

CURRENT ASPECTS OF ENVIRONMENTAL REGULATIONS AND INTERVENTIONS IN EUROPE - RESEARCH FOCUS ON HUMAN HEALTH

Carmen-Mariana DIACONU¹, Alexandru TRIFU², Gabriel-Ionuț PLAVAN^{3,4*},
Alin CIOBÎCĂ³ and Sabina Ioana COJOCARU³

¹Department of Agroecology, Faculty of Agriculture, "Ion Ionescu de la Brad" Iasi University of Life Sciences, 3, Mihail Sadoveanu Alley, 700490, Iasi, Romania; avocatcarmendiaconu@gmail.com

²Faculty of Economics, "Petre Andrei" University, 2, Bălușescu Street, 700309, Iasi, Romania; email: trifu.alex@gmail.com

³Faculty of Biology, "Alexandru Ioan Cuza" University of Iasi, 20 A, Carol I Blvd., Iasi, Romania; email: alin.ciobica@uaic.ro; sabina_18ro@yahoo.com

⁴Research and Student Practice Station "Vasile Băcăuanu" Stefănești, "Alexandru Ioan Cuza" University of Iasi, Nicolae Titulescu Street, Stefănești, Botoșani, Romania

*Correspondence: gabriel.plavan@uaic.ro

Received: May 09, 2023. Revised: Jun. 15, 2023. Accepted: Jun. 16, 2023. Published online: Jun. 29, 2023

ABSTRACT. The article focuses on a synthetic presentation of environmental legislation and policies at national and European level, based on the analysis of government strategies that aim to improve living standards through education starting from an early level, through the implementation of waste management resulting from industrial and domestic activities, through the modernization of the rural environment as a result of the financing of water supply, access programme to alternative energy and specifically gas.

Keywords: environmental regulations/interventions; human health; pollution.

INTRODUCTION

This work aims to present in an original way the impact of public environmental policies at the national and European level regarding the health of the population. Some aspects taken into account are related to the need to implement the provision of green space in the urban environment in all urban planning projects approved by local and county authorities on the one hand, on the other hand we emphasize environmental education in connection



Cite: Diaconu, C.-M.; Trifu, A.; Plavan, G.-I.; Ciobîcă, A.; Cojocaru, S.I. Current aspects of environmental regulations and interventions in Europe - research focus on human health. *Journal of Applied Life Sciences and Environment* 2023, 56 (1), 85-100. <https://doi.org/10.46909/alse-561087>

with public management policies on waste.

Legislative framework

The structure of the work is intended to reflect in a synthetic way the main regulations at the European level that created the past, present and future environmental policies.

The concern for the environment at international level is continuous and has not gone unnoticed in the European space. Driven by the 1972 Stockholm Conference, the European Union has developed a new policy area, namely the European environment policy.

The European environment policy rests on 6 action programmes that will be detailed in chronological order:

1. In 1973, the first Environment Action Programme was elaborated – EAP (1973-1977), as a mixture of strategic medium-term programmes that accentuated the need for water and air protection and which contained a sector approach to combating pollution;

2. In 1978, the second Environment Action Programme was adopted – EAP (1978-1982), structured on the same priorities as EAP 1, actually being a renewal of EAP 1;

3. In 1982, the third EAP was adopted (1982-1986), which reflects the influence of the development of the internal market on the balancing of its objectives with those of the market;

4. In 1987, the fourth EAP was adopted (1987-1992), characterized by the same tendency of coordinating the evolution with the objectives of the single market and the previous programme;

5. EAP 5 (1993-1999) was adopted in 1992 and it makes the

transition from the approach based on command and control to the introduction of economic and fiscal instruments and the consultation of the interested parties in the decision process. The year 2000 represents the year when the results of EAP 5 were evaluated and the defining of the priorities for the 6th action programme – EAP 6 (2001-2010) – which supports the sustainable development strategy and highlights the responsibility involved in the decisions that affect the environment.

6. Still, the current situation of the European environment policies gravitates around the provisions of art. 191-193 of the Lisbon Treaty and the seventh general European Environment Action Programme (EAP 7).

EAP 7 lists nine priority objectives. Three of them cover the main action areas: protection of nature; more efficient use of resources and the development of a low carbon economy; the protection of human health against environmental pressures. Four other objectives focus on the measures the EU can adopt in order to achieve these goals. The final two objectives are horizontal and their aim is to improve the urban environment and global cooperation.

For the EU to transform into an economy characterized by the efficient usage of resources and low carbon emissions, the following are necessary:

- The full elaboration of the climate and energy package for fulfilling the 20-20-20 objectives and the joint establishment of the stages of the following policy regarding the climate post-2020;

- The significant improvement of the environmental performance of products during their life cycle;

- A reduction of the ecological impact of consumption, including aspects such as the reduction of food waste and sustainable use of biomass.

Special attention is paid to the transformation of waste into a resource by emphasizing the measures of prevention, re-use and recycling, as well as the gradual elimination of wasteful and harmful practices such as waste storage.

