### STOCHASTIC METHODS OF ANALYZING MACROECONOMIC INDICATORS CHARACTERIZING ENVIRONMENTAL PROTECTION IN ROMANIA, IN LINE WITH THE EUROPE 2020 STRATEGY FOR SUSTAINABLE DEVELOPMENT

Elena Cristina ROTARU<sup>1</sup>, Florica Georgeta ROTARU<sup>2</sup>, Silvia Elena CRISTACHE<sup>3</sup>,

<sup>1</sup> PhD student, The Faculty of Letters, the Ovidius University,

email: cristinarotaru81@gmail.com

<sup>2</sup> PhD, Student, The National School of Political Science and Public Administration,

email: flory\_georgeta\_rotaru@yahoo.com

<sup>3</sup> PhD, Professor, Academy of Economic Studies,

email: csilvia2005@yahoo.com

#### Abstract

Environmental protection encompasses several activities aimed at a better maintenance or restoration of a clean environment by collecting, recycling and treating waste, preventing emissions of pollutants, of noise, as well as by reducing the presence of pollutants in the environment.

The European environmental policy is based upon the principles of caution, prevention, correction of pollution at source and the fact that the polluter must pay. That is why, under the Treaty of Lisbon (2009), "combating climate change" and sustainable development in relations with third party countries, have become specific objectives. At the same time, in 2011, the EU decided to slow the decline of biodiversity and the degradation of the ecosystem by 2020, in line with the EU Biodiversity Strategy.

In May 2016, the EU Commission launched the Assessment of Environmental Policy Implementation, a new tool to help fully implement the EU legislation. The field of environment protection is closely linked to the adequacy checking (REFIT), as well as to monitoring and reporting obligations pertaining to environmental policy, in order to simplify and reduce costs.

**The Europe 2020 strategy** proposed for implementation identifies three key environmental objectives: protecting, preserving and increasing the Union's natural capital; transforming the Union into a resource-efficient economy; green and competitive low-carbon economy to protect the citizens of the Union from pollution.

The National Strategy for Sustainable Development of Romania – Horizons 2013-2020 has the following main objectives: improvement of the environmental infrastructure and reduction of the current gap between EU Member States; biodiversity preservation; reducing pollution and improving air quality and, at the same time, promoting alternative, renewable and non-polluting sources of energy production, as well as stimulating sustainable economic growth, with a focus on providing new green jobs. An essential element will be the increase of the absorption capacity of European funds through the Sectorial Operational Programme "Environment" and to prepare the Multi-Annual Financial Framework 2014-2020.

The main purpose of the paper is to make a comparative study of the various statistical techniques used to describe environment protection in Romania: the graphical method, the structural modification method, the regression and correlation methods; methods to be implemented with database management and analysis programs: E-Views, Excel.

The main conclusion of this paper is that such a complex approach will help the EU thrive in a low-carbon environment with limited resources and, at the same time, will prevent environmental degradation, biodiversity loss and the unsustainable use of resources.

**Key words:** environmental protection, macroeconomic indicators, stochastic methods, biodiversity preservation, energy production, low-carbon economy

## **1.** Introductory elements on the European environment policy under the Europe 2020 strategy.

**Sustainable growth** entails building a competitive, durable and efficient economy, in terms of resource use, that takes advantage of Europe's leading role in the race to develop new processes and technologies, including green technologies which speed-up the development of smart networks, which use ICTs, which use networks at EU scale and which reinforce the competitive advantages of our business environment, particularly in the manufacturing segment and in SMEs, so as to help consumers better understand the value of the efficient use of resources.

Https://www.mae.ro/sites/default/files/file/Europa2021/Strategia\_Europa\_2020.pdf

In this context, the EU implements some of the strictest environmental standards in the world. The European Union's environmental policy contributes to having a more and more ecologic **economy and to** protecting the environment, on the one hand, and to maintaining a competitive EU presence in the global market, on the other hand. Also, environmental policy can play a vital role in developing jobs and in stimulating investments. The "green growth" entails the development of integrated policies that promote a sustainable environmental framework. Innovations in the field of environment can be implemented and exported, thereby enhancing competitiveness and improving the quality of life in Europe.

