

ENERGY, ENVIRONMENT, CLIMATE CHANGE AND ENERGY CONSERVATION AT THE EUROPEAN AND ROMANIAN LEVEL

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ABSTRACT

EUROPE IS AT THE FOREFRONT OF GLOBAL EFFORTS TO ADDRESS CLIMATE CHANGE AND TRANSITION TOWARDS SUSTAINABLE, LOW-CARBON ENERGY SYSTEMS. THE EUROPEAN UNION (EU) HAS SET AMBITIOUS TARGETS, INCLUDING THE EUROPEAN GREEN DEAL AND THE 2050 CLIMATE-NEUTRALITY GOAL. THESE INITIATIVES AIM TO REDUCE GREENHOUSE GAS EMISSIONS, INCREASE ENERGY EFFICIENCY, AND SHIFT TOWARDS RENEWABLE ENERGY SOURCES.

ROMANIA, AS AN EU MEMBER STATE, IS ACTIVELY PARTICIPATING IN THESE EFFORTS. THE COUNTRY'S ENERGY LANDSCAPE IS DIVERSE, WITH A SIGNIFICANT RELIANCE ON FOSSIL FUELS, BUT IT IS INCREASINGLY EMBRACING RENEWABLE ENERGY SOURCES.

THE THIRD INDUSTRIAL REVOLUTION, ALSO KNOWN AS INDUSTRY 3.0, IS CHARACTERIZED BY THE WIDESPREAD USE OF DIGITAL TECHNOLOGY AND AUTOMATION TO TRANSFORM VARIOUS INDUSTRIES, GIVEN THE INEVITABLE GLOBAL TWIN TRANSITION: GREEN AND DIGITAL.

KEY WORDS: *CLIMATE CHANGE, CLIMATE-NEUTRALITY GOAL, INDUSTRIAL REVOLUTION, GREEN AND DIGITAL TRANSITION*

Introduction

Through its policies, the EU protects the environment and takes measures to minimize the risks for human health, for the climate and for biodiversity. The European green package is meant to make Europe the first continent neutral in terms of carbon emissions, developing clean energy sources and ecological technologies.

The European Green Pact requires the assumption of certain commitments as well as their fulfillment, the aim being to prepare the economic sectors to face these challenges. At the same time, the solutions must be effective both from competitive and economic point of view.

1. Transformation of the economy and society

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Climate change is the biggest challenge of our times, but also an opportunity to build a new economic model. In order to achieve this goal, emissions must be reduced by at least 55% until 2030, compared to their level in 1990.

Another objective is to ensure a sustainable transport sector for all. The transition to a greener mobility will give us access to a clean, accessible transport system, and at affordable prices even for the most far areas.

This aspect involves the development of the market for vehicles with low or even zero hazardous emissions, developing the necessary infrastructure for charging vehicles for both short and long trips (increasing the autonomy of electric batteries), along with stimulating the use of less polluting fuels in all transport categories.

2. Vanguard for the third industrial revolution

The third industrial revolution typically refers to being at the forefront or leading edge of significant technological and industrial advancements, often associated with the third industrial revolution. The third industrial revolution, also known as Industry 3.0, is characterized by the widespread use of digital technology and automation to transform various industries.

Key aspects of the third industrial revolution include:

- a. information technology: this revolution saw the rapid growth of information technology, including the widespread adoption of computers, the development of the internet, and the digitization of data and processes;
- b. automation and robotics: industrial automation and the use of robotics became increasingly prevalent in manufacturing and various sectors. This led to increased efficiency and productivity;
- c. internet of things (IoT): the IoT connected physical devices and everyday objects to the internet, enabling data collection, analysis, and control in ways that were not previously possible;
- d. big data and analytics: with the vast amount of data generated, there was a focus on big data analytics to gain insights and make data-driven decisions;
- e. renewable energy: the third industrial revolution also witnessed advancements in renewable energy sources, such as solar and wind power, as well as improvements in energy efficiency;
- f. globalization: the global economy became more interconnected, with supply chains and communication networks expanding.

