

INNOVATION MANAGEMENT THROUGH ECO-DIPLOMACY

Anca-Steliana MIREA ^a, Irena APOLZAN (ARĂDĂVOAICEI) ^a, Cristian-Silviu BĂNACU ^{a*},
Marin ANDREICA ^a, Andreea Gabriela TĂNASE ^a

^a Bucharest University of Economic Studies, Romania

ABSTRACT

This article aims to highlight that the war in Ukraine, which came after the COVID-19 crisis of 2020-2021, and after the already existing global economic crisis, added new problems and amplified the effects of the already existing ones. Today, only the innovation management could offer a set of tools that would allow leaders of all states to closely cooperate in order to understand the common processes and objectives, to encourage new projects even of small entrepreneurs of the developing countries by supporting them, a process which, if well managed, can lead to a significant economic growth and help them to achieve the Sustainable Development Goals (SDGs) by 2030. Nowadays, innovative management and eco-diplomacy play a decisive role in overcoming the crisis moments in Romania, European Union and in the world and this can be achieved also by increasing the capacity and participation of the younger generation of diplomats and professionals in promoting peace and ecological diversity. The aim of this paper is to answer to the question: Where do we stand today with regard to the innovation management in the field of natural resources as natural gas and which is the role of eco-diplomacy today. The research is based on official reports on gas and energy production and consumption in Romania and other countries.

KEYWORDS: *economic crisis, Eco-Diplomacy, natural resources, innovative management, sustainable development.*

DOI: 10.24818/IMC/2023/03.09

1. INTRODUCTION

The Eco-diplomacy, the ecological diplomacy or the green diplomacy represent relatively new concepts and concern that appeared on the eve and immediately after Romania's accession to the European Union, taking into account the indicators regarding the state of the environment. The Eco-diplomacy, as a new concept and a branch of diplomacy is, in the actual context, the chance to mitigate the effects of the economic crisis in the context of sustainable development.

Today, global ecological issues like pollution, the greenhouse effect and the climate change, the ozone layer, the biodiversity conservation, desertification etc., require specialized international development cooperation at bilateral, regional and global scale.

*The governments of the world have always been and they are increasingly preoccupied with what we call *green policies*; the ecological and biodiversity interferences at the regional, national, transnational and global level affect, today, not only European Union states, but also all the states of the world.*

* Corresponding author. E-mail address: cristian.banacu@man.ase.ro

Unlike traditional diplomacy, which aims to achieve a balance between the obligations accepted by one state and the benefits received by another state, the eco-diplomacy, the "green" or the ecological diplomacy, as we know it today, aims to raise awareness and promote the management and protection of shared natural heritage in the interest of the international community. Eco-diplomacy is a specialized diplomacy with a more pronounced technical character, requiring from its practitioners, in addition to the basic training of every diplomat, minimum of ecological, biological, economic, legal etc. knowledge.

Since 2014, when the Russian army occupied the Crimean Peninsula, the leaders of the EU states and European structures insisted that the solution regarding the energy security of the European Union depended on the diversification of gas suppliers (natural gas is a natural resource, a gaseous hydrocarbon and it represents the cleanest fossil fuel on Earth).

However, since then, the only ones who have diversified the routes through which gas flows in Europe have been the Russians. We can say that the Russia-Ukraine war changed the energy map, but the conflict between these countries was fought for more than two decades exclusively on the energy level, until the annexation of Crimea.

Russian gas was simply the cheapest and, rather than diversifying its foreign suppliers, the routes through which Russian gas was imported were simply diversified. The European Union states have at their disposal enough options to stop buying from Gazprom, only that they are all significantly more expensive.

Nowadays, liquefied natural gas is one of the most traded energy resources in the world. LNG is simply natural gas that is liquefied so that it can be transported on ships, and then gasified again when it reaches its destination. World trade in natural gas is based primarily on LNG, gas pipelines being in second place.