Environmental factors perceived as possible threats by government strategies

Increasing areas of Europe are facing pressures on their water resources (due to climate change), highlighting the necessity of additional actions for a more efficient use of water. In the context of rising prices for natural resources, and deficits and dependency on imports, the competitiveness of Europe and its capacity for sustainable development will depend on an increase in the efficient use of resources in all economic sectors. EAP calls for the definition of certain indicators and target-values regarding the efficiency of the use of resources, for the orientation of public and private decision-makers. The advantages of an efficient economy from the perspective of the use of resources can be felt in numerous sectors. Environmental technologies and services represent a significant successful story, with a growth in related jobs of 3% per year. The global market for environmental industries, currently valued at 1 billion EUR, will double,

according to the statistics, in the following 10 years.

Another key action domain addresses the risks to people's health and well-being, such as air and water pollution, noise pollution and toxic substances. According to the World Health Organization, environmental factors could be responsible for up to 20% of all deaths in Europe.

Air pollution has an important toxicological impact. Industry and motor vehicles are the most known air pollutants sources. The World Health Organization has named six major air pollutants: lead, sulphur oxides, nitrogen oxides, carbon monoxide, ozone and particulates. They have different effects on human health, depending on the exposure (short or long-term).

There are many studies that correlate air pollutants with different pathologies: respiratory and cardiovascular diseases, inflammation, cancer, eye and skin diseases, neuropsychiatric diseases and infertility.

Lead intoxication has important effects on human health, even in small concentrations. It can accumulate in different organs and the nervous system causing mental retardation, aggression, loss of memory, sleep disorders, infertility, etc.

Sulphur dioxide is known for raising the risk of eye (lachrymation), skin (redness) and respiratory diseases (bronchitis, mucus secretion, bronchoconstriction). Sulphur dioxide is also responsible for the acidification of soils due to acid rains with an impact on the whole ecosystem.

Nitrogen oxides are considered traffic related air pollutants that also

affect the respiratory system, especially by increasing the risk of infections. The main mechanism is by interaction with the immune system's natural killer cells.

Another important air pollutant is *carbon monoxide*. Due to its affinity with haemoglobin (250 times greater than that of oxygen), carbon monoxide manifests its toxicity by competitively binding to heme groups, which raises the risk for some cardiovascular diseases (Ghorani-Azam et al., 2016).

Ground level ozone is associated with a higher risk of developing asthma and other respiratory diseases. Ozone interacts with the polyunsaturated fatty acids from the respiratory fluids and the cell membranes which results in lipid radicals production and membranes oxidation. It is also known for DNA damage of skin cells (McCarthy et al., 2013).

Long exposure to *particle pollution* increases the risk of mortality related to lung and heart diseases which is dependent on the size of particle pollutants.

Other air pollutants are various *aromatic hydrocarbons* that are known to be involved in cancer progression (Ghorani-Azam et al., 2016).

Europe already has high standards regarding air quality, yet pollution continues to be above acceptable levels in numerous cities. The EAP sets commitments to improve the implementation of the current legislation and to ensure the further reduction of air and noise pollution.

Water pollution consists in the contamination of lakes, rivers, oceans or underground waters with different harmful chemicals and microorganisms.

Because of its solvent nature, water can be easily mixed with toxic substances.

Industrial activities and the use of *agrochemicals* in agriculture are the main causes of the decline in water quality.

Population growth and intense urbanization also plays an important negative role in environmental issues. Studies reported that about 75% of water pollution is caused by domestic sewage and farming and 25% by industries (Haseena et al., 2017).

Water pollution has an important impact on human health. Trace amounts of *pharmaceuticals* can mix in the drinking water and become dangerous to living organisms. The main substances found in surface water bodies, in groundwaters or in sea coastal water are steroids, antibiotics, oestrogens, blood lipid regulators, painkillers, antiseptics, anti-inflammatories, antihypertensive drugs, anti-epileptics and antineoplastic agents. Concentrations of water-dispersed pharmaceuticals are commonly in the range ng L^{-1} to $\mu\text{g L}^{-1}$. People can be exposed through consumption of aquatic organisms or drinking water. A large number of studies have focused on steroids and sex hormones due to their metabolic impact and on antibiotics due to the risk of antibiotic-resistance (Bottoni et al., 2010).

Pollutants are known to disrupt the food chain. They affect living organisms by contaminating vegetables and fruits, aquatic organisms and finally the human population. Water contaminated with metals leads to hair loss, renal failure and neurological disorders. Other chemicals induce respiratory diseases, cirrhosis, cancer, diarrhoea and

cardiovascular diseases, and low birth weight. Nitrogenous chemicals are responsible for different types of cancer. To all of these, viral (hepatitis, encephalitis, gastroenteritis), bacterial (diarrhoea, cholera, shigellosis, salmonellosis) and parasitic diseases (giardiasis, galloping amoeba) can be added (Haseena *et al.*, 2017).

Soil pollution is in direct correlation with other types of pollution. The chemicals can be transferred to the soils from the air and from different human activities. Finally, they can contaminate water (Rodrigues and Römken, 2018).