In terms of the aspects related to the environment and climate change, the challenges are:

- a. ensuring a less polluting energy system;
- b. renovation of buildings for an ecological and economic lifestyle;
- c. collaboration with nature to protect our planet and health;
- d. promoting actions against climate change at the regional and global level.

3. European climate balance sheet - EU and global progress in reaching the goals of the Paris Agreement

In 2015, 196 countries adopted the Paris Agreement, the world's first legally binding treaty on climate change, with the objective of limiting global warming to 1.5, maximum 2 degrees above pre-industrial levels.

The effects of climate change are visible both internationally and nationally, these changes manifesting themselves in excessive heat, a fact that leads to long droughts, this aspect having devastating effects on agriculture (vegetation fires, massive falls of precipitation, floods or disastrous periods of 9-10 months of drought per year, as in 2021-2022 in Romania).

In recent years (2022-2023), our country has faced a record number of severe weather warnings (code red) issued by the National Meteorological Authority.

The intergovernmental group on climate change shows that climate change is already manifesting itself and is massively accentuated due to the accumulation of greenhouse gases in the atmosphere at a rate that far exceeds the natural capacity of terrestrial and aquatic ecosystems to absorb them.

These reports underline the need for firm actions on the part of governments, on the part of the economic system and on the part of citizens in order to drastically reduce greenhouse gas emissions by addressing new solutions and technologies. In this sense, the economic processes must be rethought, so that they are oriented towards people/communities and towards the protection of ecosystems.

The competence of decision-makers and effective management can lead to the achievement of climate neutrality, which can bring multiple benefits such as:

- creating new jobs to ensure well-being and improve health;
- new investments that lead to the creation of new jobs and sustainable economic growth;
- development of ecological energy systems in order to increase the production of green energy, transition to energy resources poor in carbon dioxide;
- investments in research-development-innovation.

According to the World Economic Forum's (WEF) Global Risks Report 2022, a disorderly climate transition will exacerbate inequalities. The failure of climate action has been identified as the main long-term threat, with the potential to have a serious global impact in the next decade.

A failure of climate action would lead to more and more frequent extreme weather phenomena. Forms of failure can be disorderly transition with a negative economic and social impact. These effects can be foreseen through better planning in accordance and through early actions on the part of all interested parties. A transition that does not take into account the social implications can lead to exacerbating inequalities within and between countries, fueling geopolitical frictions.

For Romania, the main risks identified by the WEF refer, on the one hand, to environmental damage due to the environment, and on the other hand, to crises related to employment and the availability of livelihoods. The crises related to the debts of the big economies and the politicization of energy resources were also identified as risks.

4. Ensuring a just transition to a low-carbon economy

Creating an economic system with low carbon emissions requires new technologies, which can be implemented on a large scale in all fields of activity.

The measures to be implemented according to the Paris Agreement on climate change can be:

- ensuring a package of measures and a process that allows a fair transition in the most affected counties in Romania, respectively: Hunedoara, Gorj, Dolj, Prahova, Galati, Mures;
- reducing energy poverty and ensuring access to energy, at affordable costs for all consumers.

The just transition must ensure that adaptation to climate change is done taking into account how they will be affected and how all Romanian citizens will be encouraged to keep up with the developments and enjoy all the benefits of the transition.

The ability to innovate is fundamentally the most important to find solutions to complex problems. This capacity is strengthened to the extent that an organizational culture of agility can be developed, with experimentation and pilot programs, with monitoring and evaluation to strengthen a culture of learning, sometimes to the detriment of other solutions.

In the context of the accelerated evolution of climate change and, implicitly, with the new European policies in the field, Romania must formulate a coherent and integrated national response. To achieve this, quality data is needed that has been correctly collected, checked and easily available to those who should analyze them, make decisions, or formulate public policies.

