Protection of air quality in Romania – synthesis of the legislative framework

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ABSTRACT: The protection of air quality is regulated by legislation at European and national level. This legislative framework is constantly updated and improved. This article briefly presents its structure, with the aim of outlining the dynamics of the field, but also the contribution, joint efforts of the member states to promote and adopt legislative packages, policies, strategies and programs that have had and continue to have as their main objective the reduction of air pollution and the raising of ambient air quality standards. Due to the application of European Union legislation on pollutant emissions, the reduction of their atmospheric emissions has proved to be significant over the last twenty years. The EU member states are obliged to take over the Community legislative provisions and transpose them into national law, as it happened in Romania by adopting Law no. 104 / 15.06.2011. This law has been amended and supplemented in line with the entry into force of new EU directives, decisions and regulations aimed at protecting the atmospheric environment. Climate change, which affects the entire planet, has required a new approach to European legislation, which is to limit global warming to below 1.5°C, so that the EU becomes climate-neutral by 2050. The novelty of this study consists in the summary review carried out on such a wide area as air quality legislation. The synthesis presented will be useful to any specialist operating in the environment field in Romania and not only.

KEY WORDS: European legislation, Romanian legislation, air quality, policies, strategies, regulations.

1. Introduction

Three institutions are involved in the development and adoption of European air pollution control policies and legislation, which are applied in the EU through the "ordinary legislative procedure", namely:The European Parliament (EP), the Council of the European Union and the European Commission (EC).The EU member states are obliged to take over Community legislation and transpose it into national law. EC legislative proposals are received at the same time by the Council, national parliaments and the EP so that they can respond through opinions to legislative recommendations (Bergkamp, 2002).

Directives require member states to reach thresholds/levels set for certain pollutants without, however, imposing the modalities for achieving those thresholds. The Framework Directives have an important role to play. They present general principles, are based on standardized procedures and are specific to the sectors in which they are implemented. In the general context of EU environmental legislation, one of the most important framework directives concerns air quality. After the dates when the Directives are implemented, member states may adopt laws and regulations to assign domestic legal power to the particulars referred to in the directives. Implementation of the requirements of the directives into national law is carried out before the deadline set at the time of their adoption, and if a state does not do so, the EC may refer the matter and initiate a reprimand against the state concerned. (Dușcă, 2014).

Regulations at the time of adoption apply in all EU member states, without being transposed into national law. They account for around 10 % of EU environmental legislation, have well-established objectives, precise and uniform rules for member states.

Decisions – legally binding acts must not be rendered under the law of a state, but are binding legal acts valid for one or more countries/enterprises/individuals. **Recommendations** allow the EU institutions to present their views and propose some lines of action. **Delegated acts** give the EC the right to amend what is inconclusive in legislative acts and to specify in detail the measures set out. **Implementing acts** are legally binding acts by which the EC is entitled to lay down measures to allow the non-differentiated application of EU rules (Duțu, 2012).

In recent years, Romania has taken over and introduced a large number of European laws, thus aligning itself with EU legislation and best practices. The government adopts decisions and ordinances, which are signed by the Prime Minister and then countersigned by the ministers who have the duty to implement them, after which they are published in the Official Journal of Romania (OJR). If they are not published, the decision or ordinance is non-existent (Duțu, 1995). In line with the findings of the verification of the proper application of the Ambient Air Quality Directives, current EU policy in this area has contributed significantly to improving air quality, but more needs to be done, by implementing policies to reduce the negative impact of air pollution on health and the environment (Rojanschi and Bran, 2002). The Council considers that the air quality standards set, in particular the limit values, have been effective and continue to be essential for the protection of citizens' health.

However, there is scope for improving the legislative framework to provide better air quality across the EU, with the Council providing guidance on EU policies (a commitment to climate neutrality, which EU leaders put on the strategic agenda and reaffirmed in December 2019, sets a clear target for the coming years).

The Environment Committee, led by Janez Potočnik, updated the legislation in 2011 by adopting new measures to control air pollution that provided for further reduction of harmful emissions specific to industry, traffic, energy centers and agriculture, in order to reduce the impact on man and the environment — **Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment** (https://ec.europa.eu/environment/pubs/pdf/factsheets/env/ro.pdf).

In 2013, European Environment Commissioner Janez Potočnik launched a package of measures to improve air quality in Brussels, following a comprehensive policy review. The package consisted of a communication on the "*Clean Air for Europe*" programme and contained three legislative proposals on emissions and air pollution. The "*Clean Air for Europe*" programme contains measures to achieve both short-term and medium-term objectives (until 2030). These are measures that contribute to reducing air pollution, improving air quality in urban areas, supporting research and

innovation, and fostering cooperation between states. Thus, we can mention the revision of the National Emission Ceilings Directive, which sets more rigorous, stricter limits on the six main air pollutants and the proposal for a new directive on reducing pollution from medium combustion plants.

