GHG emission) since an emissions trading system would be a first-best response of environmental policy allowing full internalization of externalities. Surprinsingly Heinzel and Winkler (2010) demonstrate further that TGC cannot be justified as a second-best choice either, given an ETS that fully covers the energy industry, because expanded renewable energy sources use can hardly further mitigate the related emissions externalities. Nevertheless as a policy instrument, Tradable Green Certificates had an amazing success.

Using the Hood C. and Margetts H., (2007: 9) classification of governmental instruments, green certificates are effectors i.e. tools government can use to try to make an impact on the world outside. There are four basic resources that governments tend to possess by virtue of being governments: nodality (being in the middle of an information or of a social network), authority (the power to officially demand, forbid, guarantee, adjudicate), treasure (possession of fungible stocks) and organisation (*ibid.,* p.6, see also Figure 13). The last three resources are more interesting to our analysis of green certificates in Romania. Each of these three resources can be spent in another way. Authority allows government to determine in a legal or official sense, using tokens of official authority. Treasure gives government the capacity to exchange, using the coin of money. Organisation gives government the physical ability to act directly, using treatments (*ibid.*). Thus the system of green certificates benefits from Governmental resources in the guise of group directed official tokens (mandatory quota system), group targeted payments (GC trading) and treatments (the market for green certificates organized by the Romanian Electricity Market Operator - OPCOM). The group refers to the electricity suppliers from Romania.

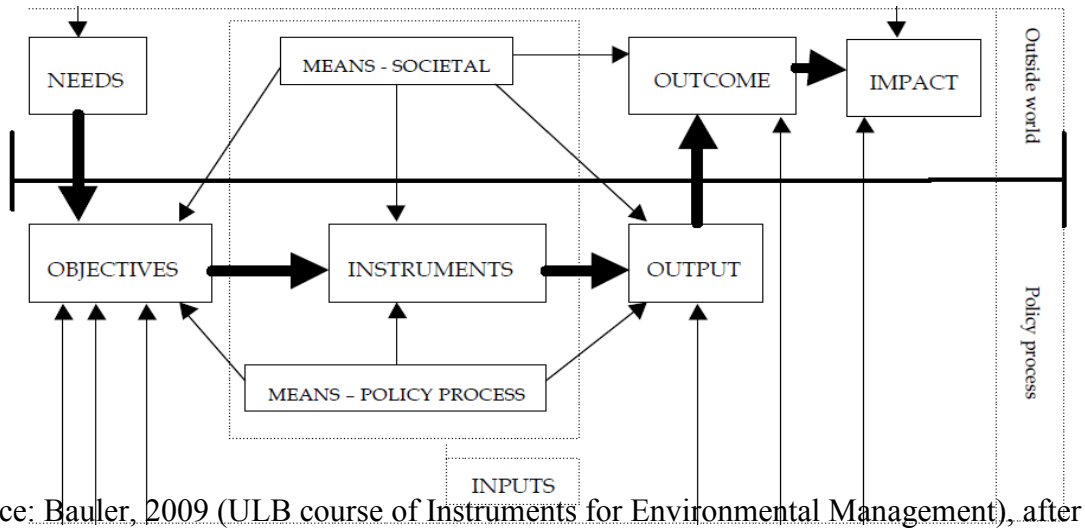
*Figure 13: The twelve basic kinds of Government effectors*

| *Basic resource* | *Nodality (Chapter 2)* | *Authority (Chapter 3)* | *Treasure (Chapter 4)* | *Organization (Chapter 5)* |
|---|---|---|---|---|
| Coin (how government spends or uses the resource) | Messages | Official tokens | Moneys | Treatments |
| Level of application | | | | |
| Particular | Bespoke messages | Directed tokens | Customized payments | Individual treatments |
| Group | ← | Group targeted and conduited applications | | → |
| General | Broadcast messages | Blanketed tokens | Open payments | At-large treatments |

Source: Hood C. and Margetts H., (2007: 9)

An instrument of public action is an identifiable method through which collective action is structured to address a public problem (Salamon, 2002:19): for e.g. fighting climate change by lowering carbon dioxide emissions. If we were to situate the Green certificate system in a framework which addresses the systemic and causalities of public interventions we would find several stages. The objective of the GC system in Romania is to increase electricity production from renewable energy sources. The outputs[71] are the bilateral contracts and the Romanian GC market organized by Romanian Electricity Market Operator (OPCOM). The outcome is[72] the number of GC that were acquired, sold or subject of transactions. Finally the impact of the system is the increased electricity production from renewable energy sources.

*Figure 14: The systemic and causalities of public interventions*




Source: Bauler, 2009 (ULB course of Instruments for Environmental Management), after Bruyninckx, Gysen and Bachus (2002:5)

[71] The output are the products, capital goods and services which result from a development intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes (OECD, 2002: 28).

[72] The outcome is the likely or achieved short-term and medium-term effects of an intervention's outputs (OECD, 2002:28).

**The Green Certificate System in Romania**

Romania implemented an incentive scheme supporting renewable energy in 2004[73], when it opted for a mandatory quota system combined with the trading of Green Certificates (the "GC" system) that remained the **main incentive** mechanism for the producers of green energy. Thus Romania uses **national** quotas for renewable energy sources (RES) and **individual** quotas for green certificates.

The GC system became operative in Romania in 2005[74]. The promotion system applies to electricity produced from wind, solar, biomass, wave energy, and hydrogen produced from renewable as well as the electricity produced in hydropower units with installed power under 10 MW that started operation or were refurbished during or after 2004. The system does not establish fractions coming from given technologies. Electricity suppliers have the obligation to purchase a certain quota of renewable electricity set by Romanian Energy Regulatory Authority (ANRE) proportionally to the amount of electricity sold yearly to their final consumers. Completion rates are proved by holding a corresponding number of green certificates acquired under the law.