The European environmental policy is based on the principles of caution, prevention, fixing pollution at source and the principle according to which the 'polluter must pay'. (http://www.europarl.europa.eu/) Therefore, under the Treaty of Lisbon (2009), the fight against "climate change" and sustainable development in relation with third party countries became specific objectives. The European Union environmental policy is supported by a series of strategies and directives meant to make it more efficient and to support its sustainable development. These can include: the Climate Change Strategy 2020; Directive no. 75/2010 / of the EC on Industrial Emissions; Directive 1999/31/EC on waste disposal, etc. These examples are conclusive, since they are important initiatives taken under the communal environmental policy. In this context, the Seventh Environment Action Programme of the EU, 7 EAP, sets nine environmental priority targets to be reached by December 31, 2020: protecting, preserving and enhancing the natural capital in the EU; making the EU a competitive low-carbon, greener and more efficient economy in terms of the use of resources; protecting EU citizens against environmental pressures and health hazards; maximizing the benefits of the EU environmental legislation; improving information and data needed to define the environmental policy; providing investments for environmental and climate change policies at a fair price; improving the integration of environmental issues and consistency with other policies, etc. (Nature and Biodiversity Newsletter, 2015)

In conclusion, environmental protection includes several activities directed towards a better maintenance or restoration of a clean environment by collecting, recycling and treating waste, by preventing pollutant emissions, noises or by reducing the presence of pollutants in the environment. The European Union introduced its Sustainable Development Strategy (SDS) as a complement to the already adopted Lisbon Strategy. Renewed in 2006, in order to combine the domestic and international dimensions of sustainable development, the revised SDS of the European Union is constantly trying to improve the quality of life by promoting prosperity, environmental protection and social cohesion. In line with these objectives, the Europe 2020 Strategy for Economic Growth is aimed at a "smart, sustainable and inclusive growth".

(Http://www.ier.ro/sites/default/files/pdf/politica\_de\_mediu\_brosura\_nr.4\_.pdf)

Moreover, it was in 2011 that the EU has pledged to fight the loss of biodiversity and ecosystem services downfall, by 2020, under the EU Biodiversity Strategy. In May 2016, the EU Commission launched the *Evaluation of Environmental Policies Implementation*, a new tool that aims at contributing to the full implementation of EU legislation on the environment. This is closely connected to checking the adequacy (the Program for adequate and functional regulation – REFIT) of the obligations pertaining to monitoring and reporting, under the environmental policy, in order to simplify and reduce its costs.

The Europe 2020 Strategy proposed for implementation by the EU identifies three key objectives regarding environmental protection, namely: protecting, preserving and enhancing the natural capital of the Union; making the Union an efficient economy in terms of the use of resources; making it greener and more competitive, with low-carbon emissions, in order to protect EU citizens from pollution. Under this strategy, the flagship initiative "A Resource-efficient Europe" paves the way for a sustainable growth and supports the transition to an efficient economy in terms of the use if resources and low carbon emissions.

(https://www.mae.ro/sites/default/files/file/Europa2021/Strategia\_Europa\_2020.pdf)

At legislative level, there appeared a series of new initiatives aimed at waste management, at reducing carbon dioxide emissions and at protecting biodiversity. From an institutional perspective, we noted the establishment of public bodies and institutions in charge of environmental protection. In order to ensure the health and wellbeing of the citizens, it is necessary to have a clean environment, based on the rational use of natural resources.