Commissioner Janez Potočnik also proposed a series of legislative measures to put more pressure on member states that do not comply with the law and do not apply the measures established by the EU on air quality protection.A supporter of the move to send to the Court of Justice of the EU, those member states that do not comply with European legislation in this area, was also the European Commissioner for the Environment Karmenu Vella.Under the mandate of the Commissioner for the Environment (Janez Potočnik) and the Commissioner for Climate Action (Connie Hedegaard), the LIFE + Environmental Policy and Governance programme was implemented, which included projects aimed at issues that will have an indirect effect on greenhouse gas emissions and which also supported low-carbon economic activity. The success of this programme led to the adoption of a new LIFE regulation for the environment and climate action for the period 2014-2020 (https://europa.eu).

The EC Directorate-General for the Environment (DG ENV) (established in 1973) has proposed policies and legislation that protect air quality and ensure the correct application of EU environmental law by member states.DG ENV EC can take legal action when the law is infringed. In international fora, the DG ENV EC aims to reach a consensus on the adoption of international policies to reduce air pollution. Since 2010, due to the urgency of the climate change issue, the EC has established a new Directorate-General (Directorate-General for Climate Action – DG CLIMA).

Frans Timmermans managed climate action supported by the DG CLIMA.He also coordinated the work of the European Climate Pact.This pact was supported by EC President Ursula von der Leyen and Commissioner for Environment, Oceans and Fisheries Virginijus Sinkevičius and has as its main objective for Europe to become (by 2050) the first climate-neutral continent.On 28.11.2019, the EP declared a climate emergency and called for all relevant EU legislation to be in line with the goal of limiting global warming below 1.5°C. In this respect, in December 2019, the European Climate Pact (ECP) was presented, and in March 2020 a proposal for a European climate law was announced in order to make the EU climate neutral by 2050 (https://www.consilium.europa.eu).

The ECP includes initiatives covering a number of areas such as climate, environment, energy and others. This pact underlines the need for coherence between clean air policy and other relevant policy areas. Under the ECP, all current policies related to the objective of achieving climate neutrality will be reviewed and, if necessary, revised in line with the target. These include existing legislation on greenhouse gas emissions, energy from renewable sources and energy efficiency.

In July 2020, European Commissioner Ursula von der Leyen and European Vice-President for the ECP Frans Timmermans presented the European Climate Law, which aims to make the climate-neutral continent of Europe by 2050.The EU institutions and member states need to take the necessary measures, with progress being reviewed every five years, in line with the overall assessment set out in the Paris Agreement.The next period 2021–2027 will bring a legislative package related to achieving the objectives of the ECP, a policy whose focus is on the quality of life of European citizens and implicitly the control of air pollution, supported by EC President Ursula von der Leyen, by allocating 25 % of the EU budget, with the aim of being used to drastically reduce carbon emissions and combat climate change.

Our study is a ***review*** type, without claiming to be exhaustive for purely objective reasons: the extraordinary complexity and variety of EU and Romanian legislation in the field of air quality. In the context of the need to highlight and bring to the fore, the framework of the legislative field related

to the protection of the atmosphere at European and Romanian level, there are also aspects related to its usefulness and necessity. Highlighting the current and first-rate legislative components give the novelty of this approach. ***Update and topicality are the watchword in the legislative field***. The recent episodes of air pollution in Europe have shown the continuing need to think about how climate policies and legislation interact with air quality policy and what can be learned from the current episodes (Monks, 2015).

The aim of this work is to present the evolution of the legislative framework to date, in conjunction with the implementation of legislative measures at European and national level, with the entire legislative system having as its main objective the protection of air quality. The paper covers the regulations of European and national legislation and highlights the personalities who have made their contribution in this legislative area.The laws, policies, programmes and strategies proposed for the next period, which aim to control, reduce and even stop air pollution, are also highlighted.

The objectives of the work are to present i) the structures, bodies/entities that produce legislation, ii) the European legislative framework at the current stage, iii) the Romanian legislation adapted to EU legislation, and iv) EU policy efforts to support and facilitate effective action by member states toward national emission reduction targets and ambient air quality standards.

2. Study area

The study area includes Romania and the EU in extenso, as the EU legislative documents (directives, regulations, decisions) are transposed into Romanian legislation. EU member states have an obligation to take over Community legislation and transpose it into national law.

The current European air quality legislation is based on the principle that EU member states share their territories in several areas they need to manage, in close connection with the assessment of air quality using unit measurements or the creation of models. The legislative framework on atmospheric protection has a long evolution. Concern for air pollution legislation began in the middle of the 20th century, following an unfortunate event in London due to a smog episode (December 1952), which killed 4,000 people. Since then, air pollution limitation laws have influenced the entire activity of monitoring its quality for more than fifty years, and the scientific, political and civilian community has begun to become more and more aware, globally, of the hazards that accompany this harmful process that is pollution. The critical threshold of air pollution in Europe was reached around the 1970s, when long-distance pollution intensified greatly (Ioniță, 2016).