The soil represents a source of essential nutrients, but can also expose the population to pathogens, heavy metals and organic chemicals. The largest soil contaminant is *lead*, the main source being industrial activity.

Mercury is also important to mention for its impact on human health. Although mercury occurs naturally in soils, mining activities can also cause severe soil contamination.

Cadmium is another soil contaminant that can accumulate in plant tissues and manifest toxic effects on human health, especially in rice consumers.

Soil can also be contaminated with *radioactive elements* (Ciornea *et al.*, 2015). Direct exposure to radioactive materials leads to various genetic mutations and cancers.

Nitrogen fertilizers are a big risk factor due to improper use. Nitrate and nitrite contaminated foods may cause methemoglobinemia which prevents oxygen from being carried around the body.

Synthetic organic compounds are a serious problem worldwide because of the intensive use of pesticides. Because of the long half-lives of many organic substances, they are known as “persistent organic pollutants”. Many of them are considered toxic to organisms even at extremely small doses (Steffan *et al.*, 2018).

EAP suggests addressing the dangers connected with the use of chemicals in products and chemical mixtures, particularly with regard to substances that impact the endocrine system. It also sets a long-term vision for a non-toxic environment. Parallel to this, a more predictable framework is required, together with greater knowledge-related investments, to foster innovation and the creation of a more sustainable solution.

It should be mentioned that the Treaty of Lisbon established the environment in Title XX (art. 191-193).

The objectives mentioned in art. 191 (1) of the TFEU do not have the role to restrict or prejudice the competence of the Member States, the right to negotiate within international bodies or to conclude international agreements. Also, the protection measures established in art. 192 of TFEU do not prevent any Member State from maintaining or setting stricter protection measures.

According to the Treaty provisions, issues relating to the environment are classified in areas of shared competency between the European Union and Member States, the principles of subsidiarity and proportionality being applicable.

It has to be mentioned that, according to art. I-13 of TFEU, the

conservation of the biological resources of the sea within the Common Fisheries Policy is of the exclusive competency of the European Union (Țarcă, 2017).

As a result, in this area, not only will the international regulations take precedence, but there will be no possibility for the adoption of national provisions, as these are the competences that the states, in accordance with the Lisbon Treaty, have transferred to the European Union.

When it comes to managing the demands on the environment at the local, regional, and continental levels, European environmental policy initiatives have shown to be particularly effective. In contrast to the environmental and climate challenges we have successfully addressed over the past 40 years, some of the ones we are currently dealing with are systemic and cumulative in nature, reliant not only on the measures we take in Europe but also on the larger global context (Agbedahin, 2019).

This perspective is no longer, if ever, limited to the environment. It cannot exist without reference to the larger social and economic context. In addition to reducing ecosystem resilience, unsustainable exploitation of natural resources has negative direct and indirect effects on people's health and way of living. Although the existing production and consumption patterns raise quality of life, they paradoxically also put it in danger.

Beyond these issues, there are signs that our economies are approaching the ecological limits within which they are embedded, already experiencing some side effects regarding constraints on material and environmental resources.

This reality is illustrated by the increasing effects of extreme weather events and climate change, as well as by water scarcity and droughts, habitat destruction, the extinction of species, and the degradation of land and soil.

Looking ahead, demographic and economic projections predict an ever-growing population and an unprecedented increase in the number of middle-class consumers worldwide. Less than 2 billion people on the planet are now categorized as middle-class consumers. More over 5 billion of these people will be middle class by 2050, when there will be 9 billion people on the earth. This rise will probably be accompanied by heightened pressure on ecosystems and increased global competition for resources.

Enforcement instruments of environment policy

The legal instrument that enforces the environment policy is the *Acquis communautaire* or *Community Acquis* which represents the legal framework of the European environment policy and is defined as a group of rights and obligations of the Member States of the European Union and is made of primary legislation, represented by the founding treaties and subsequent additions, the secondary legislation, comprising the legal acts of the European institutions (directives, regulations, decisions, recommendations, opinions) and the jurisprudence of the Court of Justice of the European Union.

The technical instruments ensure compliance with the environmental standards and include:

- Emissions standards and limits with the role of limiting environmental pollution;

- The Best Available Techniques – BAT. This notion has been defined in Directive 96/61/EC concerning integrated pollution prevention and control, replaced by Directive 2010/75/EC, referring to the most efficient and advanced stage of development of special techniques, mainly being used for setting emission limit values for the prevention and reduction of emissions and their effects on the environment. The phrase "best" in this context refers to the most effective methods for reaching a high level of overall environmental protection; the term "techniques" refers to the technology employed and the manner in which the installation is created, constructed, maintained, used, and decommissioned; the term 'available' refers to the techniques developed at a level which, considering the cost/benefit ratio, allows for their implementation in the relevant industrial sector, under economically and technically viable conditions.

- Eco-labelling has the role of differentiating eco products that have a reduced environmental impact from other products of the same type. The labelling criteria are decided and reviewed by the European Union Eco-Labelling Board (EUEB).