For each MWh of renewable electricity delivered to the grid, producers receive from the System and Transport Operator a green certificate. Thus producers receive additional revenue from certificates, in addition to that from the sale of electricity. Such a certificate represents the societal or environmental value of the electricity generated from renewable sources in general terms (Plumb and Zamfir, 2009:686). With a tradable green certificate programme in place, electricity generation from green sources produces two distinct commodities: electricity, which is sold on the traditional electricity market; and green certificates, which are traded on a green certificates market (Nera Consulting, 2005:9).

GC could be traded on the green certificates market till 2008 for prices between established limits of €24-42/certificate. The Green Certificates value is determined by means of the market mechanisms either through bilateral contracts negotiated between producers and suppliers or on a Centralized Market. In 2009 141,607 green certificates were traded by OPCOM on the centralized market at a medium price of €55/certificate at the average exchange rate for December 2008 (OPCOM, 2010).

The green certificate market is a **parallel market**, separate from the electricity market and it is organized and administered by the Romanian Electricity Market Operator (OPCOM). OPCOM („Operatorul Pietei de Energie Electrica" SA) was set up based on the G.D. no.

[73] Order no. 23/2004 - Monitoring procedure of the origin guarantees issuance for electricity from renewable energy sources.

[74] In 2004 the Government decided (G.D. 1892/2004) to introduce a Tradable Green Certificate system followed by a revision in 2005: Government Decision no. 958/2005 and by Order 40/2005 - Rules of organization and functioning of the market for green certificates.

627/2000 as a subsidiary, whose sole shareholder is Transelectrica[75] (the system and transport operator). The mission of OPCOM consists of providing an organised framework for electricity commercial trades. It is the legal person which assures Green Certificates trading and determines the prices on the Centralized Green Certificates Market, performing the functions established by the Regulation for organizing and functioning of the Green Certificates Market (Order no. 15/2005 issued by the Romanian Energy Regulatory Authority ANRE).

The following targets of the energy share from renewable sources had to be attained at national level: 0.7% by 2005, increasing each year to reach 8.3% in 2012.

Even though this proved to be an inefficient system the government supported it, in spite of severe criticism from the experts who tried to replace this with the feed-in-tariff[76] (Ciuta, 2007). It was argued that this incentive scheme was not attractive enough to investors, the mere 7 MW of wind power installed by 2008 backing this argument (Constantin, 2010:110). Most part of the European countries use different combinations of support systems and the Romanian system is often criticised by the private investors (5th National Communication of Romania, 2010:87).

**Law 220/2008**

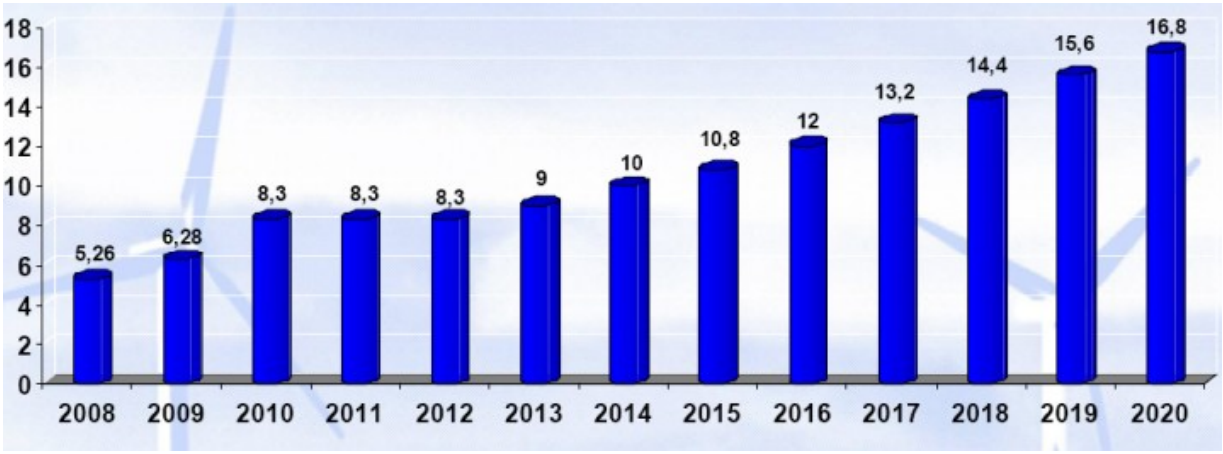
In light of Romania's new commitments[77], a new law regulating an improved incentive scheme for renewable energy was enacted at the end of 2008. For comparison, Law 220/2008 sets new shares of electricity produced from renewable energy sources in the gross final national consumption of electricity in perspective of 2015 and 2020 to **35%**, respectively 38% (Art. 4 §3). One of the major benefits of the new law is the extension of the green certificates system **beyond 2012** with a mandatory quota of green certificates (E-RES) of 16.8% for 2020 and other intermediate quotas for the period 2008 to 2020 which are presented below, in Figure 15.

[75] Transelectrica is a joint - stock 100% state-owned company, its shares being held by the Ministry of Economy, Trade and Business Environment.

[76] Under a feed-in tariff, an obligation is imposed on regional or national electric grid utilities to buy renewable electricity from all eligible participants. Purchase prices are methodologically based on the cost of renewable energy generation and tend towards grid parity, the point at which alternative means of generating electricity is equal in cost, or cheaper than grid power.