Internationally, governments have worked together and cooperated to create a common legislative framework for control, monitoring and data exchange through the Convention on Long-range Transboundary Air Pollution (LRTAP), concluded in Geneva in 1979 (adopted in 1983). Over time, the Convention has been extended and currently contains eight protocols which relate to i) long-term financing of the EMEP Programme - European Monitoring and Evaluation Programme (Geneva 1984, in force since 28.01.1988), ii) reduction of sulphur emissions by at least 30% compared to 1980 levels (Helsinki 1985, effective from 2.09.1987), iii) monitoring of nitrogen oxide emissions or their transboundary fluxes (Sofia 1988, in force since 14.02.1991), iv) control of emissions of volatile organic compounds or their transboundary fluxes (Geneva 1991, in force since 29.09.1997), v) further reduction of sulphur emissions (Oslo 1994, in force since 5.08.1998), vi) persistent organic pollutants - POPs (Aarhus 1998, in force since 23.10.2003), vii) heavy metals (Aarhus 1998, in force since 29.12.2003) and viii) prevention of acidification, eutrophication of ground-level ozone (Gothenburg 1999, in force since 17.05.2005) (Muraru, 1995).

At national level, Romania has committed i) to reduce greenhouse gas (GHG) emissions following the signing of the United Nations Framework Convention on Climate Change approved by Law no. 24/1994, ii) to reduce greenhouse gas emissions by 8% in the period 2008-2012 compared to 1998, by signing the Kyoto Protocol in 1999 validated by Law no. 3/2001 and iii) to submit annually to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC), the National Inventory of Greenhouse Gas Emissions, compiled according to the Intergovernmental Panel on Climate Change (IPCC) methodology, since 2002.

Government Emergency Ordinance (GEO) no. 195/2005 regulates the protection of air quality through articles 59-64, and GEO no. 243/2000 approved by Law no. (L) 655/2001 establishes the legal regime which has a regulatory and framework role in this field.

L 104/15.06.2011, on ambient air quality published in OJR, Part I, no. 452 of 28.06.2011 transposes into national legislation the provisions of Directive 2008/50/EC of the EP and of the Council of 21.05.2008 on ambient air quality and cleaner air for Europe and of Directive 2004/107/EC of the E P and of the Council of 15.12.2004 on arsenic, cadmium, mercury, nickel, polycyclic aromatic hydrocarbons in ambient air.

L 104/15.06.2011 with the amendments and additions that have taken place along the way envisages several measures on air quality for Romania: i) specification and determination of ambient air quality objectives, ii) air quality monitoring by common methods and criteria established at European level, iii) acquiring information to support the process of combating air pollution, iv) long-term monitoring of trends evolution and improvement of results following measurements recorded at national and European level, v) transparency of information on ambient air quality, vi) cooperation with other EU member states with the main objective of reducing air pollution (Teodoroiu, 2009).

In Romania, National Air Quality Assessment and Integrated Management System (SNEGICA) was established, with the aim of implementing the law on ambient air quality. SNEGICA provides an organizational, institutional and legal framework within which public authorities and institutions cooperate in order to better assess and manage air quality (Ioniță and Ioniță-Burda, 2016).

Scientific progress and the improvement of air quality legislation have contributed to the quantitative and qualitative increase of data at national and European level, to the establishment of air quality standards for certain pollutants and annual ceilings, so that European and Romanian legislation can directly monitor certain sectors that emit air pollutants.

3. Methods

3.1. Collection of information

In order to obtain information on the legislative framework on air quality, we have consulted literature (articles, books, international publications, conference volumes) and other sources (internet, multimedia, reports, newspaper articles), which allowed us to get acquainted with the notions of legislation and outlining an overview of combating air pollution at European and national level through the application of legal policies and measures.

3.2. Selection of the most important European and Romanian normative acts

The most important normative acts in force at EU and Romania level on air quality were analyzed and selected, in order to reflect the concern of member countries in establishing strategies aimed at significantly reducing air pollution and improving air quality (Table 1).

Table 1 Summary of European and Romanian legislative documents.

Document type	European Union	Document type	Romania
Ambient air quality directives	Directive 2003/87/EC Directive 2008/50/EC Directive 2009/31/EC Directive 2014/99/EU Directive 2015/1480/EC Directive 2015/2193/EU Directive 2016/2284/EU	***Laws in the field of ambient air quality***	Law no. 271/2003 Law no. 261/2004 Law no. 104/2011 Law no. 278/2013 Law no. 59/2016 Law no. 264/2017 Law no. 188/2018 Law no. 293/2018
Ambient air quality regulations	Regulation no. 166/2006 Regulation no. 176/2008 Regulation no. 1005/2009 Regulation no. 600/2012 Regulation no. 421/2014 Regulation no. 743/2014 Regulation no. 2020/C324/10	***Government Decisions (GD) in the field of ambient air quality***	GD no.735/2006 GD no.1879/2006 GD no.1497/2008 GD no.257/2015 GD no. 806/2016
Decisions (council decisions) in the field of ambient air quality	Decision 2003/507/EC Decision 2004/224/EC Decision 2011/278/EU Decision 2011/850/EC Decision 2013/448/EU Decision 2014/746/EU Decision 2016/768/EU Decision 2016/769/EU	***Ministerial orders in the field of ambient air quality***	Order MEC no. 716/2005 and MTCT 92/2006 Order ME no. 2035/2009 Order MMP no. 1179/2010 Order MMP no. 3299/2012 Order MMP no. 598/2018 Order No 838/591/2019

