

CLIMATE CHANGE POLICIES IN THE EUROPEAN UNION

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ABSTRACT

This article aims to highlight European policies on climate change taking into account the objectives of the Paris Agreement which aim to keep the global temperature below 2 °C and reduce carbon emissions. Therefore, Member States shall take measures to reduce greenhouse gas emissions in order to achieve the objectives set. Presently, a particular emphasis is placed on mitigating climate change that is related to the reduction of greenhouse gas emissions, and therefore EU Member States have adopted national programs to reduce emissions. The EU Energy-Climate Framework of 2030 was presented by the Commission on 22 January 2014, it is an effective way of communication which establishes a framework for EU policies on climate and energy in 2020-2030. In addition to mitigation climate change, adaptation is also needed to identify appropriate solutions to the effects of climate change and taking the best possible measures to prevent or reduce the damage that they may cause, as well as to identify the appropriate measures to achieve the objectives. EU strategy on adaptation to climate change has the role of supporting funding and research for the development of national strategies in the Member States, but also other actions related to EU policies.

KEYWORDS: reducing emissions, climate change mitigation, EU-level policies, adaptation to climate change, strategies

1. Introduction

Further, this article will highlight European, national and local policies and strategies to support stakeholders of climate change. At European level, climate action has the role of maintaining and reducing the negative effects of climate change.

Thus, the EU has the role of reducing greenhouse gas emissions, this being a major action at global level. Also, it is desirable to implement and implement the necessary actions and measures in response to changes and environmental effects due to climate change. At European level, these actions are classified by subdomains for better problem management: reducing greenhouse gas emissions, emissions trading, adaptation to climate change, low-carbon technologies, fluorinated greenhouse gases, etc.

1.1. Policies and strategies at EU level on climate change

One of the greatest challenges is climate change which refers to setting ambitious targets for short,

medium and long-term emission reductions. According to researchers in the field, "in urban environments, great emphasis is put on mitigation and adaptation efforts to the effects of climate change" (Rosenzweig *et al.*, 2010). The involvement of decision-makers is necessary for the development of urban communities through instruments or policies that take account of environmental, in particular adaptation to climate change. At the same time, the involvement of decision-makers needs to be developed and awareness and information measures on the importance of this area have been taken. In this regard, "support efforts to implement measures and policies are recognized by scientists" (Leck and Simon, 2013). However, we should consider that these policies, strategies and other tools must be implemented at national / regional / local level and "the existence of international or even national climate policies is not a guarantee for local plans and actions" (Villarrol Walker *et al.*, 2014).

According to brief presentations on the European Commission website, in 2013, the European Union Strategy for Adaptation to Climate Change, which has been agreed by all EU Member

States, has been adopted. This strategy wants an Europeqn continent that adapts to climate change and resists over time in order to make the other generations benefit of optimal environmental conditions. These approaches and tools that can ensure better organization and coordination in climate action will lead to improved preparation and implementation by all Member State governments.

The EU Adaptation Strategy focuses on the following main objectives:

(i) Promoting climate action by Member States, through which the European Commission wishes to encourage Member States to implement and implement adaptation strategies and plans. Thus, to achieve this goal are needed European or national funds to support the development and improvement of adaptation to climate change impacts through key measures and specific instruments. At European level, it is intended to support actions and adaptation measures through a beneficial initiative called 'the Covenant of Mayors for Climate and Energy'.

(ii) The implement of "climate proofing" action at European level by encouraging and promoting adaptation in vulnerable areas, such as agriculture, fisheries and cohesion policy, ensuring greater resistance in terms of European infrastructure and promoting the use of insurance against extreme weather phenomena or natural anthropogenic disasters.

(iii) Better informing decision makers on understanding gaps and inconsistencies to raise awareness of the adaptation and development of the European adaptation platform to the effects of climate change (Climate-ADAPT), which represents a unique way to inform in the field of adaptation to the effects of climate change.

According to the European Commission, the EU wants to achieve its greenhouse gas reduction targets by 2050 and taking into account the 2020 Climate and Energy Strategy and the Energy Climate Framework 2030. At European level, a low-carbon economy is needed and these set goals are the basis for achieving these goals. At EU level, with certain steps, we are on track to achieve the 20% target by 2020 to reduce carbon emissions and is following the application of legislation to reach the next target set by 2030. The 2020 target does not include emissions from the arable sector, land or forestry, but includes emissions from aviation.