### 2. Particular features, objectives and trends of the National Strategy for the Sustainable Development of Romania 2013-2020

# 2.1. Developments and key objectives of Romania's National Strategy for Sustainable Development 2013-2020

Development strategies of the national environmental policy are shaped by national priorities and by the priorities of the European Union. Thus, we can refer to communal programs such as: PHARE, ISPA, Agenda 21 and the Framework Program for Competitiveness and Innovation, as well as national programs such as: *România Curată* (A Clean Romania), *Facilitatea Globală pentru Mediu* (the Global Environmental Facility), *Programul Operațional Sectorial de Mediu* (The Segment Operational Program for the Environment), *Programul privind Promovarea achizițiilor publice ecologice* (the Public Green Procurement Program), *Casa Verde* (the Green Home) and *Programul Rabla* (the Cash for Clunkers Program). These projects began both in Romania's pre-accession period to the European Union, and in the present. Their role is to assist the national environmental policy and to contribute, by specific, targeted measures, to the protection of the environment in Romania.

The funds allocated to the environment segment in Romania, by the European Commission, for the period 2007-2013, amount to 5.6 billion Euro. These allocations originate from two European Union funds: the European Regional Development Fund (ERDF) and the Cohesion Fund (CF) 92. The strategy and distribution of these funds was developed under the Sectorial Operational Program for the Environment (SOP Environment).

The National Strategy for Romania's Sustainable Development – Horizons 2013-2020 envisages the following main objectives: to improve environmental infrastructure and to reduce the gap between EU member states; the preservation of biodiversity; reducing

pollution and improving air quality and, at the same time, the promotion of energy production from alternative, renewable and clean sources; stimulating a sustainable economic growth, with a focus on creating new, "green" jobs. A key tool will be the increase of the European funds' absorption through the Sectorial Operational Program for the Environment and the preparation of the Multiannual Financial Framework 2014-2020. (http://mmediu.ro/new/?page id=81)

In terms of **biodiversity**, Romania brought valuable assets into the EU portfolio, including numerous plant and animal species, some of them being endemic, which are extinct or rare in other parts of Europe. Although natural vegetation occupies small areas in the plains, plateaus and low hills, there are still significant areas where human intervention was minimal (mountains and high hills, the Danube Delta, the lagoon systems and river floodplains).

In terms of **renewable resources**, according to the legislative package under discussion in the European Parliament and the EU Council, Romania will have to increase the share of renewable sources (solar, wind, hydro, geothermal, biogas, etc.) in the final energy consumption, from 17.8% in 2005, to 24% in 2020 (compared to the EU average of 8.5% in 2005 and the objective of 20%, in 2020). The target envisaged by Romania is that, in 2020, the share of electricity produced from renewable sources will reach 38%. (Report on the implementation of environmental policies – Romania-EU, Brussels, 2017).

In 2016, the priorities of the Ministry of the Environment, Water and Forests referred to creating a framework to make the Romanian economy speedup the transition towards a green economy, as well as to develop ecological enterprises and environmental entrepreneurship. In addition, according to the information provided by Romanian authorities, a white book on green economy is about to by published. Moreover, Romania has increased the number of employees in the environmental goods and services segment from about 130000 people in 2011 to about 146000 in 2016. The Romanian Ministry of Environment recognizes the need for more investments in ecological skills and in the education of the people for a sustainable development. The National Agency for Employment is involved in the "Green jobs" project, funded by the European Social Fund, which aims at evaluating the Romanian market for green jobs and at identifying the best practices for support measures in this segment. Romania hardly used the licenses for the EU's Ecolabel in 2015.

Romania has significantly improved her environmental performance since joining the EU, in 2007. Although Romanian legislation accurately reflects the environmental requirements agreed at EU level, their implementation in the field is a challenge, in general, determined, inter alia, by the lack of planning, of coordination and adequate funding. Gaps in implementation is problematic in several areas, notably in terms of waste management and wastewater treatment. Romania is encouraged to make better use of EU funds so as to meet these challenges and to strengthen the coordination of her administrative mechanisms.