In Romania, in accordance with the obligations of a Member State of the European Union and with the desired medium and long-term environmental policies, we note that the following has been achieved so far: the implementation of CO₂ emission measurement stations,

nitrogen oxides, etc. not only from the burning of fossil fuels but also from activities such as construction, animal husbandry, other agricultural activities etc.

Normative rules have been implemented regarding the manner of sale, storage, use and destruction of phyto-sanitary substances from specific agricultural activities and beyond. At the same time, the implementation of waste management that has expanded from the urban to the rural level, public policies associated with sewage projects and bringing potable water to the rural environment is noted.

Strategies on environmental policies

The strategies for developing environmental policy strengthen the subsidiarity principle (meaning the delegation of responsibilities of the Member States, while the European Union covers only the framework and the objectives that are looked for) and try to replace the traditional vertical approach of command and control, by promoting an alternative model of achieving the European environmental objective.

These strategies could be called 'helping instruments' that complement the standard instruments and act as incentives for the adoption of measures on the protection of the environment that accentuate the tendency towards a voluntary approach. Therefore, it concerns the following:

- Sustainable development;
- Programme to promote NGOs actively protecting the environment;
- The Integrated Product Policy (IPP);

- Voluntary agreements on environmental protection and pollution reduction;
- Environmental taxes and contributions within the Single Market;
- The European environment and health strategy.

Sustainable development

The most well-known definition of sustainable development is the one given by the World Commission on Environment and Development (WCED) in the report, *Our Common future*, also known as the *Brundtland Report*: “sustainable development seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future”.

Sustainable development is a general objective of the European Union that governs all the policies and activities of the Union. It focuses on preserving the ability of the planet to support life in all of its diversity and is based on the values of democracy, gender equality, solidarity, adherence to the law, and respect for all human rights, including the right to freedom and equal opportunity.

At the 2001 Göteborg Summit, the Sustainable Development Strategy of the European Union was adopted, to which an external dimension was added in 2002 in Barcelona.

Meeting present-day requirements without sacrificing the ability of future generations to meet their own needs is referred to as sustainable development. This seeks to enhance the quality of life and general wellbeing on Earth for both the present and future generations: “protecting the ability of Earth to

maintain life in all its diversity respecting the limits of the planet’s natural resources and ensuring a high level of protection and improvement of the quality of environment; the prevention and reduction of environmental pollution and the promotion of sustainable production and consumption, in order to break the link between economic growth and environmental degradation” (Drăgan, 2017).

Programme to promote NGOs actively protecting the environment

NGOs represent the most active forms used by civil society to express their interest in environmental protection. The NGOs have an important role in the institutional setting and in influencing environmental policies.

The most representative NGO was created in 1948 under the auspices of UNESCO, the International Union for Conservation of Nature (IUCN), established in Switzerland. Its members include states, non-governmental organizations, research institutions and conservation bodies from over 100 states. The main objective of the Union is to promote the conservation and sustainable use of living resources, having in this regard a consultative role with governments and different institutions of conservation, disseminating relevant information and providing technical assistance. The six IUCN committees deal with the issues of threatened species, protected areas, environmental rights, strategy and environmental planning. IUCN provides services and assistance in the field of policies and programmes regarding the conservation of biological diversity and

the sustainable use of natural resources (Petrescu-Mag, 2011).

Integrated Product Policy (IPP)

The Green Paper on an Integrated Product Policy (February 2001) initiates a discussion on the promotion of the use of market instruments in the Community. As indicated in the Energy Efficiency Action Plan, it explores future scenarios regarding the Energy Taxation Directive, in order to determine its expected revision. In this regard, the act falls within the framework established by the newly integrated programme for energy and climate change, in which market instruments and fiscal policies, in general, will play a decisive role in achieving the EU's strategic objectives.

Voluntary agreements on environmental protection and pollution reduction

The environmental agreements exist as a strategy declared following a Commission Communication from July 2002 and represent a form of co-regulation, with the role of supporting the active involvement and the responsibility of economic agents towards environmental protection. The environmental agreements are voluntary and are usually used in all Member States, at national, regional or local level, yet they appear as a novelty at the European level – as agreements concluded between the European Commission and the European industrial federations.

The enactment of their workings, established in the Communication from July 2002, sets out three types of possible agreements:

1. Own-initiative agreements – these refer to the initiative of the industrial sector in areas where the Commission has no intention of proposing legal provisions and can be supported by a formal recognition;

2. Self-regulations – these refer to situations in which the representatives of the industry choose to enact a controversial issue, in order to prevent a legislative regulation by the Commission;

3. Co-regulations – these refer to a stricter type of enactment, in which the European Union sets monitoring objectives and requirements and the industrial sector decides on the measures to be taken to comply with this purpose.

The European environment and health strategy

The Europe 2020 Strategy and the Sustainable Development Goals promote the concept of health in all European states.