As minor national environmental crisis has developed into major international ones, and despite the fact that international relations, rules and mechanisms have been improved, the whole international community should make efforts to protect the global security and the environment. That is why environmental diplomacy (eco-diplomacy) is efficient among countries and citizens (Tayebi et al., 2016). Each EU member state government considers its own nation interest as being more important (Broadhead, 2002) and new rules and qualitative and quantitative environmental strategies are taken into consideration while new international treaties and agreements are signed in the context of the international environmental law.

2. NATURAL RESOURCES, CLIMATE ACTION IN ROMANIA AND EU: MOST RELEVANT LITERATURE REGARDING THE TOPIC AND *THE RESOURCE CURSE*

Natural resources have often been looked over in the economic literature as being incompatible with economic growth. Analyzing the connection between the energy intensity of the EU economies and their development, authors as Burcea, Ungureanu and Bâldan (2012) concluded that maybe there was no connection between energy consumption and economic growth.

The economic literature shows that raw materials such as oil, gas or coal present certain particular traits whose combination hinders economic growth and development and produces what is commonly called the resource curse (Sachs, 2007; Sachs & Warner, 1995; Auty, 2001; Gylfason et al., 1999; Rosser, 2006). In the economic growth and development of Romania, coal has had an essential contribution over the years. But, starting from 2013, the contribution of coal to electricity production begins to decrease, a moment that also culminates in the development of renewable energy resources.

2.1. COAL PHASE-OUT AND MODERNIZATION OF ENERGY INDUSTRIES IN ROMANIA

Emissions reduction are determined by coal phase-out and modernization of energy industries. Two months ago, Minister Sebastian Burduja announced that he had resolved the situation of the miners in Valea Jiului, that the Romanian government had adopted three normative acts initiated by the Ministry of Energy, which open a new stage for this city and its people. She stated that, through the Ministry of Energy, from the reserve fund at the disposal of the Prime Minister, financial support in the amount of 70,502,000 lei was granted for the new company, Complexul Energetic Valea Jiului (CEVJ), thus saving the jobs of over 2,000 miners, who were employed at Complexul Energetic Hunedoara (CEH), a company on the verge of bankruptcy. All miners will be taken over by the new company, Complexul Energetic Valea Jiului (CEVJ). For CEVJ, the state aid granted represents the first package in a series to support mine safety activities.

The employees of the Oltenia Energy Complex, which provides the coal used at the Rovinari Thermal Power Plant, claim that 16% of the day's production is made in Rovinari., which means that 16% of the Romanian economy uses that type of energy. The older miners feel that their jobs no longer matter for today's society, a society focused on future green energy ideas and projects. They fear that when Romania makes the total transition to solar, wind, nuclear or gas energy, the young people of the region will have no future there (Guşilov, E, personal communication, October 22, 2023). This could be, in Romania case, *the resource curse*.

The Ministry of Energy wants to diversify the company through the production of green energy, to ensure a long-term future for Valea Jiului, with safe and well-paid jobs, considering the construction of photovoltaic parks, a hydroelectric plant and a gas unit with carbon capture in Paroşeni and all these through *innovation management* and *eco-diplomacy*, by being involved, caring about Earth, environment and people. Environment protection issue represents, nowadays, a top priority on the regional, national and international agenda of the world governments, especially in the economic and war crises context.

As we know, *innovation management* refers to handling of all the activities needed to “introduce something new”, coming up with ideas, developing, prioritizing and implementing them, putting them into practice by launching new products, introducing new internal processes.

2.2. HOW THE USE OF NATURAL RESOURCES INTERACTS IN THE CONTEXT OF A CHANGING CLIMATE

In 2020, a European team carried out a project during the period 2016-2020 and studied the interdependence links between water, energy, food, land and climate. Through case studies and the use of serious games, this initiative promotes a change in the way we understand and manage natural resources. Floor Brouwer, the coordinator of the project, explained that: “*The concept of the nexus aims to develop a global understanding of how the use of natural resources interacts in the context of a changing climate.*” (European Commission, n.d.).

The purpose of this paper is to return to that analysis of the link between natural resources, economic and sustainable development. Adding some other important concepts, we started a new approach based on the tight connections between nature, natural resources, Earth, environment, finance, energy economy, eco-diplomacy, summits, agreements, treaties, international specialists and global world as you can see in the figure 1.

