

CLIMATE CHANGE IN LOCAL AND REGIONAL CONTEXT

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Abstract

Climate changes produce a range of effects on society and the environment. The scale and speed of climate change produce ever more apparent. It is necessary that every part of the economy to adapt and reduce emissions. In these contexts, local and regional communities must adapt, otherwise damage costs will increase. In the future, is to be expected and other effects that can cause damage to costly November. Local and regional communities must be prepared to adapt to climate change. The effects of climate change could deepen the economic disparities between local and regional communities. This article presents an overview of issues related to climate change that occur every day. In this context, regional and local communities play an increasingly important role.

Keywords

climate change, local and regional communities, emissions of greenhouse gases

Introduction

For 2030, the European Union has proposed that the emission of greenhouse gases decrease. Thus it is desirable that the emissions of greenhouse gases represent about 50% of the level recorded in 1990.

Also, another target is the share of renewable energy in 2050 to be 100%. For this you need to set interim targets for 2030 and 2040.

At the same time, reducing energy use can increase the profitability of energy production system. Also, increasing the proportion of energy from renewable sources is another lever to increase profitability.

An economy with low emissions of carbon dioxide presents several advantages. The transition to a low carbon economy carbon dioxide offers a number of opportunities. Among these opportunities, economic opportunities are important. Other opportunities are the social and environmental, but the most important opportunity to transition to a low carbon economy Carbon dioxide is the beneficial changes in the scope of employment.

Operation of energy systems can be influenced by price fluctuations. An energy system for which price movements is vulnerable. This can lead to disruption of electricity supply. A sustainable energy system that has diversified energy resources is a system that can cope with price fluctuations. However, for such a system, the risk of disruptions in energy supply is greatly diminished.

At EU level there is sufficient families and consumers which can be classified as vulnerable consumers. From this point of view it is important to keep prices at a reasonable level. This approach leads to a correct management of the tax burden borne by the citizens.

On matters involving climate change will have an important role communities from future local and regional levels. For these communities should be encouraged to address issues related to climate and energy, it is important that local and regional authorities should be supported and encouraged to use development and financing schemes.

Lately notes that climate policies and energy increasingly are considering the use of carbon stored in sustainably be achieved.

It is necessary that the carbon can be naturally absorbed. For natural absorption of carbon can be used to increase solutions that consider organic farming and forest resources.

1. Emissions of greenhouse gases

Appropriate behaviour from citizens and businesses can lead to a reduction in emissions of greenhouse gases.

Local and regional authorities can determine the structure of services used by citizens and businesses. Local and regional authorities are responsible for landscaping. Economic development and progress of a community based on basic infrastructure. It is envisaged that this infrastructure include the possibility of sewage and waste processing, production and distribution of electricity, drinking water, roads and public transport.

Also, local and regional authorities have an important role in mitigating climate change. Floods and storms, as extreme weather events, accompanied by power outages are local events that can cause difficulties community members. The apparent importance of local fire services and rescue, and effective management of electricity. However, at the local and regional communities are able to make decisions that allow adaptation to climate change. Addressing energy may be performed in a more easy. If local can achieve electricity, then this activity supports the local economy, but also offers advantages for employment at local and regional level.

In the next period, warming in the northern hemisphere could be more intense than average warming of the planet, so melting snow in tundra regions could further accelerate global warming. At the same time, increased drought in some regions, and abundant rainfall in other regions can threaten food production. These phenomena will result in an acceleration of the movement of people within one area to another. Should be noted that extreme weather can cause human suffering and property damage.

These issues highlight the importance of consumption; become particularly important effects unsustainable consumption. At European level provides a sustainable green growth. The aim is to implement structural changes to be based on a clear set of goals to reduce carbon emissions by the year 2030. The green economy with low carbon dioxide is mentioned in Europe 2020.

The European Union has improved activities in areas such as education and science. It follows that the economies of the member countries have adequate infrastructure and are based on low-carbon. We are considering also public and social services, decent work and employment opportunities for the labour force. Changes observed concern and support for the needy and vulnerable socially and economically. The creation of conditions for development of business environment can encourage positive changes in Europe.

The EU has proposed that by 2020 to reduce emissions of greenhouse gases. In EU countries, electricity consumption fell, registering a shift to electricity produced from renewable sources. However, due to the recession and structural changes in the industry, the reduction of electricity consumption and emissions of greenhouse gases have been at the expense of employment.