One of the Europe 2020 Strategy objectives is represented by the investment in health. Thus, 449.4 million EUR were made available to the Member States by the European Commission through the third health public programme of the European Union for investments in the area of health rea. 7.4 billion EUR were made available for health and well-being through the 2020 Horizon programme.

The health domain is interconnected with other fields such as transport, energy, waste management, labour force, tourism, education and so on (*Figure 1* and *Figure 2*). The connections and interdependencies must be taken into consideration when health policies and the environmental impact

on health evaluation are considered. In this regard, the Health Impact Assessment (HIA) represents a mixture of procedures, methods and instruments through which the public policies, programmes or projects could be evaluated from the perspective of their potential effect on the health of the

population. HIA could serve to identify adequate actions for the administration of these effects. A logical plan of HIA implies public policies of different fields, decisive factors, risk factors and the impact on the health of the population (for further details please see *Figure 1* and *Figure 2* below).

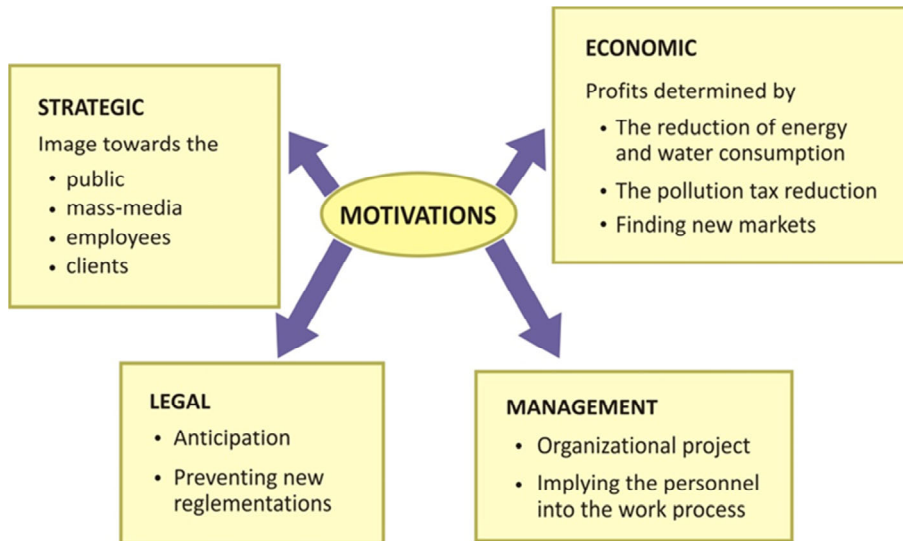


Figure 1 – Environmental management as part of general management (O’Riordan, 2000)

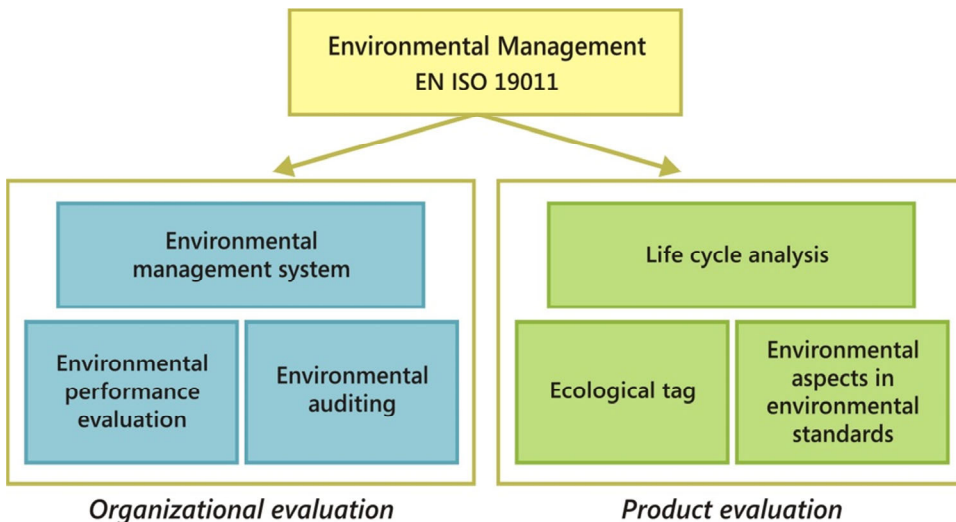


Figure 2 – The Environmental Management System (EMS) / The environmental audit and performance evaluation (Hui et al., 2001)

European institutional cooperation regarding global environmental dispute resolutions

The European environmental policy is based on the principles of precaution, prevention, correction of source pollution and 'the polluter pays' (Cifuentes-Faura, 2022a, b). A multi-annual environmental action programme establishes the framework for future actions in all areas of environmental policy. During international environmental discussions, these are considered and integrated into horizontal strategies. Lastly, enforcement is fundamental. The EU legislation regarding the environment has been developed from the 1970s and currently there are hundreds of directives, regulations and decisions enforced in this field. Yet, the effectiveness of European environmental policy is determined mainly by its enforcement at the national, regional and local level, and its poor implementation and enforcement are still a major issue. Monitoring – both the state of the environment and the level of enforcement of EU environmental law – is fundamental.