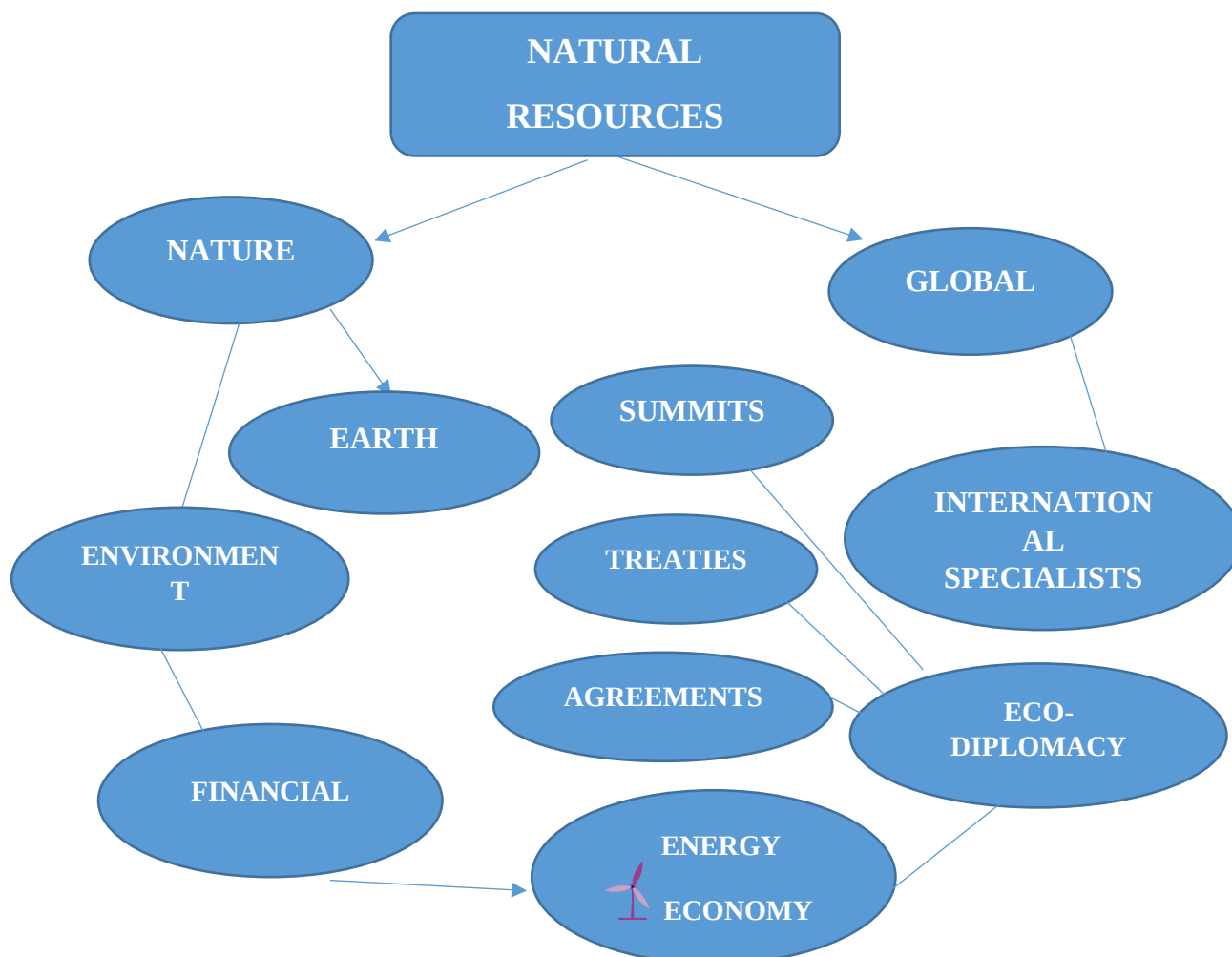


Figure 1. Natural resources in the context of a changing climate

Source: adapted from cordis.europa.eu (2016)

There is no doubt that these resources are closely connected, meaning that actions applied to one area influence the rest. We must also take into account the possible impact on these elements in response to climate and political changes, but also considering Russia's war against Ukraine and winter conditions, the latter affecting citizens of countries that depended on Russian gas.