Reduction of greenhouse gas emissions by 50% by 2030 compared to 1990 may have the effect of increasing EU citizens' confidence that emissions of greenhouse gases will decrease steadily. These objectives should be with the goals of energy efficiency and renewable energy. Measures that can be taken varies by each Member State's economy, the structure of emissions of greenhouse gases, the measures already taken, and specific environmental conditions.

Renewable energy differs from one Member State to another, depending on specific conditions. The influence is given by existing factors, such as: raw materials, natural environment, production systems and power transmission.

At EU level, the emissions of carbon dioxide are about 80% of total emissions of greenhouse gases. The carbon dioxide emissions are influenced by various factors: climate, economic growth, population size, transport and industrial activities.

According to Eurostat data, the European Union, from 2011, in 2012 carbon dioxide emissions have decreased by 1.6% and in 2013 to 2012, carbon dioxide emissions from burning fossil fuels decreased by 2.5%.

Also, according to Eurostat, in 2013 EU member state with the highest level of carbon dioxide emissions was Germany with 760 million tons (an increase of 2% compared to 2012). The following places are Great Britain with 455 million tons, 346 million tons France, Italy with 342 million tons, 290 million tons Poland, Spain with 224 million tons and 162 million tons Netherlands. These seven Member States together account for 77% of total carbon dioxide emissions EU28 in the year 2013 in Romania, in 2013, the level of carbon dioxide emissions was 63 million tons (down 15% since 2012).

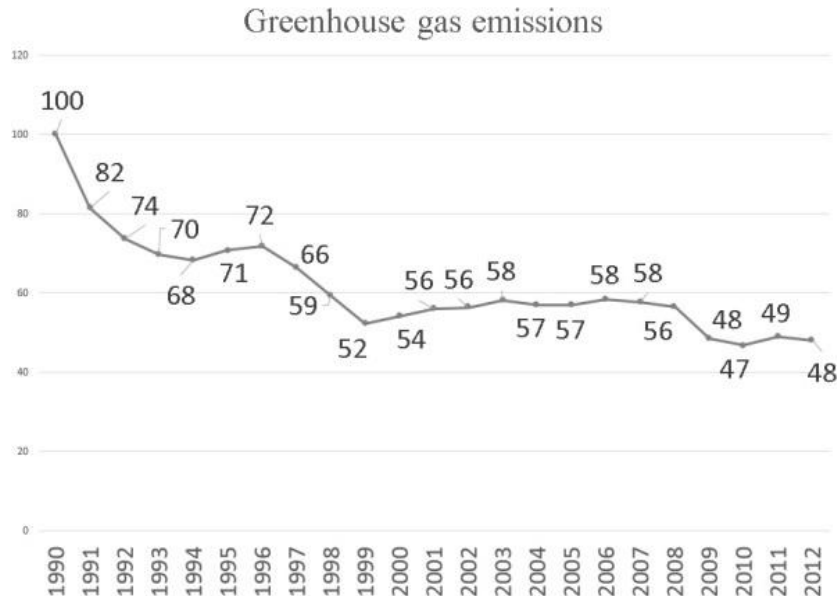
Since the base year 1990, the change in emissions of greenhouse gases in Romania is shown in Table 1.

Table 1. Changes in emissions of greenhouse gases

Year	Total greenhouse gas emissions (in CO2 equivalent) indexed to 1990
1990	100
1991	81,53
1992	73,76
1993	69,70
1994	68,27
1995	70,79
1996	71,69
1997	66,35
1998	59,22
1999	52,38
2000	54,14
2001	56,11
2002	56,36
2003	58,21
2004	57,03
2005	57,03
2006	58,46
2007	57,64
2008	56,46
2009	48,44
2010	46,81
2011	49,08
2012	47,96

Source: conducted by the authors based on data published on the website of the EUROSTAT and European Environment Agency (EEA), 2014

Figure 1 shows the emission of greenhouse gases in Romania for the period 1990-2012.



Source: conducted by the authors based on data published on the website of the EUROSTAT and European environment agency (EEA), 2014.

Fig. 1. Emissions of greenhouse gases in Romania for the period 1990-2012

The European Union's climate and energy states that the main objective is to ensure an energy supply with environmental compliance, social and economic. At the same time wants to be made to achieve this objective by providing safety and security.