In Romania, both small and medium-sized enterprises (SMEs), as well as large enterprises have a low level of awareness about their environmental impact and the economic opportunities created by circular economy / the efficient use of resources. However, the private segment has a few initiatives about recycling and the reuse of materials, which were further developed, in recent years. About 63% of SMEs in Romania invested up to 5% of their turnover in annual actions for the efficient use of resources (the EU28 average is 28.50%); 26% of them currently offer green products and services (the EU28 average is 26%); 37% have taken steps to save energy (the EU28 average is 59%); 26% have taken steps to minimize waste (the EU28 average is 60%); 29% have taken action to save water (the EU28 average is 44%) and 32% have taken action to save materials (the EU28 average is 54%) (the European Commission, 2015).

In conclusion, environmental issues are very complex, as the causes are interrelated, which requires action at all levels: local, national and regional authorities, as well as the European Union, each having its role in taking more responsibility for environmental protection. This involves a detailed analysis of the links between different policies and responsibilities, including the links between different areas of administration. (Comănescu, M., 2010)

## 2.2 Characterization of trends pertaining to environmental indicators in Romania during 2007-2016

Currently, waste production is no longer considered one of the indicators that are the expression of consumption and richness, but shows the progress of a society, how effective is it in relation to the consumption of natural resources and waste treatment operations. (Duţu, 2008)

**Waste management** continues to be a major challenge for Romania. In 2017, the transitional period granted to Romania under the Treaty of Accession, for the implementation of the Landfill Directive is about to end and, therefore, Romania will have to close 101 dump sites. Given the large volume of stored waste, Romania could face a serious storage capacity crisis as of 2017 and may violate current legislation on waste. Therefore, Romania opted for a new waiver, until 2020, in the implementation of the target of a 35% cut in the volume of waste to be deposited (in force since 2016). Public access to the municipal waste collection system was only 76% in 2012, i.e. 90% in urban areas and 59% in rural areas. In addition, landfills often do not meet quality requirements. Relatively few localities have put into place a selective waste collection system. (Report on the implementation of environmental policies – Romania-EU, Brussels, 2017)

Regarding the treatment of municipal waste in Romania, in kilograms per capita (see Figure 1), we note that Romania will have to make significant efforts to enhance recycling and reduce the storage of waste. Also, low waste fees do not generate enough revenue for future investments. Therefore, it is not surprising that the absorption of EU funding in order to improve waste management was extremely low, mainly due to the incapacity of the final beneficiaries to prepare and implement large investment projects, the lack of responsibility and the large periods allocated to tender procedures.





Figure 1. Romania's and EU's situation of waste management in 2007-2016

Source: Eurostat, municipal waste recycling rate, table accessed in October 2017.

In Romania, the indicator referring to the efficient use of resources is low and circular economy remains underdeveloped. Along with Bulgaria and Estonia, "resource productivity" (the economy's efficiency in using material resources to produce wealth) was the lowest in the EU (see Figure 2). In this context, a more circular economy that focuses on recycling and reuse of materials, as well as on a more efficient use of resources, would help stimulate investments. Also, it would generate benefits both in the short and long-term, for the environment, employment and the economy, in general.





Source: Eurostat, resource productivity, table accessed in October 2017.

Taxing pollution and the use of resources can generate more revenue and bring about important social and environmental benefits. According to the latest ESTAT data about Romania, revenues from environmental taxes amounted to 2.42% of GDP in 2014 (the EU28 average is 2.46% of the GDP). Revenues from environmental taxes applied in Romania have increased continuously, as of 2011 (see Figure 3).





Source: Eurostat, revenue from environmental taxes, table accessed in October 2017.

Since Romania is facing difficulties with regard to environmental objectives for water, waste and air, further action in the field of environmental taxes is justified, given the considerable potential of additional revenue from environmental taxes. (the European Commission, 2015 Tax reforms in EU Member States – in 2015, institutional document 008, dated September 2015, p. 68.)