3. IMPORTANT WORLD NATURAL RESOURCES

3.1. GLOBAL OIL PRODUCTION IN 2021

It is not wrong to say that, today, there are several energy transitions, in different subsectors: in transport, for example, we are talking about the transition from fuels to electricity or to natural gas, to liquefied, compressed natural gas and for fueling vehicles with hydrogen it is about a new infrastructure (new generation fuel that can use the existing infrastructure). But our world still depends on fossil fuels as coal, natural gas, oil and petroleum products obtained by refining crude oil. In 2021, the global production was 89,876 million barrels per day (figure 2). We see this after 2020,

a pandemic year, when crude oil production contracted, then recovered easily, outperforming three big players: USA/US, with 16,585 million barrels per day, Saudi Arabia, with 10,954 million barrels per day and Russia with 10,944 million barrels per day (Statistical Review of World Energy, 2022, p. 15).

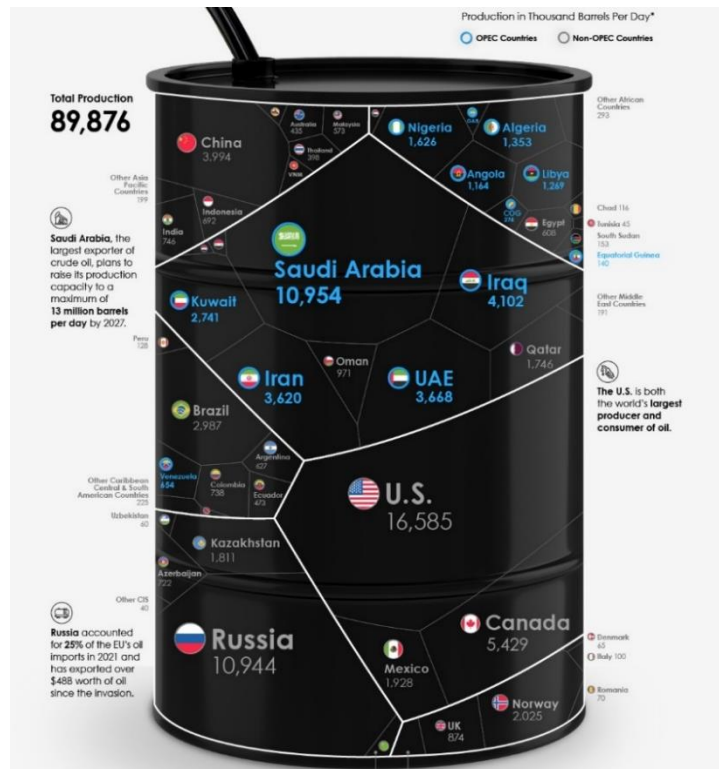


Figure 2. Global oil production in 2021

Source: available at visualcapitalist.com, Statistical Review of World Energy, 2022

Being an important producer of oil, coal and natural gas, Romania has also significant oil and gas reserves, substantial coal deposits and it has considerable installed hydroelectric power.

In 2022, the world oil production increased compared to 2021. Globally, there was a production of 93,848 million barrels per day, but the hierarchy remained the same: USA/US, with 17,770 million barrels per day, Saudi Arabia, with 12,136 million barrels per day and Russia with 11,202 million barrels per day. In 2022 and in 2023, the market was influenced by two groups: one formally constituted, completely Russian, and another, of non-aligned countries, whose leader is the US. In 2023, according to the forecast of the International Energy Agency, production could reach 101 or 102 barrels per day, figures that will be known in November-December.

3.2. LARGEST NATURAL GAS PRODUCERS IN 2021

U.S. produces 934.2 billion cubic meters of natural gas annually, the Russian Federation 701.7 billion cubic meters annually, of which it exports 400-450 to Europe, CSI countries and Turkey. Russia, as the second biggest producer, has at least 37 trillion cubic meters of natural gas reserves and the others produced insignificantly. Europe consumes about 450 billion cubic meters in 2021, twice as much as the U.S (Gușilov, E., personal communication, October 22, 2023).

