

ROMANIA'S SITUATION IN THE CONTEXT OF THE CHALLENGE RELATED TO ENVIRONMENTAL PROTECTION

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Abstract

The article addresses the issues of the environment in the context of increasingly intense discussions on climate compliance. The article addresses the situation of Romania in comparison with other member states of the European Union, proceeding to the inventory of the main variables that characterize the situation of the environment and its influence on the economy such as the revenues collected from environmental taxes, the level of gas emissions, the productivity of resources or the consumption of resources depending on the Member State. The interpretation of the collected and analyzed statistical data has shown that Romania is one of the states with high consumption of resources and, at the same time, with low efficiency of the use of resources in terms of productivity.

Keywords: environment, CO2 emissions, resource productivity, Romania, European Union

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Introduction

The issue of the environment has increased significantly in importance over the last 20 years with the increasing visibility of climate risks. The concern of the European Commission for the protection of the environment is an old one, otherwise, it is considered a world leader in this regard. The European Commission has set itself a goal of becoming a modern, competitive, prosperous but also the climate-neutral economy. The vision for the future of the European economy is politically supported, with a series of benchmark indicators of which the most important aim is to reduce greenhouse gases to 0 by 2050. The ambitions of the European Commission must be interpreted in the economic, social context. The geopolitical tensions, the development discrepancies between East and West, the inequality at the societal level but also the technological progress represent elements that in turn are challenges for the success and sustainability of the European project. The need for reforms is underpinned by hard-to-overlook realities and projections. The general perception of climate change is one in which 92% of Europeans consider this to be a serious problem while 74% consider it to be a very serious problem (European Commission, 2018). Europe has experienced heat waves in 4 of the last 5 years, the temperatures in the Arctic Circle have exceeded 5 degrees Celsius, severe floods and climatic events are increasingly present in Europe. The Intergovernmental Panel on Climate Change draws attention to the fact that a temperature increases of 1 degree Celsius generates a major impact on the ecosystems and an increase of temperature by 2 degrees Celsius will generate a loss of coral reefs or an

irreversible loss of the ice cap from Greenland (European Commission, 2018). The issue of the impact of climate change and global warming is one that influences the economies and way of life of the inhabitants of those areas and beyond. Europe's productivity, infrastructure, public health and even political stability are elements that are influenced by climate change. The European Commission draws attention to the fact that meteorological disasters generated losses of 283 billion euro in 2017 at European Union level, with the premise that they could affect two-thirds of the population of the European Union. It is estimated that flood damage caused by rivers will increase by over 2000%, given that in Europe they amount to 5 billion euro annually. Also, the productivity of outdoor work can decrease by 10 - 15% and the availability of food will be on a decreasing trend (European Commission, 2018).

The transition to a completely sustainable, climate-neutral economy is an extremely difficult and challenging process, especially when certain states do not allow such a process politically, economically and socially.

In the context of increasingly tense Europe, the climate compliance process requires major financing needs. To reach the climate targets, set for 2030, investment needs amount to 260 billion euro, the entire strategic and programmatic framework specific to the European structural and investment funds being an important instrument for ensuring the necessary financial resources. The orientation of European financial resources must be realized towards those sectors and needs that are strongly affected by the climate compliance process. A transformation of such magnitude goes beyond the exclusive involvement of the state being necessary to involve all interested actors, in particular civil society and social partners. Also, the range of skills required for the workforce to reposition the production flows will change so the need for training is imperative. Climate compliance is thus one of the biggest challenges of the European Union, which has an economic, political but also social character.