### 3. Research Methodology

*Data collection* was based on the statistical information published by the National Institute of Statistics of Romania, as well as on the data published by Eurostat for EU countries in order to describe trends of environmental indicators. The analysis and modeling of environment protection in Romania, based on secondary data, studied dependencies that can take place due to implementation of the regression and correlation parameters methods for indicators that characterize the effects and impact of environmental protection upon the health and the people's quality of life, such as: current domestic expenses for environmental protection, investments in environmental fields, the GDP per capita, environmental tax revenue, etc. These analyzes were conducted in this work by using the databases management and analysis programs (Excel, EViews). (Andrew T.; Stancu, S.; Iacob, A.I., et all, 2008).

Thus, the single-factorial and multifactorial regression method was used, which implies an estimation of the regression function parameters through the OLS method. The correlation method leads to pertinent conclusions, even if it is difficult to measure the set of all causal factors and their socio-economic effects.

## 4. The correlation analysis between the indicators that characterize environmental protection in Romania during 2005-2016

The model reflects the relationship between current domestic environmental expenses (endogenous variable), Gross Domestic Product/capita (GDP) and Investment for the environment (exogenous variable). GDP and FDI were transformed in comparable prices in million Euro. In this case, the regression analysis covers the following stages: developing the regression model and estimating the model parameters, checking the accuracy of results. The following results of multiple regression function using linear regression model of multi-factorial were obtained (see Table 1):

$$\hat{Y}_i = -12727.05 + 0.66x_1 + 255.74x_2$$

## Table 1. Output EVIEWS for the multiple regression model

Dependent Variable: CURENT_DOMESTIC ENVIRONMENTAL												
Method: Least Squares Sample: 2005 -2016 Included observations: 12 ENVIRONMENT EXPENSES=C(1)+C(2)* INVESTMENT_ENVIRONMENT+C(3)* GDP/capita												
									Coefficient	Std. Error	t-Statistic	Prob.
								C(1)	-12727.08	723439.4	0.784123	0.9831
								C(2)	0.663731	0.771614	1.547056	0.0363
C(3)	255.7416	117.1059	0.716888	0.0316								
R-squared	0.644679	Mean dependent var		2229814.								
Adjusted R-squared	0.547941	S.D. dependent var		578539.4								
Log likelihood	-172.8107	Hannan-Quinn criter.		29.25690								
F-statistic	7.813256	Durbin-Watson stat		0.910840								
Prob(F-statistic)	0.012450											

The link between the variables of this model is measured by the multiple correlation report of ( $R_{y/x1,x2}$ =0.80). We appreciate that the multiple relationship is in a linear form and intense. The positive sign of the correlation indicates that our relationship is also direct. The coefficient of determination (R-squared) indicates the percentage by which we explain the influence of significant factors. It is used in evaluating the quality of the model. It can take only values in the range [0, 1]. The values are closer to 1, the model is better. In this case R-squared = 0.64 and so we can say that the regression model is good. Checking the accuracy of the multiple regression models and of the multiple correlation ratios, based on "Fisher" criterion, leads to the following conclusion: because the probability Significance F is less than 0.05 the multiple regression models is valid, with a significance threshold of 0.05.The coefficient  $\beta_0$  has the value -12727,08. It does not have economic significance. It represents the current domestic environmental expenditure when the others factors do not have influence. Since t = 0.78 and p-value = 0.98 > 0.05 it means that the coefficient  $\beta_0$  is not valid for a significance level of 0.05.

The slope  $\beta_1$  has the value 0.66. It represents the current domestic environmental expenditure when the real investment for the environment increased by one million euro. Since t = 1.54 and p-value = 0.03 < 0.05 it means that the coefficient of regression is valid for a significance level of 0.05.

The second slope has the value 255.74. It represents the current domestic environmental expenditure when the real GDP/capita increased by one million euro. Since t = 0.71, and p-value = 0.03 < 0.05 it means that the coefficient is valid for a significance level of 0.05.

From correlation chart we estimate that the points in the network graph (Figure 4.a) are uniformly distributed without gaps between them, so we can conclude that the link between Gross Domestic Product/capita (GDP) and Investment for the environment (exogenous variable) and Current domestic environmental expenditure (endogenous variable) is linear, direct and significant.