The European Parliament and Council adopted minimal (non-mandatory) standards for environmental inspections in 2001 to address the significant variations in implementation between Member States. Member States must impose effective, appropriate, and deterrent criminal punishments for the most serious environmental offenses in order to strengthen the implementation of EU environmental legislation. This includes, for example, the illegal disposal or release of substances into

water, air or soil, the illegal wildlife trade, illegal trade in substances that affect the ozone layer and illicit transport or illicit waste disposal. Finally, the European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is an international network of environmental authorities in EU Member States, acceding and candidate states, as well as in Norway, created to stimulate implementation by providing a platform that facilitates the exchange of ideas and good practices between decision makers, environmental inspectors and court executives.

In May 2016, the European Commission launched the Environmental Implementation Review, a new tool that has the role of contributing to the full implementation of EU environmental legislation, connected to the verification of the adequacy (Regulatory Fitness and Performance Programme – REFIT) of monitoring and reporting obligations in the environmental policy field, having in mind its minimization and cost reduction.

DISCUSSION

The national, regional and local authorities are, in accordance to the European law, 'public law entities' – authorities that can contract public procurement projects. These are organizations created specifically to address needs of interest to the public without having an industrial or commercial nature. Contracting entities are all organizations operating in the so-called 'special sectors', namely: water,

energy, transport or postal services. Even if the entities operating in these sectors are not necessarily public law bodies, they provide public services and remain somewhat dependent on public funds. Therefore, these are often the subject of similar though less restrictive procurement rules.

In order to create a market for organic products in Romania and to account for public expenditure, a Law on Green Public Procurement and a Multiannual Green Procurement Plan in Romania are necessary. 20% of ecological purchases out of the total public procurement expenses would provide a market for organic products of at least 20 billion RON (ECOPOLIS, 2019).

A relevant aspect could also be the successive waves of heat over European territories over recent years, caused by the growth in the amount of ozone (Duțu, 2021). As Vincent-Henri Peuch, the head of the Copernicus Atmosphere Monitoring Service, stated, due to excessive heat the level of ozone increases, as well as other significant pollutants, such as oil and its derivatives for vehicles, vegetation emits more volatile organic compounds. It is estimated that the ozone level has been exceeded registering high values of over 180 $\mu\text{g}/\text{mc}$ in many European cities, while its normal level is usually 100-120 $\mu\text{g}/\text{mc}$ (Barry and Cereceda, 2019).

Atmospheric pollution and climate change have the same basis, namely emissions from human activities. Peuch states that the link between these two phenomena is complex and these are clearly connected. It is foreseen that the frequency of heat waves will increase, as well as the polluting factors.

In conclusion, if the respective costs of a full life cycle of a contract are taken into consideration, the ecological public procurements present the possibility to save money and at the same time to protect the environment. Wise procurement determines the economy of materials and energy, waste reduction and the encouragement of sustainable conduct examples.

Continuous pollution of the natural environment has been the decisive element that has determined the accumulation of current ecological issues that lead to a lack of balance between the human made and natural environments, with real perspectives of deteriorating human living conditions and future civilization.

Although modifications to the surrounding environment are considered an effect of industrial civilization, industrial civilization itself is not the cause of environment harm. Thus, in the first section of this paper we highlighted the importance of environmental policy growth at the international level by organizing global debates, adopting conventions and treaties and where necessary, enforcing criminal liability provisions.

The argument for a preventive rather than reactive environmental policy is based on internal rational environmental behaviour and the implication of all components linked to the addressed environmental issue. This means that the administration has the ability to better anticipate environmental issues only through a careful planning of environmental policies before these issues grow and become recognized as major public issues.

Politics refers to the strategic pursuit of certain objectives which will be closely related to the idea of behavioural change of society over a certain evolution. A good policy represents what society really desires. The ecological issue thus increasingly weaves through the economic field and social-political concerns, with all its implications for promoting human quality of life. This exemplification of environmental policies and strategies can be found not only at global level, but also at European level. The main idea that must be understood from the second section is the fact that there is not yet a direct imposition of European provisions in the national laws of Member States, as the sovereignty principle that the states enjoy still takes precedence.

All these aspects could also exert further biomedical, mechanical, sustainable and industrial relevance, as other groups previously demonstrated (Bontea, 2012; WHO, 2017; Duceac *et al.*, 2018; Luca *et al.*, 2018a, b; Horodnic *et al.*, 2018).

Finally, we emphasize the fact that if the objective responsibility of states in regard to environmental law is to have a wider applicability, tending towards generalization, the environmental damages would probably no longer record the alarming increase that is happening at the moment as those who carry out profitable economic activities would balance. The real benefits and the significant risk, from a legal perspective, of paying large sums of money as damages in the unfortunate case of an ecologic accident (Dutu, 2013; Manu, 2017).