3.3. MEASURES TAKEN BY EU COUNTRIES IN WAR AND WINTER CONTEXT

Russia's military aggression in Ukraine has led to an increase in energy prices and affected energy supplies in the EU, but security of energy supply and protecting citizens against rising energy prices are priorities for EU leaders.

3.3.1. EU GAS STORAGES (JANUARY 2022 AND MARCH 2023)

One of the immediate measures taken by EU countries to deal with the energy crisis was to increase gas reserves to ensure an adequate supply of the population in the winter period 2022-2023.

Table 1. Filling level of EU gas storages (January 2022 and March 2023)

Period (January 2022 and March 2023)	Values (%)
January 2022	53%
February	36%
March	28%
April	26%
May	34%
June	50%
July	59%
August	80%
September	80%
October	95%
November	96%
December	91%
January 2023	84%
February	71%
March	55%

Source: Performed by authors based on data available at <https://agsi.gie.eu/data-overview/eu>

The gas storage filling level of the EU countries. During this period (table 1, figure 3), the EU gas storage reserve recorded its lowest level in March (28%). Since then, stocking levels have steadily increased. At the end of August 2022, the filling level exceeded 80% and the maximum level of 96% was reached in November. Later, it started to decrease and in March 2023, the filling level was around 55%, much higher than in 2022 (<https://agsi.gie.eu/data-overview/eu>) .

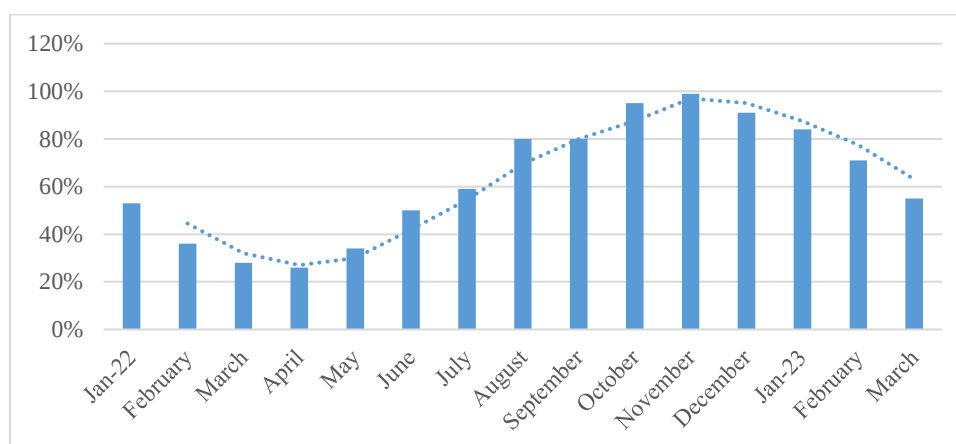


Figure 3. Filling level of EU gas storages (January 2022 and March 2023)

Source: Performed by authors based on data available at <https://agsi.gie.eu/data-overview/eu>

3.3.2. GAS STORAGE CAPACITY AND FILLING LEVEL IN EU MEMBER STATES

The table 2 shows the gas storage capacity, the amount of gas stored and the filling level for each EU member state in mid-March 2023. Germany, France, Italy and the Netherlands are the countries with the largest storage capacity, while Cyprus, Estonia, Finland, Greece, Ireland, Lithuania, Luxembourg, Malta and Slovenia have no gas storage facilities. However, according to the Gas Storage Regulation, they must enter into solidarity agreements with other Member States to secure their gas reserves (<https://agsi.gie.eu/data-overview/eu>).