Figure 4a. Actual, Fitted, Residual Graph



Figure 4b. Histogram Normally Test

The Durbin Watson test is used for detecting the self-correlation of order 1 between residuals. Using a level of significance of  $\alpha = 0.05$ , the number of exogenous variables k = 2 and the number of observations n = 12, from the Durbin-Watson distribution are  $d_1 = 1,08$ identified the (for the case n = 12 ): and  $d_2 = 1,36$ . values Because 0 < DW = 0.91 < 1.36, we can accept that the errors correlated positively (see table 1). By verifying the normality of errors using Jarque-Bera test one observes that JB<sub>calc</sub>=0.98  $< \chi^2_{tabel}$ =7.81 which means that the errors are normally distributed (see Figure 4.b). Because errors occur evenly scattered around the environment of the regression line (see figure 4.a), the data shows heteroskedasticity, so the variance is constant. To detect errors autocorrelation using empirical methods that test Breusch-Godfrey. With this test will analyze the existence of autocorrelation of order k,  $k \neq 1$ . It is assumed that the error of the regression model is given by the equation:

$$\mathcal{E}_{t} = \rho_{1}\mathcal{E}_{t-1} + \rho_{2}\mathcal{E}_{t-2} + \dots + \rho_{k}\mathcal{E}_{t-k} + v_{t} \text{, for } t = k, \dots, n, \text{ but } v_{t} \sim N(0, \sigma_{v}^{2})$$

In order to evaluate the statistical presence of an autocorrelation of the order k, we shall use the following statistical hypotheses:

 $H_0: \rho_1 = \rho_2 = ... = \rho_k = 0$ ; the residuals are not correlated  $H_1: \rho_1 \neq 0$  or  $\rho_2 \neq 0$  or  $\rho_s \neq 0$  the residuals are correlated

We noticed, by applying the statistical software (EViews), that the statistical probability F is 0.19 (high) and models do not show an autocorrelation of order 2.

### Table 2. Breusch-Godfrey Test for multiple regression model

Breusch-Godfrey Serial Correlation LM Test:						
F-statistic	2.056317	Prob. F(2,8)	0.1903			
Obs*R-squared	4.054025	Prob. Chi-Square(2)	0.1317			

The White test is a statistical test which starts from explaining the observed errors in relation to one or more exogenous variables. (Voineagu V. at all, 2007). The analysis of the application management software and the database analysis (EViews) show that  $LM = 9.64 > \chi^2_{0.05:3} = 7.81$ , so that the homogenity hypthese is checked.

Heteroskedasticity Test: Whi	te		
F-statistic	4.909348	Prob. F(5,6)	0.0392
Scaled explained SS	3.872929	Prob. Chi-Square(5) Prob. Chi-Square(5)	0.5679

The disadvantage is that the regression method does not take into account the relationships between independent variables.

#### 5. Conclusions

Romania will continue to effectively contribute, under the current international and communal agreements, to the implementation of common EU objectives on climate change, by reducing emissions of greenhouse gases and by implementing adaptation measures to climate change. Romania has significantly improved her environmental performance since joining the EU, in 2007. Although Romanian legislation accurately reflects environmental requirements agreed at EU level, their implementation constitutes a challenge, due, among other things, to the lack of planning, of coordination and of adequate funding. Therefore, in accordance with the Europe 2020 Strategy, Romania is encouraged to make better use of EU funds.

At the same time, Romania missed many opportunities because she fails to recycle her own waste, leaving it to the private segment to import recycled materials for production. At legislative level, we noted a series of new legislative initiatives aimed at waste management, reducing carbon dioxide emissions and at protecting the biodiversity. From an institutional perspective, we noted the establishment of public bodies and institutions responsible for specific environmental protection policies, which were listed in the work. In conclusion, we can say that, in order to assure the health and wellbeing of the citizens, we need a clean environment that is based on the rational use of natural resources. In order to develop programs for the protection of the environment, we need to identify all the environmental factors and areas where pollution issues may occur. We also need to evaluate costs and to assign people in charge of their development.