However, target 2030 requires the EU to implement legislation to reduce emissions by at least 40% by 2030 as part of the EU's climate and energy framework 2030 and contribution to the Paris Agreement. This target 2030 targets the following issues: (i) Revision of the EU Emission Trading Scheme, (ii) national emission targets for non-ETS sectors; (iii) Integration of land use, land use change

and forestry (LULUCF) in the efforts to reduce emissions; (iv) Renewable Energy Legislation, Energy Efficiency and Governance of the Energy Union. The European Commission wants to implement some more effective ways for a greener and less energy-efficient economy. The EU should reduce its greenhouse gas emissions by up to 80% compared to 1990 levels by 2050, and this process takes place gradually, so by 2030 emissions have to be reduced by 40% and by 60% by 2040 by 1990 levels. As regards adaptation to climate change, the European Commission has adopted an adaptation strategy by all Member States, as well as national plans to deal with the unavoidable effects of climate change. These plans and strategies refer to decreasing water consumption, adjusting regulations, building flood protection systems and developing crops that are resistant to drought.

Also, it is desired to keep global warming below 2 °C, because it is necessary to limit this threshold of 2 °C to the average temperature in the pre-industrial period in order to avoid the occurrence of extreme meteorological phenomena. In general, a large proportion of the world's states have joined this objective in 1992 on the occasion of the United Nations Framework Convention on Climate Change (UNFCCC). However, the specialists have shown that if no action is taken to reduce global emissions or if the measures are insufficient by the end of the century, global warming could exceed the 2 °C threshold and could even reach 5 °C. However, besides the EU climate change strategy, is also taken into account and the White Paper on Adaptation to Climate Change which refers to a framework for action at European level which establishes a framework which aims at reducing vulnerability at EU level to the impact of climate change.

1.2. National policies and strategies on climate change

Nationally, it is taken into account the national strategy on climate change and economic growth based on low carbon, as well as the National Action Plan on Climate Change.

a. National strategy on climate change and low carbon growth

The main objective of the national strategy on climate change and low-carbon growth is to mobilize and to allow private and public actors to reduce greenhouse gas (GHG) emissions from economic activities according with the proposed targets. The EU wants to adapt to the impacts of climate change, both current and future. As regards the process of reducing GHG emissions, this strategy adopts quantifiable targets in line with EU 2030 aspirations.

As regards adaptation to climate change, the aim is to support and promote environmental protection, human communities and economic activities against the effects of climate change, especially to extreme events. The strategy will guide Romania's actions on climate change and low-carbon development by 2030 representing an update and extension of the National Strategy on Climate Change 2013-2020 are made in the light of recent developments.

b. National Action Plan on Climate Change

The National Action Plan 2016-2020 is being carried out in the framework of the Technical Assistance Service Agreement for "Romania: Climate Change and Low-carbon Economic Growth Program", signed between the Ministry of Environment, Water and Forests and the International Bank for Reconstruction and Development and financed by the European Regional Development Fund, through the Operational Program Technical Assistance 2007-2013. The major objective of the National Action Plan on Climate Change is to develop concrete measures for the implementation of the national strategy on climate change and low carbon growth and starts from the priorities mentioned in these documents. For this purpose, it is necessary to specify with more precision the necessary activities to address priorities for mitigating the effects of climate change and adaptation to them and set milestones for development and their implementation.

1.3. Policies and strategies at the local level on climate change

Locally, the projects funded by European or national funds play an important role because climate change is punctual and a "micro" vision acts strictly in that area of study. Mitigation measures are less costly and more effective than adaptation, that is why mitigation is done before reaching the adaptation measures.

However, it can be specified that the mitigation measures can be closely with policies in other sectors of activity (transport, waste management or even master plans in urban areas). Adaptation becomes a challenge of this century because climate change acts in different ways depending on various factors. Locally, as stated by the European Commission, clear strategies are not established, but the EU Adaptation Strategy reflects the need for new EU initiatives including reference to local adaptation. However, adaptation to climate change needs to be ensured by local authorities, because the types of impact and interdependencies are different and the proposed objectives can be achieved in a timely, concrete and shorter time.

The subject of adaptation to climate change presents of particular importance at the local level because of the following aspects:

a. The impact of climate change is higher at the local level even if the average temperature increase is global resulting in climatic changes that may have a greater influence at regional or local level, such as: very high temperatures, high intensity storms, insufficient precipitation, and the change of seasons / crop growing seasons. Also, climate change can lead to changes in professional activities, changing the role of institutions / enterprises, as well as the decrease of the national economy, as well as the health of the population. However, climate change works closely with local geomorphology and geology, economic and socio-political indicators.

b. Locally, the degree of vulnerability and adaptability are in direct correlation because together they can represent interactions between different socio-ecological factors and processes, such as income levels, infrastructure, ecosystem and human health, gender, political participation and individual behaviour, etc. The actors involved have the ability to determine ways to reduce or eliminate the negative impacts of climate change. Vulnerability indicators established at regional or national level have the role of determining climatic variations at the local level.

c. At local level, measures to adapt to climate change can be more effectively identified. The adaptation decision making and the implementation of climate action is reflected in the experience of previous studies and researchers in this field.