Table 2. Gas storage capacity and filling level in EU member states

Country	Storage capacity TWh	Filling level	Stored gas
Germany	249.8	64.0	159.8
Italy	193.4	56.8	109.9
France	133.6	29.0	38.8
Netherlands	138.9	58.7	81.6
Slovakia	38.8	59.4	23.1
Romania	32.8	42.5	13.9
Czech Republic	43.8	57.2	25.1
Latvia	24.1	34.4	8.3
Spain	35,3	78,2	27,6
Bulgaria	5.8	77.5	4.5
Hungary	67.7	45.5	30.8
Poland	36.4	61.3	22.3
Austria	96.7	66.1	63.9

Source: <https://agsi.gie.eu/data-overview/eu>, referred at on 17/10/2023

4. ROMANIA ENVIRONMENTAL LAW ASPECTS

As a reaction to the UN Conference that took place in Stockholm, in June 1972, devoted to the environment, in 1973 the Law on the Protection of the Environment was adopted. In 1974, the National Council for the Protection of the Environment was established, empowered to coordinate and monitor the fulfillment of nature protection measures. Special commissions were established in each county in Romania, composed of departmental representatives of several ministries and subordinated to the county popular councils and to Bucharest (Făiniși, 2011).

After the revolution of December 1989, the development of environmental institutions in Romania experienced several organizational forms, which reflected the priority given by the Romanian authorities to energy and ecological issues.

The emergence and development of environmental protection issues determined, in addition to the intensification of legal regulation activities of the phenomenon, a vast movement to adopt and institutionalize ecological policies, both nationally and internationally.

Nowadays, in almost all states, such specialized institutional structures operate that have generated the affirmation of new forms of administrative structures, such as the creation of hydrographic basin agencies, hydrographic offices, regional authority inspections with forest guard attributions, environmental agenda etc.

The central public authority for environmental protection has, among many other powers and responsibilities, the following ones (according to art. 75 of the Emergency Ordinance 195/2005):

to update the environmental protection strategy, to coordinate the training activity in the field of environmental protection, to correlate the environmental planning with land use and urban planning and establishes measures for ecological reconstruction; creates the institutional-administrative framework for identifying and promoting research programs, for training and training qualified personnel for supervision, analysis, evaluation and control of the environment, to collaborate with public authorities and other legal entities, in order to reduce the negative effects of economic activities on the environment and encourages the introduction of techniques and technologies suitable for the environment, to make available to the public data on the state of the environment, programs and environmental protection policy and to consult, periodically, with the representatives of non-governmental organizations and other representatives of civil society in order to establish the environmental protection strategy (Făiniși, 2011).

5. RENEWABLE ENERGY INNOVATIVE PROGRAM "GREEN ROMANIA"

The Casa Verde 2023 Romania Program is an ambitious project that aims to reduce the impact on the environment by promoting renewable energy and energy efficiency. To support this program, the European Union has allocated funds within its budget for the period 2021-2027.

Among the measures that should be taken we think that banks' partnerships with energy suppliers could simplify the process that consumers have to go through to connect to the electricity grid and thus become prosumers, given that some of them offer support in terms of mediating the process with distribution companies. It is very important that the borrowed funds could be used properly in order to have a positive role in our country's economic development at both microeconomic and macroeconomic level (McCollum & Bănașu, 2014).

In order to achieve the EU goal of becoming energy neutral by 2050, all member states, including Romania, will have to abandon any energy systems that emit greenhouse gases and adopt environmentally friendly solutions. In the Integrated National Plan in the field of Energy and Climate Change, Romania included measures to reduce carbon emissions, increase energy efficiency and

increase the share of renewable energy sources in total energy production. These include: zero-carbon electricity. Consumers must be encouraged to abandon polluting energy sources, such as coal and natural gas, and adopt renewable sources such as solar or wind energy.

6. CONCLUSIONS

Romania is known as a country with great potential in the field of mineral resources, especially crude oil, natural gas, salt, gold, silver and ferrous and non-ferrous metals. Historically, the extractive industry in Romania has often been at the forefront of the development of this type of industry in Europe, offering new methods of identifying and evaluating mineral and oil resources, methods that later proved to be of major importance throughout the world.

The international environmental cooperation (the international eco-policy) remains difficult because the ecological issues affect the core of the interstate relations. But ecological cooperation is not limited to the interstate level, being more and more stimulated by the non-state actors through standards publication within industry, agreements between economic sectors and the NGOs, public-private partnerships etc.

European governments have responded to warnings and requests on climate change and resource shortages from civil society and from business environment through measures aiming to limit activities with a negative environmental impact and measures to stimulate activities that contribute directly to sustainable development.