1. Literature review

The environmental policy has been considered by many analysts as an additional limitation for companies, which negatively affects competitiveness because it imposes a series of costs that contribute to the final increase of the price of production or the provision of the service. It should be noted that environmental policy has a similar objective to competitiveness, both aimed at social welfare, but even though both have a similar objective, this does not mean that they are complementary (Fredborg Hurić-Larsen et al, 2016). In general, environmental policy is considered to be detrimental to competition because it contributes to increased production costs while at the same time increasing the barriers to entry. Thus, environmental policy contributes to diminishing competition and the well-being of citizens (NCA 2010). Many elements of environmental policy have been criticized over time. For example, Clò et al. (2013) criticized the emissions trading system; Balana et al (2011) and Bourblanc et al (2013) criticized the Water Framework Directive; Hiedampää & Bromley (2011) criticized policies that targeted biodiversity; Zagonari (2013) criticized the Flood Directive, Steurer et al. (2010) and Jackson (2011) highlighted the inconsistency of policies aimed at sustainable development but also biodiversity versus renewable energy; Fazekas (2013) emphasized the lack of equity by analyzing climate change adaptation legislation and Aakre & Rübhelke (2010) and Swinbank & Daugbjerg (2013) highlighted inefficiency by considering climate change legislation and biofuels respectively. Criticism also included the objectives of European environmental policies. For example, Spangenberg (2010) and Steurer & Berger (2011) criticized sustainable development; McLauchlan & João (2012) and Sheate (2012) criticized the environmental safety objective; Haug et al. (2010), Capros et al. (2011) and Brouwer et al. (2013) criticized the reduction of greenhouse gas emissions. However, the

number of studies analyzing the coherence, independence and efficiency of environmental policies as a whole is a small one. Halpern (2010) concluded that the European Union's (EU) Environmental Policy is dependent and structured based on its instruments, and apart from elements such as environmental impact assessment or emissions trading, it has been slightly innovative. Including this conclusion is somewhat contested because it is based exclusively on the judgments of some experts, without verifying the quantitative data, on the legislation on biodiversity, waste treatment, water protection and renewable energy. Finally, Aakre & Rübhelke (2010) stated that the European Union environmental policy is often inefficient and that, from a geographical point of view, it has always been uneven. However, the analysis was based on simplistic parameters based on EU spending programs to adapt to climate change.

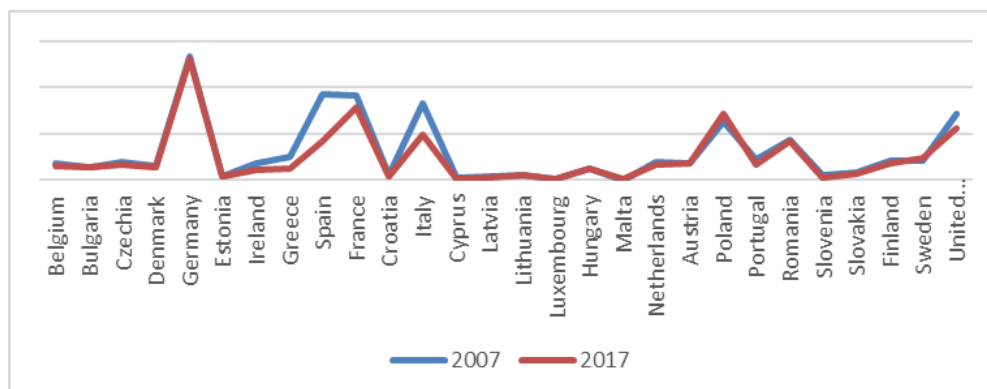
Market instruments are considered to be: environmental taxes, fees and fees, commercial pollution permits and subsidies. The non-market instruments with which environmental policy operates are as follows: control and control regulations, policies to support green technologies and to innovate or encourage voluntary cooperation between industry and consumers in the EU and government (Turner et al., 1994). The imposition of a price on pollution represents an approach considered to be easily reconcilable with the notion of economic growth, which can be achieved at the same time as achieving the targets aimed at environmental protection.

Most experts have illustrated a bleak picture of the consequences of enlargement for European Union environmental policy indicating a slowdown or even reversal of policies (Baker, 2001; Holzinger & Knoepfel, 2000; Pellegrom, 1997; Wilkinson, Monkhouse, & Baldock, 2004). The general argument is that the overall capacity to develop and implement environmental policies is lower in the eight Central and Eastern European countries that acceded in 2004, compared to the EU-15 countries, because of the socialist past and the economic/administrative challenges generated by the transition to the European economic model (Baker, 2001). However, environmental policy has remained true to the objectives that have been set, aiming to achieve green societies and states in an attempt to build a sustainable development process (Duit, 2014, Meadowcroft J., 2012). At present, most experts say that the European Union has one of the most progressive environmental policies in comparison with any state in the world, this being appreciated under conditions where the European Union is not a state (Jordan, 1999).