2. The correlation between the implementation of strategies and projects at national and local level

The government, institutional and legal institutions have the role of implementing urban plans that could be treated differently, depending on the influence of climate change. In Romania, projects are being carried out at national level, but also locally to provide support for adaptation to climate change.

Locally, the impact of climate change can be identified and evaluated in a more concrete and easy way in order to prevent the occurrence of risks what can happen. In the decision-making process on adaptation, there must be clear differentiations at local level, national and regional levels. Adaptation to the effects of climate change also needs to be differentiated between urban and rural areas.

In order to achieve success on adaptation to climate change short, medium and long-term plans, strategies and investments are required to address the risks with which we are confronted, but also to act in a timely manner to reduce vulnerability. Locally, the

communities need support and to have full decision-making capacity for adaptation in order to implement successful climatic actions.

3. The influence of climate change on agriculture

Nowadays, the particular emphasis is placed on identifying and implementing actions in agricultural systems that can contribute to mitigation and adaptation to climate change through the CAP instruments, but especially of rural development programs. The Common Agricultural Policy (CAP) has recently been revised by the European Union and one of the key changes was aimed at complete elimination of milk production quotas. In the context of farmers facing with issues related to climate change, any changes made may have important consequences land use, water supply and fertilizer application, as well as achieving economic performance in rural areas.

In general, the agricultural sector and climate change are closely linked, having a relationship cause-effect. Agriculture is a source of greenhouse gas emissions. The changes of temperature and growth seasons could, also, affect the proliferation and spread of certain species, such as insects, invasive weeds or diseases, all of which have the effect of affecting crop yields. However, in order to achieve the yield of crops, agricultural practices are necessary, such as rotation of crops, modification of sowing data according to temperature and precipitation amounts, as well as the use of certain crop varieties more resistant to the new conditions.

3.1. The influence of climate change on agriculture at European level

While some anticipated effects may be beneficial for agriculture in certain European regions, especially in the northern areas (e.g. prolonging vegetation season and improving crop yields due to warmer climate), most of them will most likely be adverse, leading to economic losses, they are emerging in regions already under pressure due to socio-economic and environmental factors. Regional variations anticipated in climatic conditions are significant, however, throughout the 21st century, the anticipated effects can be summed up in mild and humid winters, hotter and drier summers and increasingly intense weather events. The worst consequences of changing weather conditions may not be feeling until 2050, but earlier adverse effects from extreme weather events are anticipated, such as frequent and prolonged heat waves, droughts and floods.

In order to sustain the investments, EU funds are implemented, including the European Agricultural Fund for Rural Development, Common Agricultural Policy (CAP) and loans from the European Investment Bank which are available for agriculture and fish farming to adapt to climate change. Apart from the above-mentioned funds, there are other funds which refers to the reduction of greenhouse gas emissions resulting from agricultural activities. Farmers cannot cope alone with the burden of climate change. Public policy must provide the right support so that agricultural producers adapt their agricultural structures and production methods and continue to provide rural services. The CAP already contains constituents which should facilitate adaptation to climate change. Facilitating farmers' access to risk management tools, such as insurance programs, which can help them cope with the losses from weather-related disasters, due to climate change. Rural development policies provide chances to offset adverse effects which climate change can cause to agricultural producers and rural economies, for example, to provide investment aid for more efficient irrigation equipment. Agricultural and environmental programs to encourage better soil management and water resources by agricultural producers are, also, important for adaptation. At European level, the use of irrigated systems in agricultural crops is desirable for a good approach to water conservation and reuse, especially in southern Europe. In Europe, adapting to the effects of climate change will happen in a differentiated way depending on the geographic region.

3.2. The influence of climate change on agriculture at national level

Agriculture requires a dual approach, one to reduce GHG emissions and one to adapt to the anticipated effects of climate change. The agricultural sector issues greenhouse gases into the atmosphere, although on a smaller scale than other economic sectors. At the same time, this sector can provide solutions for climate change issues. Climate change affects many economic sectors and agriculture is one of the most exposed because agricultural activities depend directly on climatic factors. This is important for the European area because 90% of this area is composed of agricultural land and forests. Adaptation is a critical challenge for agriculture and rural areas. Negative effects on agricultural production will be influenced by extreme weather events. Subsistence agriculture will be particularly affected, because it has less capacity to adapt. This will cause the growth risk of famine.

Climate change is, also, a real concern for EU agriculture. Agriculture will face many challenges in the coming decades, such as: (i) increasing international competition; (ii) liberalization of trade policy; (iii) continued decline in population from rural areas in many regions.