3.3. Their order and synthetic presentation

The European and Romanian legislative documents selected separately, were ordered according to their rank and legal power, then presented and synthetically analyzed (Directives, Regulations, Decisions, Laws, Government Decisions, Ministerial Orders), in order to know how European and Romanian legislation is conceived, that directly targets certain sectors acting as sources of air pollution.

4. Results and discussion

4.1. European legislative documents

4.1.1. Ambient air quality directives

They shall be presented succinctly in the chronological order of their occurrence. **Directive 2008/50/EC** of 21 May 2008 lays down air quality objectives and legislative measures aimed *at i)* air quality monitoring concerning emissions of sulphur dioxide (SO_2), nitrogen dioxide (NO_2) and oxides of nitrogen (NO_x), particulate matter (PM_{10}, $PM_{2.5}$), lead, benzene, carbon monoxide and ozone (regime and assessment criteria, sampling points, measurement reference methods), *ii)* establishment of limit values, critical levels and alert thresholds for the protection of human health, *iii)* maintenance and improvement of air quality through the development of short- and long-term measures, *iv)* to obtain information for the purpose of combating air pollution and long-term monitoring of developments and improvements resulting from measures implemented at national and European level, and *v)* cooperation between member states to reduce air pollution.

Directive 2009/31/EC established the legal framework to support the permanent retention of carbon dioxide in order to minimize the harmful consequences for the environment, human health and climate change.

Directive 2014/99/EU stipulated that petrol vapor recovery systems should be tested at least once a year in accordance with standard EN 16321-2:2013.

Directive 2015/1480/EC of 28 August 2015 amended several Annexes to Directives 2004/107/EC and 2008/50/EC which concern *i)* the confirmation of data and the location of sampling points for air quality assessment, *ii)* individual sampling for arsenic, cadmium, nickel and total gaseous mercury, *iii)* extraction of sub-samples from PM10 filters for metal collection, *iv)* weekly sampling of metals from PM10 filters, as an alternative to daily sampling, *v)* establishment of reference methods for sampling and analysis of arsenic, cadmium, nickel, polycyclic aromatic hydrocarbons, mercury in the atmosphere.

Directive 2015/2193/EU includes clarifications on the limitation of emissions of pollutants from medium combustion plants by establishing *i)* emission control rules for sulphur dioxide, nitrogen oxides and carbon monoxide monitoring rules, *ii)* emission limit values of SO_2, NO_x and dust in the atmosphere, *iii)* the frequencies of the measurements that are made periodically (at least once every five years) and *iv)* the method of analysis and sampling of pollutants and measurement of process parameters, which allow reliable, representative and comparable results.

Directive 2016/2284/EU established measures to reduce emissions of sulphur dioxide, nitrogen oxides, non-methane volatile organic compounds (NMVOCs), ammonia (NH_3) and fine particulate matter ($PM_{2,5}$) and introduced the mandatory development, adoption and implementation of national air control and monitoring programs.This directive has implemented several legislative measures: *i)* limitation of annual emissions of sulphur dioxide, nitrogen oxides, non-methane volatile organic compounds, ammonia and fine particulate matter, in accordance with national emission reduction commitments applicable from 2020 to 2029 and after 2030, compared to 2005 (Table 2), *ii)* involvement of member states in the development, adoption and implementation of a national air pollution control programme, through access to EU funds, *iii)* preparation and updating of emission inventories by member states, annually, every two years and every four years depending on the type of gas emissions and *iv)* monitoring the harmful effects of air pollution by member states, by collecting information from monitoring points and reporting them to the EC and the European Environment Agency (EEA) (https://eur-lex.europa.eu/legal-content/RO/TXT).

Table 2 National emission reduction commitments.