2. Situation of the environmental problem in the European Union

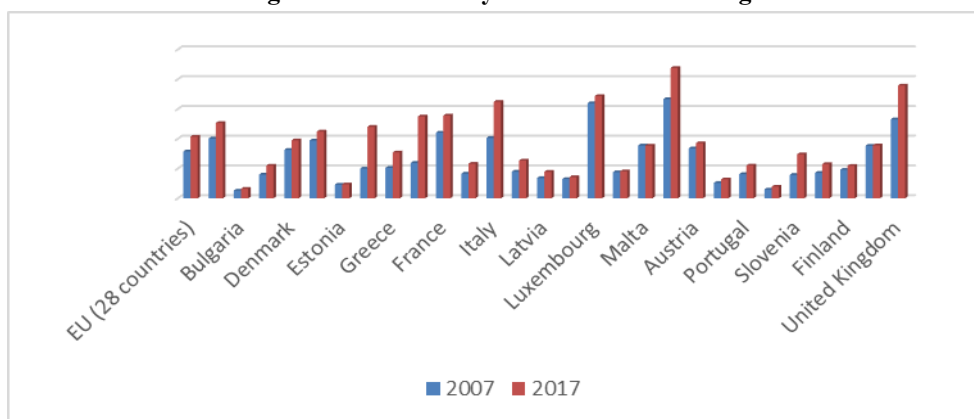
The reaction of the member states of the European Union is different this being influenced by the economic structure, biodiversity or the natural framework specific to each state. To these are added the differences of development so that although there is will and concern for the protection of the environment, there aren't the necessary financial resources. Studying the main variables at the level of the Member States that influence the climate compliance process is a necessary step. The importance of this approach should be analyzed in the context of the start of the programming period 2021 – 2027, with the European structural and investment funds being a major instrument for assisting the Member States in the climate compliance process. The consumption of resources is one of the most well-known variables in terms of economic efficiency and in one where the circular economy grows in importance while promoting waste reduction its importance is significant. Figure 1 presents the situation of resource consumption at the level of the Member States of the European Union.

Figure 1. Internal resource consumption (Source: Eurostat)



At the level of the European Union, the consumption of resources was in 2017 of 6.860.363,758 thousand tonnes, with 1.450.614,343 thousand tonnes lower than in 2007. The countries most consuming of resources, in 2017 were Germany, the largest consumer of resources from the European Union (1.307.929,474 thousand tons), Spain (414.434,062 thousand tons), Italy (493.915,432 thousand tons), Poland (712.337,167 thousand tons), Romania (415.181,498 thousand tons) and the Sea United Kingdom (561.276.506 thousand tons). Compared to 2007, resource consumption at Member State level was lower, with a few exceptions (Lithuania, Luxembourg, Hungary and Poland). Romania is a large consumer of resources at European Union level so that in 2017 Romania registered a share of 6,05% of the total consumption of resources at European Union level. At the same time, Germany registered a share of 19,07% in the total consumption of resources at European Union level and Poland 10,37%. The situation of resource consumption must be analyzed including from the perspective of the size of resource-consuming states. All the 3 Member States mentioned above are the Member States with a much larger dimension than others and can say that the orientation of the policies of efficiency of the consumption of resources must first of all concern these states. Any analysis that concerns the resource situation should not be dissociated from the concept of productivity. The intelligent and efficient use of resources is the key to success for any production process as they represent competitive advantages in terms of costs. Until some years ago, the competitiveness of the production process was analyzed in terms of costs but now the protection of the environment becomes an imperative variable necessary for the competitiveness of the production flow. The influence of environmental protection on the cost structure is a variable that is still little exploited by the specialized literature. There are the premises of a different impact, depending on the territoriality of the production flow, so that if within the European market the influence of the increase in the importance of the environmental protection can remain a competitive advantage, not the same can be said about their competitiveness concerning markets such as Asia or the USA. Below is the productivity in euro per kilogram at the level of the member states of the European Union.