[77] The pledged percentage of energy produced from renewable sources in gross final consumption of energy by 2020 is 24% while the European target is at 20% (see chapter 4.2.3.1).

*Figure 15: Value of mandatory annual quota of green certificates for 2008-2020 (Law 220/2008)*




Source: Law 220/2008 (Annex)

The promotion system applies to electricity produced from hydropower units with installed power under 10 MW, from wind, solar, geothermal energy and combustion gas associated with biomass, biogas, landfill gas and sewage fermentation gas (Article 3). Another main improvement to the scheme is that in order to create more equitable deployment conditions for the different renewable energy sources, the number of tradable green certificates per MWh is now technology specific: one certificate for each 1 MWh produced from new or refurbished hydroelectric power plant/group not exceeding 10 MW; two GCs per 1MWh until 2015 and from 2016, one GC per 1 MWh produced from wind resources, three per 1 MWh produced from biomass, bio-liquid, geothermal and similar sources and four per 1 MWh produced from solar energy (Article 5).

The minimum and maximum trading values for green certificates for the period 2008-2014 have been increased to €**27** and €**55** respectively (Art. 10). The minimum price is imposed in order to protect the producers and the maximum price is set to protect the consumers (OPCOM, 2010). The value in Romanian Currency (RON) will be calculated at the exchange rate determined by the Romanian National Bank as the average exchange rate for the month of December of the previous year (Art. 10, Law 220/2008). The trading values are to be annually adjusted by the consumer price index for Romania (Art. 10 §3).

The new law proposes an upgraded version of the Green Certificates system, underlining the incentives offered for projects using a renewable energy source. Investors may receive under Article 18 of this Act the following incentives for strategic projects for Romania's energy policy: guaranteeing a maximum of 50% of loans over the medium or long term; providing transport infrastructure and utilities necessary for the investment start-up and development; access roads and adjustments to the existing infrastructure necessary to the project; exemptions or reductions of taxes on reinvested profit, for a period of three years after the

initial investment; assuring financial contributions from the state budget for newly created jobs (5th National Communication of Romania, 2010:88).

It also creates the legal framework necessary to extend the use of renewable energy through: defining rules relating to guarantees of origin (Art. 15, 16) and administrative procedures applicable to the grid connection in terms of energy produced from renewable sources (Art. 20.); establishing criteria for environmental sustainability for biofuels and other bioliquids. Unfortunately Law no.220/228 is still said to lack comprehensive application instructions (Constantin, 2010:111).

Besides the application instructions, Constantin approached also the question of **transparency** (*ibid.)*. A requirement of the Renewable Energy Directive is the obligation on Member States to ensure priority access or guaranteed access to the grid for electricity produced from renewable energy sources. Transparent and non-discriminatory rules regarding the bearing and sharing of the costs of grid connection and of grid reinforcement, as well as a reasonable and precise timetable for receiving and processing requests for grid connection, are also required. Law no. 220/2008 provides only for priority access for renewable energy to the transport and distribution grid, subject to maintaining the safety of the national energy system. Moreover, grid operators are obliged to make available a detailed estimation of the costs associated with connection to new generators of renewable energy wishing to connect to their network. Grid operators should draft their own norms regulating the bearing and sharing of connection costs, based on objective, transparent and non-discriminatory criteria (preamble of the Directive, §61). However, to date, no such norms have been prepared. Therefore, amendments to Law no. 220/2008, reflecting the provisions of the Renewable Energy Directive were further expected.

Law 220/2008 revises the role of the main actors of the system as shown in Figure 16.