In Romania there are still problems related to the lack of money, limited capacity of employees to make decisions and formulate public policies, simultaneously with the existence of certain claims related to the collaboration between the academic environment and the public administration, when it comes to data and data processing. There is a need for the active involvement of fellow citizens in national research programs and strategies regarding the green transition.

The topic of climate change influences many areas of life, and understanding these elements can contribute to increasing the quality of mass media activities, regarding the impact on various sectors of activity. The press, through the materials presented, informs about the state of the weather, but also about the natural disasters that occur. A close collaboration between journalists and scientists is necessary to contribute fundamentally to the understanding of the global phenomenon of climate change.

Correct information and combating false news require the participation of specialists in various fields who can generate correct information and to extract and combat false information. The involvement of the academic environment in this field is crucial.

Universities that study fields related to the environment and environmental protection, communication sciences, psychology, journalism or sociology must make a significant contribution to providing correct, balanced information and combating fake, unreal and/or malicious news.

In Romania, emissions of greenhouse gases decreased significantly after the fall of the communist regime, being, at that time, at a low level compared to other countries in the region.

In 2021, the aggregate emissions and absorptions of greenhouse gases showed a 71% reduction compared to the level of emissions in 1990, having one of the lowest emission rates per capita in the EU. According to the sectors of activity, the extractive and processing industry, utility services, agriculture and transport are among the most polluting, but, considering that they are indispensable, these sectors will need considerable investments to become efficient in terms of emissions of harmful gases.

For the new generations, it is recommended to include some courses in university programs, with reference to climate change. It is desired to encourage universities to adopt and/or promote in the curriculum the teaching of various subjects related to climate change, including climate science, but also the effects of climate change on health, ecosystem infrastructure, economy, finance, security. These must have a decisive effect in the training of graduates prepared for the green and digital economy. These changes at the curricular level of the universities will prepare young people for the jobs of the future related to sustainability, but will also give them a basis to engage in research and the development of green products and services.

Conclusion

The European and Romanian governments are working on comprehensive policies to address the challenges that our generation faces, regarding the climate changes issues.

The effects of climate change are felt by many Romanians who say they feel threatened by drought and prolonged heat waves, to which are added storms, floods and wildfires. Heat waves register an important dynamic in terms of effects. In order to reduce the impact of climate change, urgent environmental protection measures must be taken, which can be: the use of energy-efficient light bulbs, the selective collection of waste, the recycling of reusable materials, the thermal insulation of homes, the alternative use of means of transport, the use of green energy resources.

Challenges persist, including the need to invest in cleaner technologies and infrastructure, ensure a just transition for affected communities, and adapt to the impacts of climate change.

The third industrial revolution, also known as industry 3.0, is characterized by the widespread use of digital technology and automation to transform various industries, given the inevitable global twin transition: green and digital, and it is impetuous to adapt and find solutions.

Bibliography

1. *Working Group on Climate Action: An Integrated Approach, 2023. Limiting climate change and its impact, an integrated approach for Romania, Corporate Administration, Climate and Sustainability Department, Bucharest, Romania*
2. [Lupta împotriva schimbărilor climatice | Fișe descriptive despre Uniunea Europeană | Parlamentul European \(europa.eu\)](#)
3. [Top Findings from the IPCC Climate Change Report 2023 | World Resources Institute \(wri.org\)](#)
4. [Schimbări climatice | Ministerul Mediului \(mmediu.ro\)](#)
5. *Planul Național Integrat în domeniul Energiei și Schimbărilor Climatice 2021-2030*

6. [Problems Brought on By Climate Change and the Solutions \(earth.org\), accessed on 11.09.2023](#)
7. [10 ways you can help fight the climate crisis \(unep.org\)](#)
8. [Schimbările climatice: ce face UE - Consilium \(europa.eu\)](#)