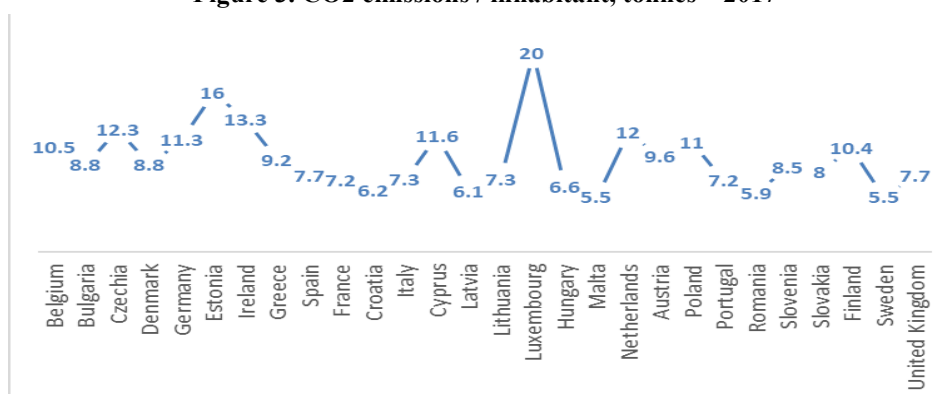
Figure 2. Productivity of resources – euro/kg



Source: Eurostat

Analyzing the productivity of resources, we can see that in most Member States productivity increases were registered in 2017 compared to 2007. At the level of the European Union, the increase was 32%, from 1,57 euro/kg to 2,07 euro/kg. The states with the highest productivity in 2017 in terms of resource use are the Netherlands (4,37 euro/kg - the highest level at European Union level), the United Kingdom (3,78 euro/kg) and Luxembourg (3,43 euro/kg). Germany's largest consumer in the European Union delivered modest productivity in 2017 which was 2,24 euro/ kg, lower than that registered by France (2,77 euro/kg). Poland, also one of the major consumers of resources, recorded much lower productivity than the western states, which was only 0,63 euro/kg. Romania's situation is one in which it ensures a significant consumption of resources but ensures the lowest productivity of resource use, after Bulgaria. In 2007, productivity was 0,29 euro/kg and in 2017 it was 0,39 euro/kg.

Figure 3. CO2 emissions / inhabitant, tonnes – 2017

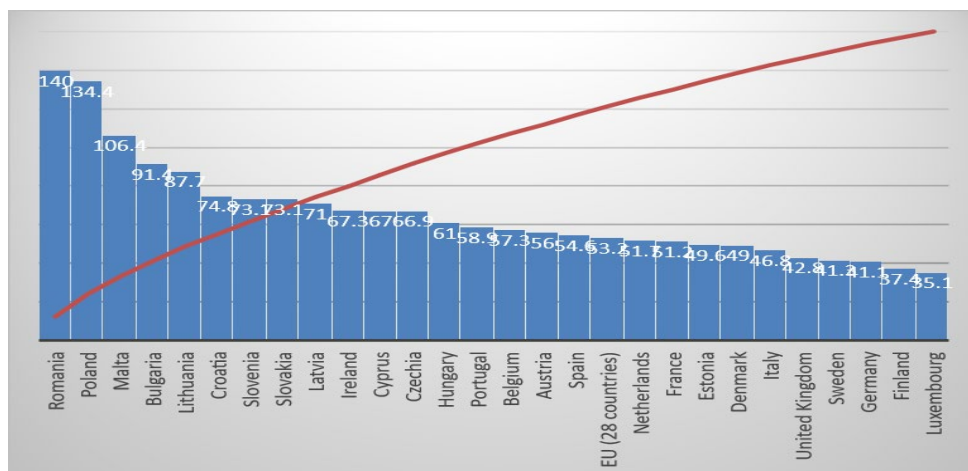


Source: Eurostat

The CO2/inhabitant situation shows that Luxembourg is in the top of the states at this indicator, the situation is influenced by the territorial characteristics that this state benefits from. Estonia is responsible for the emission of 16 tonnes of CO2, the Netherlands 12 tonnes,

Germany 11,3 tonnes and Cyprus 11,6 tonnes. Romania is in the last places in the European Union, the level of emissions being 5,9 tonnes while Sweden is responsible for 5,5 tonnes.