In terms of the means for protecting the environment, it is necessary to solve three categories of problems: the development of a proper legislative and institutional framework so as to ensure compliance with the laws in force; the evaluation of the costs of actions meant to protect the environment and to identify their sources of funding; developing long-term programs, correlated nationally and internationally, so as to have an overview.

In conclusion, in 2014-2020, investments will be used in Romania to improve the environment quality and to promote the efficient use of natural resources. In this context, waste management, water and wastewater treatment, biodiversity and the protection of nature, risk prevention and management will be the main segments targeted for investment. The main conclusion of this paper is that such a complex approach will help the EU thrive in a low-carbon world with limited resources and, at the same time, prevent environmental degradation, biodiversity loss and an unsustainable use of resources.

#### **References:**

- 1. Andrei, T., Bourbonnais, R. (2008): Econometrics, Bucharest, Economic Publishing House, p. 111-123;
- 2. Andrei, T., Stancu, S., James, AI, et al. (2008): Introduction to econometrics using Eviews, Bucharest, Economic Publishing House, pp. 66-82;
- Communication from the Commission Europe 2020 A strategy for smart, Sustainable and inclusive growth, Brussels, 3.3.2010 COM (2010) 2020 Available at: http://europa.eu/press\_room / pdf /
- 4. Directive 96 / 61 / EC, dated September 24, 1996 concerning the integrated prevention and control of pollution. Available at www.eur-lex.europa.eu. S \;
- 5. Comănescu, M., 2010: *Increasing environmental responsibility*, Bucharest, Journal of Theoretical and Applied Economics, Volume XVII (2010), No. 5 (546), pp. 39-52
- 6. Duțu, M. (2008). Urban planning law, Ed. Univers Law, Bucharest
- 7. EViews, User Guide, Version 7.0 QMS Quantitative Micro Software, Irvine, California, pp.140-141, 2010.
- 8. LUCARELLI Soniaand Ian MANNERS (2006): Values and Principles in EU, Routledge 2 Park Square, Milton Park, Abingdon, Oxon;
- 9. Romania's National Strategy for Sustainable Development 2013-2020-2030 Available; www.anpm.ro (EC) Regulation no. 614/2007, dated May 23 2007 concerning the Financial Instrument for the Environment. Available at: www.eur-lex.europa.eu;
- 10. SCHEUER, Stefan (2005): EU Environmental Policy Handbook. A Critical Analysis of EU Environmental Legislation. Making it accessible to environmentalists and decision makers, Brussels: European Environmental Bureau;
- 11. Wallace, Helen, William WALLACE & Mark Pollack (2005) Policymaking in the European Union, Publisher European Institute of Romania, Bucharest;
- 12. \*\*\* https://www.mae.ro/sites/default/files/file/Europa2021/Strategia\_Europa\_2020.pdf;
- 13.\*\*\* European Commission (2015) Nature and biodiversity newsletter, 2015, Number 37, January;
- 14. \*\*\* http://www.ier.ro/sites/default/files/pdf/politica\_de\_mediu\_brosura\_nr.4\_.pdf;
- 15. \*\*\* http: //mmediu.ro/new/? PAGE\_ID = 81;
- \*\*\* Report on the implementation of environmental policies Romania-EU, Brussels, 2017
- 17. \*\*\* European Commission Flash Eurobarometer 426 2015. "SMEs, resource efficiency and green markets) https://data.europa.eu/euodp/en/data/dataset/S2088\_426\_ENG
- 18.\*\* European Commission, 2015. Tax reforms in EU Member States in 2015, 008 institutional document 008 dated September 2015, p. 68.
- 19.\*\*\*www.insse.ro
- 20. \*\*\* http://ec.europa.eu/eurostat/data/database