	Reduction in SO_2 emissions compared to 2005		**Reduction in No_X emissions compared to 2005**		**Reduction in $PM_{2,5}$ emission compared to 2005**	
	For any year from 2020 to 2029	**For any year after 2030**	**For any year from 2020 to 2029**	**For any year after 2030**	**For any year from 2020 to 2029**	**For any year after 2030**
Germany	21 %	58 %	39 %	65 %	26 %	43 %
Spain	67 %	88 %	41 %	62 %	15 %	50 %
France	55 %	77 %	50 %	69 %	27 %	57 %
Italy	35 %	71 %	40 %	65 %	10 %	40 %
Hungary	46 %	73 %	34 %	66 %	13 %	55 %
Netherlands	28 %	53 %	45 %	61 %	37 %	45 %
Romania	77 %	88 %	45 %	60 %	28 %	58 %
EU 28	59 %	79 %	42 %	63 %	22 %	49 %

4.1.2. Ambient air quality regulations

The Regulation is a legal act, binding in its entirety and directly applicable in all countries of the European Union (EU) from the date of its entry into force. Its objective is to ensure uniform application of EU law in all EU countries. The Regulation shall be adopted following a legislative procedure by the Council and Parliament by ordinary or special legislative procedures.

Regulation No 166/2006 of the EP and of the Council on the establishment of the European Pollutant Release and Transfer Register (E-PRTR) is the normative act which introduced a European-wide nomenclature with comparable data, which covers emissions of air pollutants in all member states. Thus, since 2009, Romania has annually sent data from the European Pollutant Release and Transfer Register (E-PRTR) to the European Commission (EC) and the European Environment Agency (EEA).

Regulation (EC) No 176/2008 provides for the introduction of a common register of territorial units for statistics (NUTS) in the EU.

Regulation (EC) No 1005/2009 refers to substances that affect the ozone layer and also sets out norms and measures for products and equipment using these substances.

Regulation (EU) No 600/2012 of EC provides for the verification of greenhouse gas emission reports, which is necessary to lay down rules on the certification of verifiers that must have the necessary technical competence to verify aircraft operator reports under the scheme.

The scope of accreditation of verifiers shall be indicated (as specified in **Directive 2003/87/EC**) in the accreditation certificate using the following activity groups: *i)* combustion of fuels in installations using only commercial standard fuels, *ii)* production of building materials, iii) production of wood pulp or other fibrous materials, of paper or paperboard, *iv)* production of nitric acid, adipic acid and glyoxalic and glyoxyl acid (CO_2 and NO_2 emissions), *v)* capture greenhouse gases from a number of installations for their transport and storage, *vi)* aviation activities (https://www.caa.ro/CAA/Informatii%20generale/Legislatie%20generala/Directiva_87_per_2003_RO_cons_08.04.18.pdf).

Regulation (EU) No 743/2014 of EC established that the minimum frequencies of analyzes should be in line with the opinion of the Committee responsible for monitoring climate change.

Regulation (EU) No 421/2014 of the EP and the Council has established a system for the trading of greenhouse gas emission allowances within the EU, which aims to implement a single global market measure for emissions from international aviation. The Regulation had as application horizon 2020.

Regulation of the EP and of the Council (2020/C324/10) establishing the framework for achieving climate neutrality and amending Regulation (EU) 2018/1999 (European Climate Law) has the following objectives by 2050:

i) irreversible and progressive reduction of greenhouse gas emissions,

ii) striking a balance between greenhouse gas emissions and removals that are regulated by EU law (zero net emissions by 2050),

iii) reducing emissions by 50-55% by 2030, compared to 1990 by adopting legislative proposals,

iv) establishing a path to be followed by all member states, taking into account a number of aspects (cost-effectiveness and economic efficiency; competitiveness of the EU economy; use of best technologies; energy efficiency; equity and solidarity between and within member states; the need to ensure environmental effectiveness and gradual development over time; international developments and efforts to achieve long-term objectives),

v) assessment by the EC by 30.09.2023 (every five years thereafter) of the collective progress made by EU member states, of the coherence between the measures taken and the objective of climate neutrality, and of the adequacy of the measures to ensure progress in their adaptation within the EU,

vi) evaluation of national measures by 30 September 2023 (every five years thereafter) on the existence of a logical link between them and the achievement of the objective (climate neutrality),

vii) formulation by the EC of recommendations to those states which have not implemented appropriate measures to make progress, on the basis of principles by which the member states concerned must take these recommendations into account in a spirit of solidarity and report next year what the recommendation was issued (https://eur-lex.europa.eu).

4.1.3. Decisions (council decision) in the field of ambient air quality

Decisions are legally binding acts that are adopted by the EU institutions in accordance with the founding treaties. Decisions are legislative acts when they are adopted jointly by the European Parliament and the Council. In other cases, decisions are non-legislative acts when they are adopted by the European Council, the Council or the Commission. Non-legislative decisions may also take the form of delegated and implementing acts.

Decision 2003/507/EC focused on long-range transboundary air pollution in order to reduce acidification, eutrophication and ground-level ozone.

Decision 2004/224/EC laid down rules for the communication of information on limit values for certain air pollutants.

Decision 2011/278/EU established in the EU the transitional rules on the harmonized and free allocation of emission allowances in **Directive 2003/87/EC** of the EP and of the Council.

Decision 2011/850/EC laid down rules on the reciprocal exchange of information and reporting on air quality.