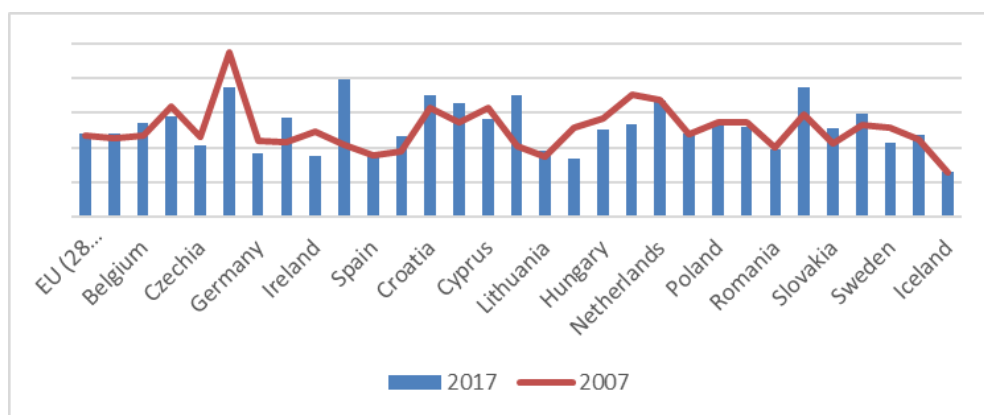
Figure 4. Nitrogen oxide pollution, reference year 2000 – 100%



Source: Eurostat

Compared to the year 2000, we can see that Romania is at the top of the European states in terms of nitrogen oxide pollution. Also, Poland is in a similar situation while the western states are in a much better situation compared to 2000. It is worth noting the situation of Germany in the book of the largest consumer of resources, with an industry well-consolidated and export-oriented are the last places at European level in terms of pollution with nitrogen oxides. The only states that are above the level of 2000 in this respect are Romania, Poland and Malta.

Figure 5. Revenue from environmental taxes calculated as a percentage of GDP



Source: Eurostat

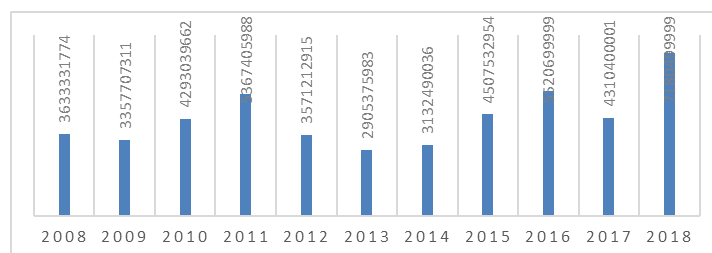
The revenues from the environmental taxes represented, in 2017, 2,41% of the GDP and 2,35% of the GDP in 2007, thus we observe a reduced increase of them in 2017 compared to

2007. The states where the revenues from the environmental taxes they exceeded the level of 3% as a share in the GDP of the respective country, in 2017, they are Denmark (3,72%), Greece (3,97%), Croatia (3,52%), Italy (3,29%), Latvia (3,51%), the Netherlands (3,73%) and Slovenia (3,73%). In Germany, strong industrialized state the level of environmental taxes represented in 2017 1,83% of GDP, a level lower than in 2007 when it was 2,18%. The situation is similar in the case of France, the level of environmental taxes as a share of GDP being in 2017 of 2,31% while in 2007 their share in GDP was 1,88%. The above situation is not valid in the case of Romania because the share of revenues from environmental taxes in GDP was 1,96% in 2017 and 2,01% in 2007, the year of accession to the European Union. At the European Union level, in 2017, households were responsible for paying 47% of energy taxes while industry accounted for 16,5%, agriculture 2,7% and transport 11,7%. The aforementioned structure is not valid for all Member States, there is the Member States where the majority of energy taxes come from the area of industry or transport. More specifically, it is Croatia, a state where the transport sector paid 44,9% of energy taxes while households paid only 37,2%. Also, in Malta, the industry paid 22,9% of the energy taxes while the households only 13,8. However, we can identify the Member States in which households have mostly paid energy taxes, referring here to Belgium (50,9%), Denmark (56,9%), Germany (52,4%), Spain. (52,6%), France (52,8%), Italy (50,5%), Cyprus (62,4%), Lithuania (54,4%), Holland (55,5%) or Slovenia (64,8%). Romania is the state in which energy taxes are mainly borne by the transport sector (25%), industry (41,8%) and population (29,9%).