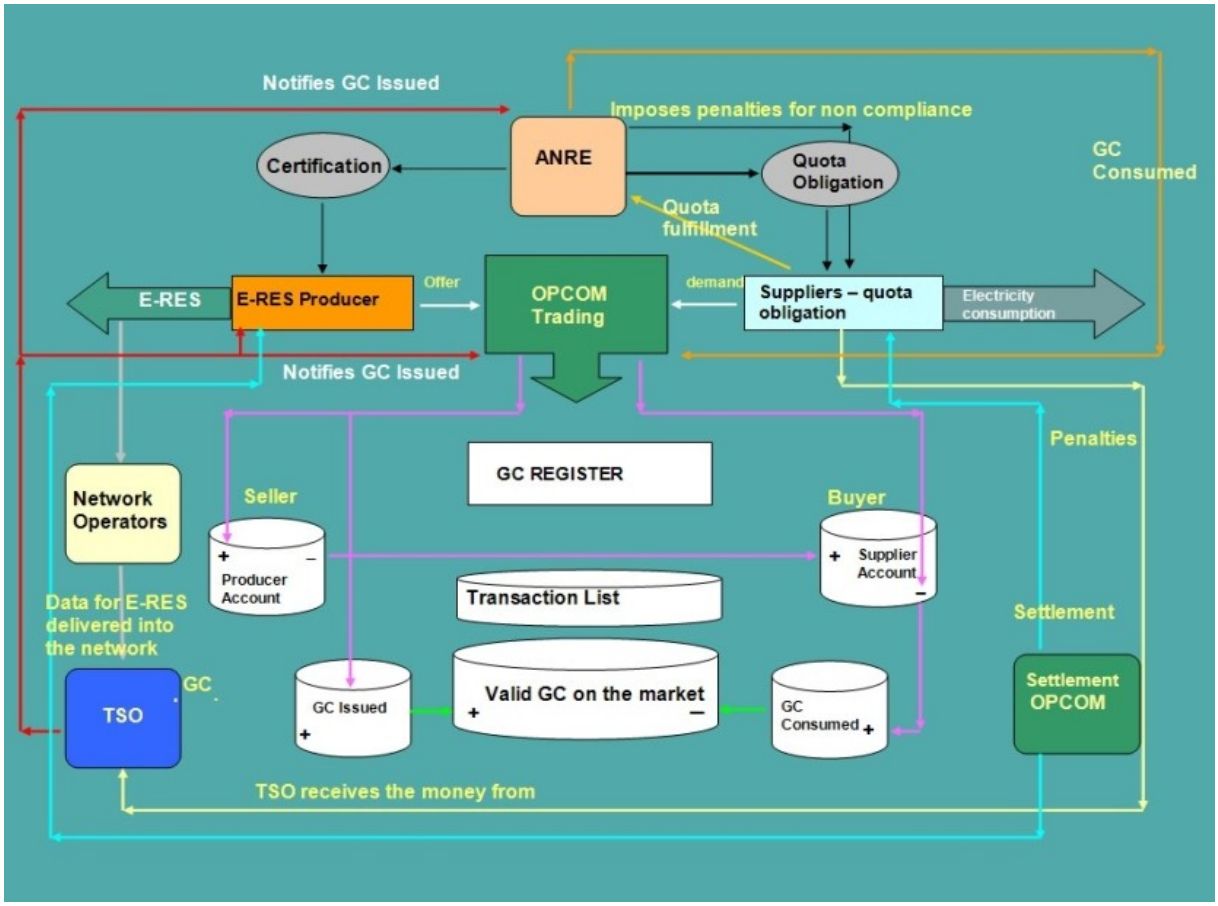
**Main Actors**

**ANRE (**Romanian Energy Regulatory Authority) approves electricity producers which use eligible renewable energy sources (RES), to participate on the Green Certificates Market. It controls the mandatory quota fulfilment by the suppliers and applies penalties for quota non-fulfilment.

**Transelectrica** (The Transport and System Operator - TSO) receives monthly notifications concerning the quantities of electricity from RES delivered into the network from the producers and the Network Operators where the producers are connected. It issues each month Green Certificates to producers for the quantity of electricity from RES produced and delivered into the network in the previous month and collects the amount of money corresponding to the penalties from the suppliers which didn't fulfil their quota at the end of the period of conformity. The amount of money resulted from the application of the penalties

is allocated yearly by ANRE, based on objective criteria, for investments meant to facilitate the access to the transport/distribution networks (Art. 11, §4).

*Figure 16: The Romanian centralized Green Certificates market and its actors*




Source: OPCOM, 2010

**OPCOM (**Romanian Electricity Market Operator) forecasts and publishes the demand and the offer on the Green Certificate Market at national level. It registers the bilateral contracts for Green Certificates trading between the electricity producers from RES and the electricity suppliers and administrates the Green Certificates Register. It provides the trading framework for the Green Certificates Market on the Centralized Green Certificates Market. OPCOM determines the prices on the Centralized Green Certificates Market in Romania, receives the sell/buy offers for Green Certificates from the Producers/Suppliers and publishes the number of Green Certificates traded each month on the Centralized Green Certificates Market, etc.

In the future, the European Union may have a unified, rather than a country specific, green certificate system. The tradable green certificates could have different prices per country and technology, as countries still have to reach national goals and to promote new technologies. A **unified** green certificates system at the European Union's level could be based on most cost effective principle, meaning to build renewable production where it is cheapest (Plumb

and Zamfir, 2009: 693). Law 220, Article 12, takes into consideration this situation. Romania could not affiliate to the European System of Green Certificates due to the fact that the energy market did not met yet the European standards. However, as soon as this happens, Romanian energy producers will be able to sell their green certificates on the European market, while Romanian energy distributors will be allowed to buy green certificates on the same European market.

Law No. 220/2008 enacted by the Parliament of Romania on October 27, 2008, was published in the Official Journal of Romania, part I, no. 743, of 3rd November 2008, and came into force on November 6th, 2008. In order to be fully **operational**, it needed subsequent regulations to be enacted: implementing rules to be elaborated by ANRE. Besides, the European Commission's approval of the notification regarding the national support system was not yet received. Small producers were most affected by the lack of regulatory framework which made the contracting of new funds and grid connection more difficult.

**Law 139/2010**

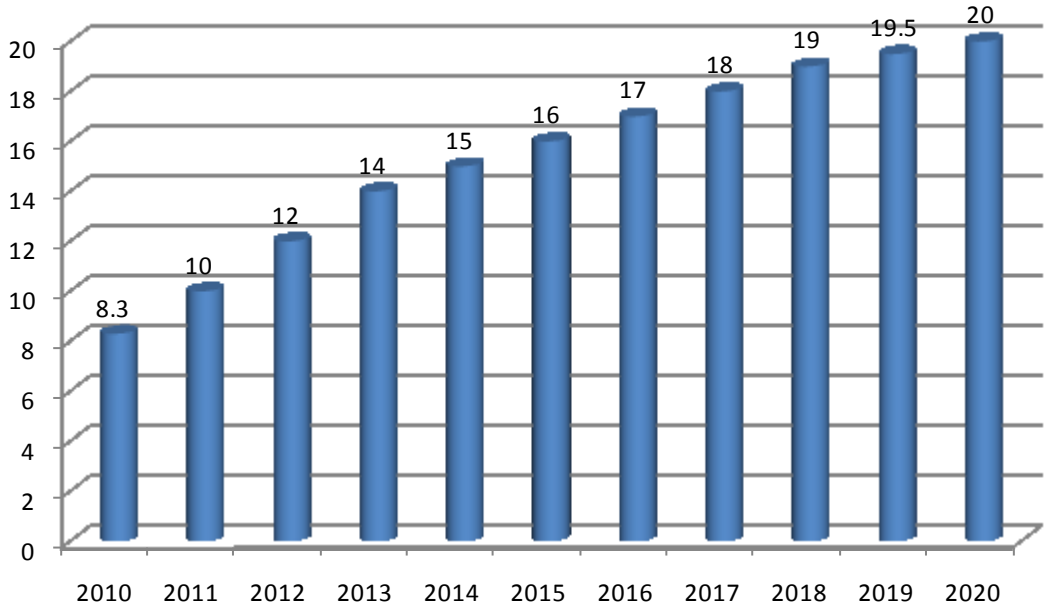
As a consequence of the delays mentioned above, Law 139 of July 7, 2010 amending and **supplementing** Law no. 220/2008 on establishing the system for promoting electricity from renewable energy sources was published in the Official Journal, part I, no. 474 of 9th July 2010.