Decision 2013/448/EU refers to national implementation measures for the transitional free allocation of greenhouse gas emission allowances. The decision established for the period 2013-2020 that *i)* free allowances should be allocated to eligible operators, *ii)* and to operators of installations covered by the EU Emissions Trading Scheme (EU ETS), they are awarded only on the basis of a tender. Member states were to determine the final annual amount of allowances allocated free of charge for each year of the period 2013-2020.

Decision 2014/746/EU established the list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage for the period 2015 to 2019. This decision came in the context of the lack of an international agreement on climate change and of binding measures at international level.

Decision 2016/768/EU agreed to the amendments to the 1998 Protocol on heavy metals. By this decision:

i) limit values or new limit values could be applied to any new source (or major modified source) of heavy metal pollution,

ii) the relevant polluting substances were monitored and process parameters measured, and the quality of automated measurement and reference systems for the calibration of those systems was ensured, in accordance with The European Committee for Standardization (CEN) standards, if there were no CEN standards, ISO standards or national/international standards were applied, which guaranteed the provision of data of equivalent scientific quality (http://www.instalnews.ro/legislatia-in-domeniul-aerului-in-europa.html).

Decision 2016/769/EU refers to the amendments to the 1998 Protocol on long-range transboundary air pollution caused by persistent organic pollutants (https://eur-lex.europa.eu/legal-content/RO/TXT).

Europe has failed to fully meet the targets it has set in recent years to reduce air pollution or protect ecosystems.At European level, there is a growing concern about the quality of the environment, as the number of sources of pollution increases, with a view to taking steps forward to effectively combat the effects of climate change.European legislation and politicians want to establish a European Green Deal to make Europe the first climate-neutral continent.The European Green Deal means a greener economy with the use of as many renewable energy sources and new green technologies as possible.The EU wants a transition to activities that emit much less CO_2 and other greenhouse gases.

The most important European directives have set targets and legislative measures on ambient air quality.We mention Directives 2008/50/EC, 2015/1480/EU and 2016/2284/EU which set out the development and implementation of air pollution monitoring programmes.Air quality regulations are applicable and precise across all European countries.Of great importance is Regulation

2006/166/EC which proposes the establishment of the European Pollutant Release and Transfer Register (Romania has been reporting this data since it joined the EU, in 2009). Of particular importance is also Regulation 2020/C324/EU which establishes the framework for climate neutrality and the introduction of the European Climate Law. It is a "law" Regulation aimed at reducing EU greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. Following the COVID-19 pandemic, the new climate target for 2030 will require Europe to reorient its economy by stimulating investment in a resource-efficient economy, promoting innovation in clean technology and creating green jobs.

Decisions in the field of air quality are legal acts that have brought regulations and norms, especially in the matter of transboundary air pollution with various substances. Such decisions are: 2003/507/EC (ground-level ozone), 2016/768/EU (heavy metals) and 2016/769/EU (persistent organic pollutants).

4.2. Romanian legislative documents

4.2.1 Laws in the field of ambient air quality

Air quality laws aim to protect human health and the environment as a whole by regulating measures to maintain ambient air quality.

Law no. 271/2003 for the ratification of the LRTAP Convention protocols has as main objectives the reduction of persistent organic pollutant emissions from heavy metals in the atmosphere, the application of limit values for these categories of pollutants, with the aim of reducing the processes of acidification, eutrophication and ozone levels in the troposphere.

Law no. 261/2004 confirming the Convention on persistent organic pollutants has as its primary objective the protection of human health and the environment against persistent organic pollutants. This law established *i)* measures to reduce and even eliminate discharges from production, *ii)* discharges from landfills, *iii)* methods to assess the effectiveness of the implementation of these provisions at regular intervals decided by agreement of the parties.

Law no. 104/2011 on ambient air quality has been updated so far with the aim of protecting human health, the environment, by implementing measures to maintain and improve ambient air quality such as *i)* assessing ambient air quality at national level on the basis of common methods and criteria (set at European level), *ii)* specifying the objectives intended to avoid and prevent air pollution, *iii)* making information on ambient air quality available to the public, *iv)* establishing sanctions/punishments for natural and legal persons who do not comply with the provisions of the ambient air quality law, *v)* stimulating cooperation with other EU member states to reduce air pollution, *vi)* fulfilling the obligations laid down in international agreements, conventions and treaties to which our country has taken or is a party.

Law no. 278/2013 on industrial emissions aims to control, prevent and reduce emissions of gases from industrial activities that pollute the atmosphere and the environment.The law provides:*i)* the conditions for issuing the integrated environmental permit, *ii)* the obligations and responsibilities for all economic agents carrying out activities that have a negative impact on the environment, *iii)* the emission limit values, *iv)* the equivalent technical parameters and measures for pollutants, *v)* generally binding rules on categories of activities in compliance with environmental standards and application of the best techniques, requirements for monitoring and reporting of gas emissions, *vi)* under what legal conditions changes may be made to industrial installations.