3. Romania in the context of climate compliance

Romania is the member state that benefits from significant biodiversity, so the process of climate compliance is considered to be a difficult one. At the same time, Romania is the member state with significant development gaps compared to the western states, so that the climate compliance process depends on the European structural financial resources and investments and on the strategic and programmatic framework established at the programming period 2021 - 2027. Romania is one of the largest consumers of resources at EU level, given that the productivity of resource use is one of the lowest. The domains of activity react differently so that the analysis of the characteristics of the climate conformation process must take into account including the exposure of each domain of activity on the climate conformation process. In this regard, the figure below sets out the expenditures made with the protection of the environment distributed by activity areas.

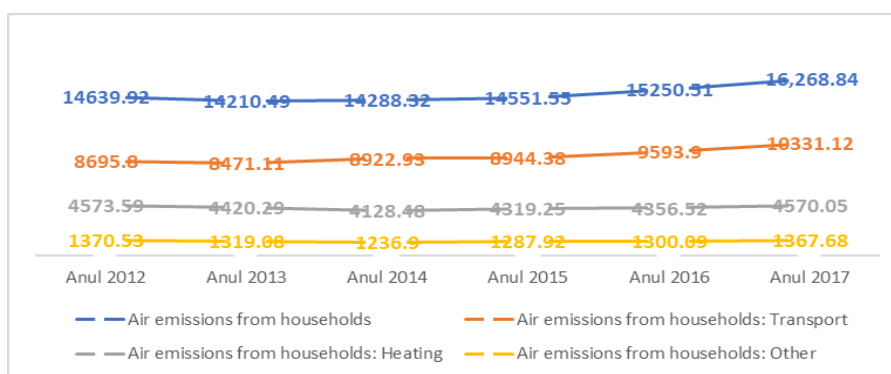
Figure 6. Expenditure of the public administration with the protection of the environment



Source: National Institute of Statistics

The expenditures of the public administration with the protection of the environment have had a fluctuating character situation revealed by the graph above. During the post-crisis period, the level of expenditures for environmental protection decreased at the level of the Romanian public administration. Specifically, in 2011 their level was 5.367.405.988 Ron, after which they decreased to 3.571.212.915 Ron in 2012 and 2.905.375.983 Ron in 2013. In 2015, the level of expenses increased to 4.507.532.954 Ron so that in 2018 they will be 7.180.499.999 Ron. Analyzing the CO₂ emissions in the air we can see that they have been decreasing in recent years in Romania, most likely this trend was influenced by the increasing investments that aimed at protecting the environment. In 2012 they were 73.988,6 thousand tons, 67.438,19 thousand tons in 2015 so that in 2017 their level will decrease to 65.077,03 thousand tons. It is important to mention that CO₂ emissions are encountered in all economic activity fields, the influence is different in the total CO₂ emissions. The most polluting areas of activity in Romania, in 2017 were agriculture (1.571,35 thousand tons, emissions in an increasing trend over the last 5 years), the food industry (1.197,95 thousand tons), processing of crude oil and oil products, coking plant (3.190,43 thousand tons), manufacture of substances and chemicals (3.221,35 thousand tons), manufacture of non-metallic products (6.560,07 thousand tons), metallurgy (4.936,08 thousand tons), production and supply of electricity (22.194,2 thousand tons), construction (3.108,87 thousand tons) and transport (9.340,98 thousand tons).