Only a few small wind turbines and hydroelectric plants were built in the previous period. Consequently the number of certificates that investors receive was increased. Under the new Law 139/2010, solar energy will receive six green certificates (as investments in solar energy are considerably large); new hydro power plants will receive three certificates and re-equipped ones two certificates; energy from biomass will receive three certificates (Art. 5, Law 139/2010). Despite the clarification of certain provisions, the new version of Law 220 has not yet been perfected, according to business representatives.

The new version of Law 220/2008 focuses more on wind energy. One of the most positive changes is the two years extension (till 2017, compared to 2015) of the term when wind energy will be granted two certificates instead of just one. Another change welcomed by investors in the wind sector is the inflation adjusted price of certificates and the opportunity for individuals to develop projects with a capacity of up to 100 kilowatts[78]. Law 139/2010 brings again new amendments to the mandatory annual quotas of green certificates for the period 2010-2020 as follows:

[78] Even so, the process of achieving such investment is difficult, 47 approvals from over 20 institutions being necessary for wind turbines for example. The whole process is very long and can last even 18 months. It may take three years to complete the project, in some experts' opinion from the Romanian Wind Energy Association.

*Figure 17: Value of mandatory annual quota of green certificates for 2010-2020*




Source: Law 139/2010, Art. 15

Therefore investors look forward to applying the law. But the history repeats itself as instructions for its application are missing as well as the pending EU approval. Secondary legislation is necessary for this law to enter into force that it should not take more than 90 days to be developed. Resolving issues related to how green certificates are managed and allocated is required in order to create a competitive business environment. Some voices raised the issue of a disguised form of state aid, a controversy found also on the European Commission agenda.

Economic implications are numerous. In a tradable green certificates scheme, the difference between the wholesale price and the cost of green generation is covered through the support offered by certificates (Plumb and Zamfir, 2009:692). Law experts explain the higher the cost of production, the higher the "bonus" granted by green certificates in order to make those sources attractive to investors in terms of investment recovery and profitability. Experts also show concern for the parameter of "supportability" of the cost of electricity for the consumer, which would prevent excessive subsidies of the production from certain sources with lower efficiency.

One of the biggest disadvantages of Law 139/2010 is that it does not provide for a solution in case the number of green certificates would be higher than the demand. There is no designated body to make possible the sale of the green certificates surplus at a minimum price of €27/certificate. The law is said to become applicable at the beginning of 2011.

## 4.3 Public Perception of Climate Change in Romania

Public perception of environmental issues in general and climate change in particular have been of interest to researchers and policy makers since long. The EU Eurobarometer (a regular public opinion survey conducted across the EU on behalf of the European Commission) has published a number of surveys of citizens' opinions since 1992 including recent surveys of perceptions on climate change (Adelle and Withana, 2010:309). Romanian citizens are recognised for being **very little informed** about the causes, consequences and ways to fight climate change (*ibid.*, p.313). This leads to citizens from such countries either not personally taking action against climate change or not being able to say whether they are taking any action (Eurobarometer, 2009:45).

The European Institute of Romania (2010:72) quotes a 2008 study made by Eurobarometer for the European Commission, referring to the attitudes of Europeans on climate change that reveals the following: only 85% of Romanians consider climate change as a serious problem, compared to 90% of the Europeans; 23% of people who answered believe that the issue of climate change has been exaggerated (in comparison to 26% at European level), and 27% responded that they do not know (9% in Europe); 38% admit that they have not done anything personally to fight climate change, 50% of them say that they would take the necessary measures, if they know what they were; 66% believe that the industries are not doing enough to reduce the impacts of climate change; 69% make the same claim regarding the citizens, 66% regarding the national authorities and 51% regarding the EU. The situation did not change much in 2009. In Romania at least one in five citizens can not say whether they have taken actions aimed at helping to fight climate change, which is well above the EU average of 7% (Eurobarometer, p.29). In Lithuania, Romania and Latvia only about a third of citizens have taken action aimed at helping to fight climate change (*ibid.,* p.19). Furthermore the proportions of "I do not know" replies to weather the seriousness of this phenomenon has been exaggerated are far above the EU average of 8% in Romania (23%) (*ibid.,* p.41). The largest proportion of citizens who do not know if climate change was an unstoppable process was found in Portugal (20%), Romania (19%) and Turkey (18%) (*ibid.,* p.35).