Law no. 59/2016 regulates measures to prevent major accidents involving dangerous substances from occurring and to limit their consequences on human health and the environment.The law does not apply to: locations and storage areas of military units; hazardous situations created by ionizing radiation from radioactive materials; mining and quarrying in mines and quarries, including through

drilling; gas storage in offshore sites, landfills, including underground storage of waste.The law provides:*i)* the method of assessing major-accident hazards for a particular dangerous substance, *ii)* the competent authorities designated at central level responsible for implementing the provisions of this law, *iii)* major accident prevention policy, *iv)* the method of drawing up the safety report by the operator of a higher level site, *v)* emergency plans including measures to control and limit the effects of incidents within a site, *vi)* information to be provided by member states following the occurrence of a major acident, *vii)* system and exchange of information organized by the European Commission on experience gained in the field of major accident prevention and limitation of consequences, *viii)* access to information and confidentiality, *ix)* penalties (http://apmsibiu.ro).

Law no. 264/2017 established technical requirements for limiting emissions of volatile organic compounds (VOCs) from petrol storage and distribution from terminals to service stations and during refueling of motor vehicles at service stations.The law was adopted with the aim of laying down measures to reduce the quantity of petrol vapor emitted into the atmosphere concerning *i)* the regulation of the design and operation requirements of installations and equipment for the loading, storage and unloading of petrol, *ii)* the requirements for petrol vapor recovery during refueling of motor vehicles at service stations (minimum level of petrol vapor recovery, periodic checks), and *iii)* the provision of obligations, responsibilities and contraventions.

Law no. 188/2018 refers to the limitation of emissions into the air of certain pollutants from medium combustion plants.The provisions of the law regulated the emissions of sulphur dioxide (SO_2), nitrogen oxides (NO_x) and dust into the atmosphere in order to reduce them and the risk they may pose to the environment, while carbon monoxide (CO) emission monitoring standards are also being established.The emission limit values established by law have been applicable starting with 20.12.2018 for new installations and starting with 2025 or 2030 for existing installations, depending on their thermal power (http://legislatie/2011/iunie 2011).

Law no. 293/2018 refers to the national emissions of certain air pollutants and establishes *i)* new measures at national level to reduce gas emissions (sulphur dioxide, nitrogen oxides, non-methane volatile organic compounds, ammonia and fine particles in suspension), *ii)* the obligation to develop, adopt and implement a national air pollution control program (PNCPA), *iii)* the periods in which national emission inventories and forecasts are developed and updated*, iv)* how the authorities monitor the impact of air pollution, as well as *v)* sanctions for non-compliance.

4.2.2 Government Decisions (GD) in the field of ambient air quality

Decisions are issued to organize the enforcement of laws. They are adopted by the Government, signed by the Prime Minister, countersigned by the ministers who are obliged to carry them into execution and are published in the Official Journal of Romania.

GD no.735/2006 refers to the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints, varnishes and vehicle surface finishing products. The law was amended and supplemented during GD no. 372/14.04.2010 and with GD no. 1197/30.11.2011.

GD no.1879/2006 provides for the progressive reduction of emissions of sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia which should not be exceeded in any year from 2010 onwards. Compliance with these ceilings has contributed to meeting EU targets, limiting emissions of air pollutants to ensure the protection of human health, meeting limit values and critical levels for reducing air pollution.

GD no.1497/2008 on the approval of the National Implementation Plan of the provisions of the Convention on Persistent Organic Pollutants, was primarily aimed at reducing emissions of persistent organic pollutants.The National Implementation Plan set out a set of actions aimed at achieving the key objectives for implementing the provisions of the Stockholm Convention, namely:*i)* elimination of pesticide stocks and waste containing or contaminated with POPs (persistent organic pollutants) and PCBs (polychlorinated biphenyls), *ii)* sustainable development of

agriculture, *iii)* development of production and use of substances with low environmental effects, which will be used to control vectors of diseases and/or arthropods that cause damage, *iv)* improving environmental protection performance in the energy sector; improving the performance of environmental protection in the transport sector, *v)* improving the management of transport in the urban sector, *vi)* improving the performance of environmental protection in the industrial sector, *vii)* reducing the effects on human health and the environment generated by POP emissions from waste incineration or co-incineration (http://ns2.islavici.ro/articole/Politici%20de%20mediu.pdf) .
GD no.257/2015 aimed at implementing a methodology setting out procedures to ensure the legal, organizational, functional framework and a uniform design for the initiation of such plans, the preparation, information, approval and publication, the implementation, monitoring and reporting and the updating, that review of the transmission of the results to the national and European institutions.
GD no. 806/2016 to amend Law no. 104/2011 brought the following changes: *i)* data quality objectives were introduced for BaP, As, Cd, Ni, HAP, other than BaP and total gaseous Hg and total deposition*, ii)* the obligations of the competent authorities and bodies have been laid down, *iii)* the criteria to be taken into account in the micro-scale placement of sampling points have been set; information on methods of documentation and revision of site selection, *iv)* the minimum number of extraction points has been agreed for the measurement of ozone concentrations at fixed points, *v)* reference methods have been introduced for the assessment of concentrations of sulphur dioxide, nitrogen dioxide, nitrogen oxides, particulate matter (PM_{10} and $PM_{2,5}$), lead, benzene, carbon monoxide, ozone, arsenic, cadmium, nickel, benzo(a)pyrene, mercury and deposits.