Figure 7. Structure of CO₂ emissions at household level



Source: National Institute of Statistics

Another polluter with a major environmental impact is households. Their impact is far greater than areas such as agriculture or the food industry. As can be seen from the graph above, regardless of the category of consumption to which we make CO₂ emissions from the level of households have increased, a situation influenced by the increasing need for consumption at the level of the household but also by the economic growth of the last period. CO₂ emissions increased from 14.639,92 thousand tonnes in 2012 to 16.268,84 thousand tonnes in 2017. The situation is similar in the case of emissions generated by the need for transport at the household level so that CO₂ emissions increased from 8.695,8 in 2012 to 10.331,12 in 2017. Another need with an impact on the environment felt at the level of households is that of heating. The CO₂ emissions from the households for heating have been fluctuating but in the last 3 years, they have been slightly increased. CO₂ emissions were 4.319,25 thousand tons in 2015, 4.356,52 thousand tons in 2016 and 4.570,05 thousand tons in 2017.

If in 2013 the value of the production was 48.035,8 million RON, in 2015 it was 54.313,51 million RON while in 2017 it was 51.744,92 million RON. The manufacturing industry is considered one of the most important industries for the production of environmental equipment, importance attributed to the value of the production achieved. The value realized in the manufacturing industry has had an oscillating character from one to another. If in 2013 there were realized 21.312,15 million Ron, in 2015 of 18.968,88 million Ron, 24.062,00 million Ron in 2015 and 19.842,17 million Ron in 2017. The water distribution and waste management sector generated production worth 7.886,86 million Ron in 2013 and 12.421,61 million Ron in 2017, also with fluctuations from one year to another. Agriculture is another area in which the value of environmental production was high, so that in 2013 it was 10.796,86 million Ron, in 2015 of 9.833,75 million Ron and in 2017 of 10.047,65 million Ron.

Conclusions

The discussions on the synergy between the production flows and the protection of the environment have benefited from a significant exposure, an exposure that will increase as the importance of climate change increases. If some companies use the environment variable for marketing purposes, to retain certain categories of customers sensitive to this issue, others consider that the environmental issues will affect the global competitiveness, implicitly the European production flows will be disadvantaged in competition with the ones on other continents. Concerned about the environmental impact on economic and social life, the European Commission launches the concept of climate compliance. It is based on clearly defined policies, with distinct funding from the European structural and investment funds, whose aim is to ensure a transition of production flows to an environmentally friendly area without affecting their competitiveness. In this regard, the analysis process dedicated to these elements has revealed some differences from one Member State to another, influenced by the size of the Member State, biodiversity or access to resources. Specifically, we can see that Romania, Poland and Germany states that have consumed over 35% of the Union's resources, a statement that concerns the total quantity of resources. There is a concentration of resource consumption in a very small number of Member States. At the same time, resource efficiency is one that also varies from one Member State to another.

Climate compliance is a major challenge for Romania, which will have to make significant efforts in the immediate period to increase the efficiency of the resources used, reducing pollution with emissions of nitrogen oxides and CO₂. At the same time, the increase in the level of revenues from environmental taxes collected in Romania must increase, this being one of the smallest in the European Union. The reorientation of the taxation to industry and agriculture represents a coherent step, given that their level is much lower than that paid by households. At the same time, there is no clear investment program at the country level that aims at the transition to a low-carbon economy and at the same time environmentally friendly. The expenditures for environmental protection made by the Romanian public administration had an oscillating and slightly chaotic character. In this context, environmental goods and services can position Romania as a competitive supplier in this market, but we can also observe fluctuations in the production or export of such goods and services. The processing industry is one of the most competitive at the national level in terms of the export of environmental goods and services.

Romania is a state with major responsibility for the success of environmental policies promoted by the European Commission, a statement proven by the size, consumption and efficiency provided by Romania compared to the other Member States. Even more, the climate compliance process must address the specificities of countries such as Germany, Poland, Romania or France to be able to record visible results in the next period.

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