Whether the trend will change is difficult to say as Romanian media are very oriented towards commercial, scandalous news; therefore, the topic of climate change is not approached from a phenomenological point of view, or even an economical one. The only time the media presents the topic of climate change is when the country faces severe weather events, such as floods or droughts, but even then, the stories revolve, in general, around local authorities' actions. Dedicated shows are few and broadcasted at low audience hours. Present GHG reduction targets and future post-Kyoto targets are not considered important topics by the media (Ciuta, 2007) as seen in the fact that even the Copenhagen conference was not properly covered in Romania. Some improvements have been noticed in the last years..

## 4.4 Romania as part of the World Community: an Economy of Esteem and a Biosphere Policy

Having explored some of the challenges facing new member states, Feiler's *et al.* (2009: 28) most important conclusion is probably the need for capacity building and understanding within the state administration and among the public of new member states that these issues will arise and cannot be ignored or postponed while struggling with economic difficulties. It means the genuine understanding of the need for sound policies development for enabling the transition to a low-carbon society within the next four decades. Climate change cannot be put on hold: it must be addressed in an integrated manner alongside other, smaller-scale crises.

This paper was not intended to provide technical recommendations albeit literature gives numerous tracks to follow in this matter. Knowing that most real-world problems require a variety of approaches that contribute to an effective solution (Keohane and Raustiala, 2008:2), it was meant to offer in the end a concise presentation of three key concepts that are strongly related to climate change. If taken out of their theoretical wrapping, they might bring more solutions then expected: the world community, the economy of esteem and the biosphere policy.

In *The Politics of Climate Change*, Giddens (2009:207) is trying to figure out whether today's **world community** is illusory or not. For arguments in favour of an "illusory international community", Giddens is quoting Robert Kagan and his book, *The Return of History and the End of Dreams*. We seem to be seeing a return to a form of authoritarian nationalism. The burst of enthusiasm at the turn of the century that heralded a new world order based on international agencies rather that nations […] seems already to have gone into reverse (Giddens, 2009:208).

However the world context in which nations stake their claims of sovereignty has changed massively over the past two or three decades. Sovereignty does not have the same meaning as it did. This is surely obvious at an economic level, where states, no matter how large, cannot govern their economic affairs in the way in which they were able to earlier in the early post-war period (*ibid.,* p.211). While globalisation is easy to accept at economic level due to economic advantages it brings, culturally, institutionally and from the environment's point of view, globalisation is rejected. In other words we want the benefits of globalization but we do not want to take on its responsibilities. This means that contrary to all appearances we do not recognise economic development as our actual driver.

Giddens concludes by agreeing with Kagan in the matter of power politics. Rivalries that cross-cut efforts at international collaboration will determine the real opportunities that exist, the points at which real purchase can be achieved for halting climate change (*ibid.,* p.212).

Effective climate change mitigation requires political commitment (Keohane and Raustiala, 2008:3). In order to enhance existing incentives for politicians to act vigorously to mitigate climate change Keohane R. and Raustiala K. (2008) take a look at the concept of an "**economy of esteem**[79] for climate change". The idea is to harness the human desire for esteem - which may be particularly acute among political leaders - to increase commitment. The economy of esteem refers to incentives provided not by material rewards and deprivations of rewards and punishments administered by the state, but by the attitudes that other people form in response to the actions of protagonists. Individuals seek honour and respect as well as money and power, and this reality can be taken into account in designing institutions. Esteem can provide a compelling set of motivations for actions (good or bad), independent of material incentives or coercion.

The authors extend the concept to the climate arena. In this way one does not need to worry about performance being measurable. Adherence to global climate change regulations, at least in the form of emissions caps, is more easily measured than compliance with human rights obligations (*ibid.,* p.4). Authors suggested that the desire for esteem by political leaders, if esteem is credibly awarded, can encourage further costly climate action that we might not otherwise observe (*ibid.,* p.23).

Their article points out that a standard cap and trade architecture divides the world into two categories: the buyers or "permit-short" countries and the sellers, or "permit-long" countries. Romania belongs to the second category that's why some may say that it does not need to have strong political incentives for climate change mitigation.

Meanwhile, coming back to the role of the state in the global climate governance (chapter 3 and 4.4), under a future adopted cap and trade architecture, states will have overall emissions targets and will issue or sell permits to enterprises as they decide. Some states may handle emissions trading themselves; others may leave it to private markets. They will create the domestic regulatory framework and enforce emissions restrictions on entities. However, permit validity would be assessed on a national basis and permits will be discounted on a national basis as well (*ibid.,* p.10). The validity of permits will depend on national jurisdiction and this is where the economy of esteem could enter the scene.

Unfortunately authors anticipate also that some parties to any future climate accord will successfully negotiate overall emissions limits that exceed their projected emissions i.e. hot air. Inconsistently with the economy of esteem, obtaining hot air will be the *sine qua non* of some countries' participation in the regime (*ibid*.). At the other end we find the industrial countries to which Sachs and Ott (2007: 18) recommend to pursue policies that protect the right of the most disadvantaged to existence. Domestically, this implies a reduction in

[79] The concept was first developed by Geoffrey Brennan and Philip Pettit in „Economy of Esteem: an essay on civil and political society" from 2005.

dependence on resources. Although in none of the contexts of a future international climate agreement, the state could not act alone. Its role would normally be to stimulate others to action and to help provide means for their actions to be effective in so far as climate change goals are concerned (Giddens, 2008:9). Closer to which of these two antipodes will Romania situate itself?

The introduction to this thesis presents different types of environmental foreign policy. Paraphrasing Commoner, the circle closes with a new type of foreign policy: the **biosphere politics** proposed by Sachs and Ott (2007) from the Wuppertal Institute. When the planet is understood as a worldwide society characterized by cross border networks, as opposed to a collection of nation states colliding with one another like billiard balls, then the distinction between internal and external affairs becomes obsolete (*ibid.,* p.17). With increasing interdependence comes increasing vulnerability. Furthermore if there is one ecosphere for all living organisms and what affects one, affects all because everything is connected to everything else,[80] why should one not have a biosphere policy?