"Country Climate and Development Report Romania", that took place at Cotroceni Palace, on the 24 October 2023, addressed a major challenge facing Romania, the European Union and the entire world: the climate change. The effects of these climate changes are becoming more and more obvious and acute for the citizens of Romania, whether it is heat waves that leave their mark on health, the phenomenon of drought, with a negative impact on the economy, or violent storms that destroy goods and put people's lives in danger. We all must respond to the climate challenges through adaptation measures to the new realities, but also through mitigation measures, by reducing greenhouse gas emissions.

Zvezdov (2021) stated that: *International diplomacy such as climate diplomacy would manifests itself in most confident and unequivocal manner when it is executed in the name of the public good.*

Global environmental problems can be solved once and for all only by involving everyone, by identifying, at a regional, national or global level, the natural resources specific to each state and their better management.

The eco-diplomacy, the ecological or green diplomacy unites people and states by bringing them together and involving them in common innovative environmental projects; it manifests in society at several levels: at a social, political, educational, philosophic level and at international collaboration level. Though it has, like public diplomacy, its own limits sometimes, as they say, it is a peace diplomacy, one of reconciliation of man with nature in the name of the general interest of sustainable development, of the continuation of the survival of human civilization. Nowadays, innovative management and eco-diplomacy play a decisive role in overcoming the crisis moments in Romania, European Union and in the world and this can be achieved also by increasing the capacity and participation of the younger generation of diplomats and professionals in promoting peace and ecological diversity.

REFERENCES

- Auty, R. M. (ed.) (2001). *Resource Abundance and Economic Development*, New York: Oxford University Press.
- Broadhead, L. A. (2002). *International Environmental Politics: The Limits of Green Diplomacy*, Lynne Rienner Publishers, p. 32.
- Burcea, F. C., Ungureanu, E., & Bâldan, C. F. (2012). Energy Intensity – A Key Indicator for the Economic Development. *Annals of the University of Petroșani Economics*, 12(1), 25-32.
- European Commission (n.d.). *Sustainable Integrated Management FOR the NEXUS of water-land-food-energy-climate for a resource-efficient Europe*. Retrieved October, 20, 2023 from <https://cordis.europa.eu/article/id/413416-multi-sector-natural-resource-management-the-nexus-concept-and-serious-games/fr>
- Făiniși, F. (2011). *Dreptul mediului*, Editura Fundației "România de Măine", București, pp. 106-119
- Gylfason, T., Herbertsson, T. T., Zoega, G. (1999). A Mixed Blessing: Natural Resources and Economic Growth, *Macroeconomic Dynamics*, 3(2), 204-225.
- McCollum, J. K., & Bănașu, C. S. (2014). *Management de proiect. Teorie și practică*, Editura Universitară, București.
- Tayebi, S., Moosavi, S. F., & Poorhashemi, S. A. (2016). Environmental Diplomacy: A Framework for Growth of International Interaction and Cooperation for Achievement of Global Peace. *Journal of Politics and Law*, 9(9), 150-159. <http://dx.doi.org/10.5539/jpl.v9n9p150>.
- Rosser, A. (2006), *The Political Economy of the Resource Curse: A Literature Survey*, University of Sussex, Institute of Development Studies (IDS), Working Paper 268.
- Sachs, J. D., & Warner, A. M. (1995). *Natural Resource Abundance and Economic Growth*, NBER Working Paper 5398.
- Sachs, J. D. (2007). How to Handle the Macroeconomics of Oil Wealth. In Humphreys, M., Sachs, J. D. and Stiglitz, J.E. (eds.): *Escaping the Resource Curse*, New York: Columbia University Press, 173-193.
- Statistical Review of World Energy (2022). 71st edition. Retrieved October 20, 2023 from <https://agsi.gie.eu/data-overview/eu, bp.com/energyoutlook>
- Zvezdov, I. (2021). *The Modernity of Climate Diplomacy*. Retrieved October 10, 2023 from <https://medium.com/predict/the-modernity-of-climate-diplomacy-4b9d7e4368f1>