4. The role of adaptation to climate change

Nowadays, climate change is a twofold challenge: reducing the emissions of gases that cause heating (known as attenuation) and adaptation to future climate change to reduce adverse effects.

These are the major challenges for agriculture in the European Union (EU) and for the development of agricultural policies.

There is a wide range of adaptation measures, from technological options to improving farm management practices, but also of political instruments (e.g. action plans for adaptation). To deal with anticipated changes of climatic conditions, farmers can change crop rotation for best use of available water, can adapt sowing data according to temperature and rain patterns, can use crop varieties more suited to new weather conditions (e.g. more resistant to heat and drought) or can plant shrubs or small pines areas on arable land to reduce water leakage and to act as a parapet. It is, also, important to better inform agricultural producers on climate risks and achievable adaptation solutions. Member States have already taken action to adapt. Much of the work done so far have focused on preventing the effects of meteorological extremes, perceived as imminent risk (such as, floods).

5. International climate change negotiations

United Nations Framework Convention on Climate Change (UNFCCC) was signed in Rio de Janeiro in 1992. The main objective of the Convention is to stabilize greenhouse gas (GHG) concentrations in the atmosphere to a level that prevents the dangerous anthropic disturbance of the climate system. The Kyoto Protocol is a subsidiary legal instrument of the UNFCCC and the negotiations were initiated at the 3rd Conference of the Parties, in Berlin in 1995, as the measures provided for in the Convention were not effective. The main feature of the Protocol is represented by the fact that sets firm commitments to reduce emissions over the base year (1990) in the first commitment period, respectively 2008-2012, for industrialized countries. Individual targets were assumed by each country on the basis of the "shared responsibility, but differentiated" and

which take into account: the historical responsibility of emissions, the need for economic development and development. The Kyoto Protocol has entered into force internationally on 16 February 2005 and was ratified by 182 States Parties. Under the first commitment period under the Kyoto Protocol (KP1) and 2008-2012 respectively, developed countries have, on average, assumed a 5% reduction in greenhouse gas emissions compared to 1990 levels. Also, under the first commitment period under the Kyoto Protocol, most Member States, including Romania, have individually assumed a greenhouse gas reduction target of 8% compared to the base year of 1989. All 28 EU Member States with commitments to reduce greenhouse gas emissions have exceeded their targets for reducing greenhouse gas emissions.

The Paris Climate Change Agreement was adopted following a vast and intense negotiation process, imposes legal obligations on all Parties to achieve the long-term global objective of maintaining global warming below 2 °C above pre-industrial levels depending on the capabilities and responsibilities and powers they have. The unprecedented element of the Agreement is the 1.5 °C target for limiting global warming, namely, the possibility of achieving a global target of maintaining global temperature increase below 1.5 °C, given that this would significantly reduce the risks and negative impacts of climate change.

Under the provisions of the Paris Agreement, it will enter into force on the thirtieth day after the deposit of instruments of ratification by at least 55 of the Parties to the United Nations Framework Convention on Climate Change which bring together at least 55% of greenhouse gas emissions globally.

From a political point of view, given the leadership role played by the EU in the adoption of the Paris Agreement and in the fight against climate change in general through the joint announcement of the two major states, the pressure of the entry into force of the agreement has been transferred to the EU, which, on October 4, 2016, has adopted the Decision on ratification, by the EU, of the Paris Agreement. Independent from the action of global partners, through the Energy Package - Climate Change 2020, the EU has set itself a target of a 20% reduction in greenhouse gas emissions by 2020 compared to the level reached in 1990, and in the case of similar actions from the other developed countries, this target will increase to 30%. By 2030, the EU has set itself a target of 40% reduction in greenhouse gas emissions compared to 1990 levels.

6. Conclusions

The subject of "climate change" will be a global challenge which implies a responsible approach,

undertaking concrete actions at international, regional, national and local level. A realistic approach to this phenomenon requires the cooperation of all international actors in order to identify the best ways of action, the tools needed to stop the global temperature increase.

The issue of climate change is maintained on the European Union's agenda of priorities, the subject being brought to the attention of Heads of State and Government at the European Council meeting in March 2016. European Council Conclusions of March 2016 stresses the need to ratify the agreement by the EU and its Member States as soon as possible.

The measures to address climate change and reduce greenhouse gas emissions are, thus, a priority for the EU. In particular, EU leaders have committed themselves to transforming Europe into a highly energy-efficient economy, with low carbon dioxide emissions. Also, the EU has set itself the objective of reducing greenhouse gas emissions by 80% to 95% by 2050 compared to 1990 levels.

The international agreements play an important role in terms of cooperation and action at

international level resulting from the global nature of climate change. In this regard, the EU wants to advance international negotiations on climate change. EU Member States support the development of the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Climate Change Agreement.

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