Sachs and Ott (2007:21) say it is no longer possible to think in terms of national "containers" or in ministerial areas of competence. Internal and external factors belong together and foreign climate policy is senseless without national climate protection measures. Giddens (2008:9) recommends ensuring that all departments of government register and react to these concerns. In other words, responding to climate change is not just one task among others, which can be left to a specialised department or agency: it has to be integrated into the activities of government as a whole across the board.

An effective foreign policy can no longer be satisfied with the defence of narrow "national interests". In essence, the national interest now encompasses the well-being of all people on this planet because **human security** comes before the security of national resources. This means that national welfare is no longer an effective frame of reference for enlightened foreign policy; it must be extended to encompass the common welfare of a world society (Sachs and Ott, 2007:22). In the same vein, a proposal should have a public negotiating mandate as it is a question of global interest which will influence the life of citizens from other countries, too. A compromise between governments might be to devote a dimension of their foreign and domestic policy to global welfare or at least not to seek national welfare at any cost.

The UN Charter, the Human Rights Charter, and the Human Rights Covenants were initial measures, not bad but incomplete. Without an environmental organisation with legal powers to combat global ecological crises and without an international social politics concerned with justice, there will never be peace, for rich and poor alike. It would be misplaced to think of

[80] First law of Ecology of Barry Commoner, author of the book "The Closing Circle: Nature, Man, and Technology".

resource conflicts simply as security issues. At the end of the day the values at stake are those of justice and injustice, power and powerlessness. Those who talk just about security are generally only thinking about their own security and not of the others. That is why it is important to understand the conflicts around the globe as the consequence of injustice, not simply as security problems (Sachs and Ott, 2007:22).

In seems only the EU cut down on military spending in the belief that economic interdependence and the collaboration of nations would triumph over traditional concepts of sovereignty. The EU [...] has served as a vehicle for the integration of a growing number of states in Western and now central and Eastern Europe into a transnational system (after Kagan R., 2007, quoted by Giddens, 2009:209).

Unfortunately many nations do not share the European postmodern view that power is *passé* (Kagan, 2007). In a majority of cases power is strongly connected to energy circles, therefore with **climate change**. China is searching for energy supplies to sustain and fuel its continuing growth (Giddens, 2009:208). The US, acting alone, has very limited capacities to influence the world marketplace, as the financial crisis has shown all too clearly (*ibid.,* p.210). Russia responds with traditional forms of power, making profit out of its fossil fuel resources (*ibid.,* p.209). As for Romania, it proved not to be such an easy target, backing-up the Nabucco pipeline. But in case this one fails, it is likely that its interest will shift towards the South Stream.

# 5. Conclusion

This paper is intended as a chronological screening of the Romanian climate policy data and facts in the perspective of post 2012 existing and possible commitments. Although, at this stage, one cannot make valid statements regarding the future of the climate policy, this dissertation based on a variety of consistent theoretical references, proposes itself as a sound analysis support. Many aspects could not be tackled because of time and space constraints, but the dissertation tried to answer several research question raised in the introductory part.

Climate change is more complex than a scientifically produced phenomenon, nor is it a political hoax, but rather "something" deeply meaningful through the impact on humans who are "touched" by its existence. Climate change negotiations will continue to be shaped in the future, through acceptance and rejection phases, as change is inevitable (Pettenger,2007: 245).

Most steps taken in the domestic environmental policy were mainly the result of Romania's preparation for the EU accession followed by adjustments towards European requirements. The ecology of the political class and the greening of the society require profound rescaling of values and a huge change in the mentality (as seen in Poland, chapter 3). Until then, Romania's climate change policy will only mirror the European one.

Reports showed so far that it was easy for Romania to cope with Kyoto targets without special efforts or without following strategies *ad literam* because the industry had collapsed in the early '90s. Also agriculture, which was responsible for high emissions, depressed. This trend is likely to last until 2020 as there is no visible political will to undertake additional measures to the ones imposed by the European Union. However in the future Romania will not afford to avoid specific efforts, whatever the results of a future agreement will be, because of carbon and energy prices.

Negotiations in Copenhagen have demonstrated that climate change remains just a political issue and that Parties' priorities continue to pursue economic development goals and keep away from substantial financial efforts to fight climate change. In Copenhagen, Romania generally backed up the European position, keeping at the same time its specific interests which result from its threefold identity: member of the EU, Party to the KP and a transition country.

At this stage, it is difficult to assess the impact of the European burden sharing and the possible switching to an EU target of 30% as there are many voices carrying a multitude of messages and hence controversies. Pragmatics say Romania could gain more, both in financial and environment terms, if it commits to reasonable targets and follows coherent policies (domestic and European) to meet its obligations. Some analysts argue that under the current conditions, Romania is not able to meet its "3x20 by 2020" commitments, and would

certainly be even less able to undertake additional obligations. Pessimists identify Romania with one of the most affected Member States by the Climate and Energy Package, particularly its energy sector and its energy-intensive industries.

The role of off-setting (through JI projects, the ETS or the IET) is expected to be as important or even more important than until now, all the more that Romania is actively lobbying for the carry-over of AAU and the continuation of the JI mechanism in the next commitment period. Another reason is the limited pressure exerted on decision makers, since new member states can "manage" emission reduction efforts until 2020 with limited political determination and sacrifices.