If it improves energy efficiency, we can talk about a reduction in emissions of greenhouse gases. Similarly, the use of domestic energy sources and the development and application of innovative energy technologies can reduce emissions of greenhouse gases. Population, a very important benefit is given to improving public health and the state of the environment, but also create new jobs.

The rise in the annual electricity is based on a combination of several factors. Thus we list price changes in global markets, the current system of financing energy efficiency improvements and renewable energy promotion.

However, electricity price increase may be an incentive to reduce emissions, but also to develop electricity from renewable alternatives. Still not intended as an increase in energy prices affect the population.

Advising consumers of electricity can affect how you use energy. Thus the energy audits can be identified ways of saving energy by improving maintenance. Information systems could provide information on savings from electricity consumption.

To achieve the transition to a low carbon economy carbon dioxide is necessary to promote sustainable energy and MBI (market instruments). One such tool is the subsidizing market electricity from renewable sources. This can be achieved by supporting investment and operational support, including the implementation of a system of fixed rates. The experience of several Member States of the European Union can be concluded that the implementation of a system of fixed rates is the most effective. This allows both a rapid

increase in renewable energy production and obtain rates and generous guaranteed return on investment.

Local and regional electricity generation from renewable sources results in electricity savings and generate new business opportunities, and local dynamism. Energy independence and diversity confers protection against price changes and improves economic autonomy. It also helps support local energy independence economic activity.

At EU level, climate change may result in wider social gaps. This is one of the reasons why it is necessary to pay special attention to social groups and regions most exposed. These local communities are already at a disadvantage given the poor health status, low wage income, inadequate housing conditions or lack of mobility.

2. Local and regional communities

At European level, several cities have implemented programs and practical projects to slow climate change. One such example is the Local Agenda 21 (Local Agenda 21). It was released in 1992 Earth Summit. In the last twenty years many local and regional communities have managed to develop policies related to sustainable development. The actions were intended to improve the environment, reduction of greenhouse gas emissions and adapting to climate change. Two other projects were the goals of climate protection: Alliance for Climate (Climate Alliance) and Cities for Climate Protection (Cities for Climate Protection). Cities Energy (Energy Cities) is another project that was carried out activities related to energy issues.

Similarly, the European Energy Award program for municipalities addressing energy efficiency. Under this program, stimulating local and regional communities to achieve higher levels of energy efficiency and climate protection. It also promotes electricity production based on renewable energy resources. The program has attracted the participation of over a thousand places. To assist the decision makers of the local community, was written a publication entitled "Save Energy, Save the climate, save money". By participating in this program, local community Swedish city of Växjö has proposed that by 2030 to reduce carbon dioxide emissions by 100%. In Finland, 14 municipalities are involved in a similar project. Makers of local communities, businesses and residents working together to promote green economy and to achieve 80% reduction in emissions of greenhouse gases.

New approaches by creating cooperative energy production based on consumption. Thus, in Luxembourg, at Beckerich, households and businesses use micro-generators to secure its energy supply. Existing energy networks enable bidirectional transmission of energy. Thus electricity consumers and electricity producers are.

To move more easily over climate change, partnered with local and regional communities to promote exchanges of experience.

At EU level, it was noted that one-third of carbon dioxide emissions and almost 40% of electricity consumption is due to buildings. Lately, more and more buildings have entered a rehabilitation process heat. Monitoring is required to renovate the buildings and new buildings that are being built because energy can be wasted by inappropriate practices. Thus, it is desirable to use energy-saving performance practices. This saving can be achieved by maintenance, renovation and regular monitoring of installations generating and consuming electricity. It is also important guidance to the users and residents of buildings.

To mitigate climate change, local and regional communities can use in agriculture drought resistant species intense and persistent. At the same time it is necessary to consider the risk to biodiversity. Also in rural areas can take action for afforestation of slopes at risk of flood propagation.