In fact, another report of the European Environment Agency regarding air quality in Europe showed that in 2018, even if strong policies and local actions contributed to a decrease in pollution levels in European cities, most European urban citizens continue to be affected by a level of pollution that exceeds the World Health Organization recommendations. According to the EEA statistics, long-term exposure to fine dust pollution is responsible for over 400 000 premature deaths annually in Europe.

An important role in the implementation of environmental policies at the national level is played by the Administration of the Environmental Fund, which currently, in financing programmes, Rabla classic, Rabla +, Rabla for household electrical products and the scrapping of used vehicles, programmes with impacts on reducing environmental emissions by renewing the car fleet in compliance with the latest regulations by manufacturers E1-E4 (Dutu, 2021; Petrescu-Mag *et al.*, 2022).

In this sense, it is well-known that Member States, not only Romania, implement an environmental tax or green stamp, paid in certain states by the manufacturers of cars, machinery and electronic products, which is reflected in the production cost and implicitly the price of acquisition. The purpose of these taxes is to create environmental funds for the regeneration of natural spaces. For example, a pilot project in Romania that was wanted was the creation of a national nursery by Romsilva.

Another type of financing programme in the area of environmental

policies targets either alternative sources of energy to the classic ones such as wind or solar energy, there are recently implemented programmes such as Energy efficiency in public buildings, Energy efficient houses, Charging stations for electric vehicles in localities. In order to stimulate the population to access these types of programmes, obtaining an energy efficiency certificate, an element that influences the price of the transaction, has been regulated as mandatory, at least for real estate sales.

CONCLUSIONS

The main conclusion is that the protection of the environment and establishing sustainable economic development are the newest global challenges. Europe can and must play an important role in all these processes. In this paper we briefly emphasized the inscription of the European Union, and Romania respectively, on the regional responsibilities axis, as well as the global ones regarding the environment, and also certain mechanisms and instruments that could act both separately and combined. The ecological policies have the potential to generate most of the solutions to the severe environmental issues that humanity is facing.

We find that at the national level, multiple efforts are being made to carry out the political desire of the Clean Romania authorities, and proof of this is the financing programmes carried out by the Environmental Fund Administration, which aims at two strategies, one of which is the education of the population, a visible aspect through | School

Otherwise, Green Week, actions of public authorities in collaboration with representatives of dual education where young people learn how to create and maintain green spaces, as well as their importance for the community.

A second strategy through the developed programmes aims to improve the energy performance parameters of public buildings, not only through the use of alternative energies, wind and solar, and hydropower in conjunction with waste management policies resulting from industrial and domestic activities.

At the same time, Romania is currently part of an area of interest for European states and not only for the development of alternative energy systems in the context of the global crisis we are facing in the context of the management of natural and economic resources.

The authors of the study wanted to present a normative analysis of environmental regulations at national and European level with a presentation of public statistical data on gases emissions and other harmful environmental factors, emphasizing the national government strategies implemented as an assumed obligation of Romania at the level of the European Union.

Author Contributions: Conceptualization, D.E.B. and M.V.; methodology, D.E.B., M.V. and L.R.; investigation, D.E.B.; writing - original draft preparation, D.E.B. and M.V.; writing - review and editing, D.E.B., M.V. and L.R.; visualization, D.E.B. and M.V.; supervision, M.V. and L.R. All authors declare that they have read and approved the publication of the manuscript in this present form.

Funding: There was no external funding for this study.

Conflicts of Interest: The authors declare that there are no conflicts of interest related to this article.