Instruments considered by Romania in this context do not seem particularly adequate as they are a simple continuation of Romania's old strategies. A new generation of instruments is expected to be the one that comes along with the climate and energy package. Not only the Romanian Government does not prioritise climate change issues, but it happens that its domestic policy undermines European targets. One example is the set up of two integrated thermal and electrical companies under state authority benefiting of "cheap coal" in spite of the sound energy potential coming from national renewable energy sources. The history of the GC system in Romania shows the winding road of most climate policies that can not be shortcut by the very few success stories like the incentive program for the renewal of the vehicles fleet or the implemented JI projects. It can be assumed that Romania's struggling between political will to take on European and international environmental commitments and the needs of economic growth, with significant contribution from fossil fuels, will go on for another decade.

Translating the new pressure of carbon constraint into genuine, targeted climate policies will need to do more than relieve the constraints of the moment. Keeping in mind the different aspects and stages that were highlighted, the "with international agreement" scenario means a qualitative change. It means sooner or later Romania's climate policy will need revising and strengthening which confirms this paper's hypothesis.

Taking on the responsibilities of globalisation, sharing its benefits with the world community, practicing an economy of esteem and becoming part of a biosphere policy seem extremely distant solutions, but nevertheless they are proposed by researchers. Talking about challenges and expectations it is difficult to expect from a country such as Romania or another, perceived as a victim but trying to turn in its favour a scenario that it can barely influence, to adopt any of the three altruistic models. That is why placing Romania in the context of the biosphere policy, the economy of esteem and the world community seems more of an utopia than for other Annex I countries. But as Giddens says, "If we discarded every utopian impulse there would be no ideals to strive for."

Climate change might be just an instrument to humanise humankind as political decisions, economic interests, sovereignty marks or power attributes become senseless and powerless.

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# 7. List of Figures and Tables

# 8. List of Acronyms

AAU – Assigned Amount Unit
AFM – Environmental Fund Management
ANM – National Administration for Meteorology
ANRE – Romanian Energy Regulatory Authority
ANRM – National Agency for Mineral Resources
ARCE – Romanian Agency for Energy Conservation
AWG-KP – Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
AWG-LCA – Ad Hoc Working Group on Long-term Cooperative Action under the Convention
BAP – Bali Action Plan
BAU – Business as Usual
CAN – Climate Action Network
CCS – Carbon Capture and Storage
CDM – Clean Development Mechanism
CECILIA - Central and Eastern Europe Climate Change Impact and Vulnerability Assessment
CEPS – Centre for European Policy Studies
CER – Certified Emission Reduction
$CH_4$ – methane
CHP – Combined Heat and Power
CIRED – Centre International de Recherche sur l'Environnement et le Développement
CLAVIER - Climate Change and Variability: Impact on Central and Eastern Europe
CMP – Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CNH – The National Hard Coal Company
$CO_2$ – Carbon Dioxide
$CO_2$-eq – Carbon Dioxide-equivalents
COP – Conference of the Parties to the United Nations Framework Convention on Climate Change
CRPE - Romanian Centre for European Polices
DHS – District Heating System
EBRD – European Bank for Reconstruction and Development
EC – European Commission
EEA – European Environment Agency
EIT – Economies in transition
EREC – European Council for Alternative Energy
ERU – Emission Reduction Unit
EU ETS – European Union Emission Trading Scheme
EUA – EU Allowance Unit

GC – Green certificates
GCM – General Circulation Models
GD – Government Decision
GDP – Gross Domestic Product
GEF – Global Environmental Facility
GHG – Greenhouse Gases
GIS – Green Investment Scheme
ICEMENERG – Energy Research and Modernization Institute
IEA – International Energy Agency
IEE – Intelligent Energy for Europe
IER- European Institute of Romania
IET – International emission trading
IPCC – Intergovernmental Panel on Climate Change
ISPE – Institute for Studies and Power Engineering
JI – Joint Implementation
JISC – Joint Implementation Supervisory Committee
JRC – Joint Research Centre
KP – Kyoto Protocol
LULUCF – Land Use, Land Use Change and Forestry
MOP – Meeting of the Parties
MoU – Memorandum of Understanding
MRV – Monitoring, reporting and verification
MS – Member State of the EU
$N_2O$ – nitrous oxide
NAMA – Nationally Appropriate Mitigation Actions
NAP – National Allocation Plan
NAPCC – National Action Plan on Climate Change (2005-2007)
NAPRE – National Action Plan for Renewable Energy
NC – National communication
NCCC – National Commission for Climate Change
NEPA – National Environmental Protection Agency
NGO – Non-governmental organisation
NICs - Newly industrialized countries
NIR – National Inventory Report
NSCC –National Strategy for Climate Change of Romania
OECD – Organisation for Economic Cooperation and Development
OPCOM – Romanian Electricity Market Operator
PAM – Policies and Measures
PFCs – perfluorocarbons
PoA – Programme of Activities
PPP – Purchasing Power Parity
REC – Regional Environmental Centre (for Central and Eastern Europe)

REDD – Reducing Emissions from Deforestation and forest Degradation in developing countries
RES – Renewable Energy Sources
SAR – Academic Society from Romania
$SF_6$ – sulphur hexafluoride
TGC – Tradable Green Certificates
TSO – Transport and System Operator
UCTE – Union for the Coordination of Transmission of Electricity
UNDP – United Nations Development Programme
UNFCCC – United Nations Framework Convention Climate Change
WAM – With Additional Measures
WB – World Bank
WEM – With Existing Measures
WG – Working Group
WOM – Without Measures
WRI – World Resource Institute
ZEP – Zero Emission fossil fuel Power plants