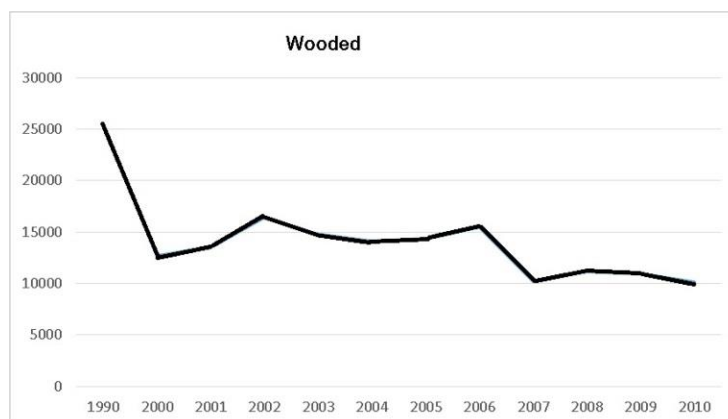
Deforestation promotes water run-off on slopes and produce a powerful flood. One major risk of natural phenomena is to landslides. They affect the slopes, the most widespread and putting on a variety of events. Forests include vegetable formations extremely complex and diverse, arranged in several layers, as well as the flora and fauna they host. Forest's natural wealth, whose role in the national economy and whose multiple functions in maintaining ecological balance are difficult to assess. Centuries, the forest was seen as a source of raw materials. Forests are the key factor in maintaining the ecological balance, climatic and fluid, with a regenerative capacity 3-5 times greater than any natural ecosystem. In Romania, the forest occupies an area of approximately 6,000,000 hectares, representing almost a quarter of the total.

Table 2. Wooded area

Year	Area (ha)
1990	25489
2000	12701
2001	13539
2002	16448
2003	14772
2004	14100
2005	14389
2006	15533
2007	10176
2008	11244
2009	10962
2010	10106

Source: conducted by the authors based on data published on the website of the <http://statistici.insse.ro> 2014

The data in the table can be represented in the following figure:



Source: conducted by the authors based on data published on the website of the <http://statistici.insse.ro> 2014

Fig. 2. Wooded area for the period 1990-2010

One of the main functions of forests is to protect soil from erosion, to ensure the purity of water, air, climatic factors improve, while producing sources of raw materials for the needs of the population and the national economy.

Given the importance of forests have climatic factors and hence improve the mitigation of climate change, local and regional communities should be more involved in regeneration activities and expansion of forests. Expansion of forest area through afforestation is no other forest vegetation outside forest areas and degraded land.

Analysis of the situation in Romania afforestation carried reveals a worrying situation in terms of sustainable development wooded areas recorded a dramatic decline after 1990, from 25,489 ha to 10,106 ha in 2010.

Even in urban areas, local communities can implement climate change adaptation actions by resizing sanitation in urban areas.

Drinking water is very important to the local and regional communities. Reducing losses in water distribution networks is an action that can mitigate climate change. Also, in terms of climate change, there must be a re-evaluation of water resources in the basins and sub-basins.

In recent years, during the summer season was an alternation of heat waves. This concerns in particular patients with chronic heart and lung disease or mental illness. Mitigating the effects of climate change can be achieved by planning mitigation actions from members of local and regional communities.

Conclusions

For the next period, local and regional communities should consider maintaining air and water quality. It is useful to adopt methods of heating because they are more efficient in terms of energy use and air quality compliance.

It wants the EU local and regional communities to promote programs that lead to reducing energy consumption in buildings in the public institutions. It is desirable that programs adopted include power plants, and methods of user involvement buildings saving measures and efficiency.

In the construction sector, small buildings can replace concrete and steel with renewable wood and wood products. Production of concrete and steel requires high amounts of energy and non-renewable natural resources such gravel and coal.

The Member States of the European Union, transport is responsible for about 20% of emissions of greenhouse gases. They come in 60% of private cars. European Commission proposal for a directive on alternative propulsion systems provides a wide range of fuels will become available for road transport.

Not yet established the potential technologies are more effective and which ones can be marketed in different Member States. Thus, local and regional communities may require the use of fuel with low emissions public transport.

In a short period, geopolitical and global economic map has undergone major transformations. These profound changes were triggered in part by the financial crisis, which is accompanied by an economic crisis in the European Union. In these circumstances, carefully examined the role of climate policy and energy policy of the European Union of the downturn in structuring future negotiations.

For local and regional communities, sustainable regional planning is another aspect that has more importance lately. Sustainable planning the territory should take account of bioclimatic factors. Energy consumption in urban areas and traffic may have the effect of reducing the quality of life of local communities and regions.

Also planning measures may be of increasingly greater, besides economic and social measures. The use of low carbon fuels or alternative propulsion systems can help mitigate climate change. However, a contribution to reducing traffic may have and re use of public transport. In this respect, beneficial changes in behaviour may be members of local and regional communities (e.g. type car-sharing).

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