REFERENCES

- Agbedahin, A.V.** Sustainable development, Education for Sustainable Development, and the 2030 Agenda for Sustainable Development: Emergence, efficacy, eminence, and future. *Sustainable Development*. **2019**, *27*, 669-680.
<https://doi.org/10.1002/sd.1931>.
- Barry, S.; Cereceda, R.** European surface ozone in the extremesummer 2003. *Atmospheric Chemistry and Physics*. **2019**, *5*, 9003-9038.
- Bottoni, P.; Caroli, S.; Barra Caracciolo, A.** Pharmaceuticals as priority water contaminants. *Toxicological & Environmental Chemistry*. **2010**, *92*, 549-565.
<https://doi.org/10.1080/02772241003614320>.
- Bontea, D.; Sandu, I.; Iordache, C.; Bontea, AM.; Sandu, I.G.; Luca, A.C.** The Rheology of Silylcellulosic Derivatives Solutions Used for Tissue Regeneration II. Triphenylsilylcellulose. *Revista de chimie*. **2012**, *63*, 587-590.
- Cifuentes-Faura, J.** European Union policies and their role in combating climate change over the years. *Air Quality, Atmosphere and Health*. **2022a**, *15*, 1333-1340.
- Cifuentes-Faura, J.** Circular economy and sustainability as a basis for economic recovery post-COVID-19. *Circular Economy and Sustainability*. **2022b**, *2*, 1-7.
- Ciornea, E.; Boz, I.; Ionel, E.; Cojocaru, S.I.; Dumitru, G.** The biochemical and histoanatomical response of some woody species to anthropic impact in Suceava County, Romania. *Turkish Journal of Biology*. **2015**, *39*, 624-637.
<http://dx.doi.org/10.3906/biy-1411-88>.
- Drăgan, S.L.** *Environmental law, course notes (in Romanian)*, "Dimitrie Cantemir" Christian University, Faculty of Law Cluj-Napoca, 36, 2017.
- Duceac, L.D.; Luca, A.C.; Mitrea, G.; Banu, E.A.; Ciuhodaru, M.I.; Ciomaga, I.; Ichim, D.L.; Baciu, G.** Intercalated Nanostructures Used to Improve Medical Treatment. *Materiale Plastice*. **2018**, *55*, 613-615.
- Duțu, M.** *Climate law. The legal regime of combating and mitigating global warming and adapting to the effects of climate change (in Romanian)*. Universul Juridic Publishing House, 2021.
- Ghorani-Azam, A.; Riahi-Zanjani, B.; Balali, M.** Mood Effects of air pollution on human health and practical measures for prevention in Iran. *Journal of Research in Medical Science*. **2016**, *21*.
<https://doi.org/10.4103%2F1735-1995.189646>.
- Haseena, M.; Malik, M.F.; Javed, A.; Arshad, S.; Asif, N.; Zulfiquar, S.; Hanif, J.** Water pollution and human health. *Environmental Risk Assessment and Remediation*. **2017**, *1*, 16-19.
<http://dx.doi.org/10.4066/2529-8046.100020>.
- Horodnic, A.V.; Apetrei, A.; Luca, F.A.; Ciobanu, C.I.** Rating healthcare services: consumer satisfaction vs. health system performance. *Service Industries Journal*. **2018**, *38*, 974-994.
<https://doi.org/10.1080/02642069.2018.1426752>.
- Hui, I.K.; Alan, H.S.C.; Pun, K.F.** A study of the Environmental Management System implementation practices. *Journal of Cleaner Production*. **2001**, *9*, 269-276.

- [https://doi.org/10.1016/S0959-6526\(00\)00061-5](https://doi.org/10.1016/S0959-6526(00)00061-5).
- Luca, A.C.; Duceac, L.D.; Mitrea, G.; Ciuhodaru, M.I.; Ichim, D.L.; Baci, G.; Banu, E.A.; Iordache, A.C.** Antibiotic Encapsulated Nanomaterials with Application in Medical Area, *Materiale Plastice*. **2018a**, 55, 552-554. <https://doi.org/10.37358/MP.18.4.5072>
- Luca, F.A.; Ciobanu, C.I.; Andrei A.G.; Horodnic, A.V.** Raising Awareness on Health Impact of the Chemicals Used in Consumer Products: Empirical Evidence from East-Central Europe, *Sustainability*. **2018b**, 10, 209. <https://doi.org/10.3390/su10010209>.
- Manu, G.** *Environmental offence* (in Romanian). Universul Juridic Publishing House, Bucharest, 2017.
- McCarthy, J.T.; Pelle, E.; Dong, K.; Brahmhatt, K.; Yarosh, D.; Pernodet, N.** Effects of ozone in normal human epidermal keratinocytes. *Experimental Dermatology*. **2013**, 22, 360-361. <https://doi.org/10.1111/exd.12125>.
- O'Riordan, T.** *Environmental Science for Environmental Management*, 2nd Edition, Taylor and Francis Group, 2000, <https://doi.org/10.4324/9781315839592>.
- Petrescu-Mag, R.M.** *Environmental protection in the context of sustainable development, legislation and institutions* (in Romanian), Bioflux Publishing, Cluj-Napoca, 2011, 129-130.
- Petrescu-Mag, R.M.; Petrescu-Mag, I.V.** *Environmental Legislation and Policies* (in Romanian), Bioflux Publishing, Cluj-Napoca, 2022.
- Rodrigues, S.M.; Römken, P.F.A.M.** Human Health Risks and Soil Pollution. *Sustainable Soil Use*. **2018**, 217-250.
- Steffan, J.J.; Brevik, E.C.; Burgess, L.C.; Cerdà, A.** The effect of soil on human health: an overview. *European Journal of Soil Science*. **2018**, 69, 159-171. <https://doi.org/10.1111/ejss.12451>.
- Țarcă, Ș.** *Environmental law. Course support* (in Romanian), „Hyperion” University, Bucharest, 2017, 17- 18.
- WHO (World Health Organization).** Promoting health in the SDGs: Report on the 9th Global conference for health promotion, Shanghai, China, 21-24 November 2016: all for health, health for all (No. WHO/NMH/PND/17.5), 2017.
- ECOPOLIS.** Public procurement site. <http://www.ecopolis.org.ro/studii/achizitiile-publice-ecologice-in-romania> (accessed on 18 March 2019).

Academic Editor: Dr. Mihaela Roșca

Publisher Note: Regarding jurisdictional assertions in published maps and institutional affiliations ELSE maintain neutrality.



© 2023 by the authors; licensee Journal of Applied Life Sciences and Environment, Iasi, Romania. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).