4.2.3. Ministerial orders in the field of ambient air quality

Ministerial orders are normative acts that are issued by central public administration only on the basis and in the execution of the laws, decisions and ordinances of the Government. Ministerial orders are aimed at informing all those interested in the issue of normative documents issued by the Ministry of Environment. They specify other data (amounts, periods of application, other details) on which the law did not make a detailed reference.
Order MEC no. 716/2005 and MTCT 92/2006 laid down rules on the technical inspection of mobile containers which are used to transfer petrol from a terminal to a service station to reduce emissions of volatile organic compounds resulting from loading, transport, discharge and distribution of petrol at terminals and service stations.
Order ME no. 2035/2009 to amend the Annex to the order of the Minister of Economy and Trade No 468/2005, designated the inspection bodies for installations, equipment and devices used to limit emissions of volatile organic compounds from the storage, loading, unloading and distribution of petrol at terminals and service stations.
Order MMP no. 1179/2010 approved the guide on the rational environmental management of polychlorinated biphenyls.
Order MMP no. 3299/2012 established the way of executing and presenting the inventories referring to the emissions of pollutants into the air, in our country according to the provisions of the European legislation and the international conventions in the field Romania took part in. The order regulated the procedure for the development and transmission of inventories of emissions of pollutants into the air at local and national level.
Order MMP no. 598/2018 of 20 June 2018 approved the lists of administrative-territorial units, taking into account their previous classification, as well as the results of the national air quality assessment using fixed-point measurements (measuring stations that are part of the National Network for Air Quality Monitoring) between 2017 and 2018.The administrative-territorial units covered by management regime I shall draw up an air quality plan or, as the case may be, an integrated air quality plan, and the administrative-territorial units covered by management regime

II shall draw up an air quality maintenance plan. Order 598/2018 repealed the MMAP Order no. 1206/2015.

Order no. 838/591/2019 provided for the attributions of the central public authority for environmental protection to determine the annual number of emission certificates and to transmit to the European Commission data collected from operators of installations where one or more activities are carried out. The operator's obligations to complete and submit to the National Agency for Environmental Protection documents such as: a reference data report, a monitoring methodology plan, a verification report of the reference data report and the monitoring methodology plan, have also been regulated.

Romanian legislative documents are transpositions of European legislation, especially after Romania's accession to the EU, in the form of laws, government decisions, minister orders etc. The most important law in the field of environment protection is Law 104/2011, which comes with concrete measures and standards to maintain and improve air quality, also establishing sanctions/penalties for those who do not comply with legal provisions. At the same time, the legal framework is created for informing the public with information on the quality of the breathed air (by placing panels in different cities).

Another important law is Law 293/2018 which sets out new measures to reduce gas emissions by developing and implementing the National Air Pollution Control Programme, as well as coordination and cooperation within international organizations.

DGs are documents of a specific nature for the different categories of air pollutants. The most important is the DG 257/2015 which establishes legal, organizational and functional procedures for short and medium-term air quality plans.

With the introduction of laws and GDs focused on the field of ambient air quality, orders of the Ministry of Environment and Forests or the Ministry of Economy also appeared.

We mention the Order MMP 598/2018 (which repeals OMMAP 1206/2015) which establishes the classification of each administrative-territorial unit in an air quality regime, and provides for the obligation to implement a Plan to maintain or improve air quality for each ATU.

5. Conclusions

Air pollution is an increasingly obvious reality that generates many problems in Europe and in Romania. That is why there is a concern of Europeans and Romanians to solve this problem through cooperation and legislation at european/national level, with the main and common objective of protecting and preserving air quality. Legislative protection of air quality has the effect of reducing and even eliminating air pollutants, so that the air we breathe is as clean as possible.

The paper presents the evolution of the European and Romanian legislative framework in the field of air quality, for the last 30 years, focused on the application of legislative measures at European and national level. The proposed laws, policies, programs and strategies to control, reduce and contain air pollution have been highlighted. This study addresses all the factors involved in air quality issues (public and private institutions, local community), helping to raise public awareness of the danger of air pollutants on human health.

European air quality legislation has emerged as a need to standardize the legal framework across the EU. Complex documents have been legislated, with annexes containing practical information, for Europe to become a climate-neutral continent. Taxonomically, we proceeded to classify legislative documents at European level, from the most important to those of lesser importance: directives (7) – regulations (7) – decisions (8) – recommendations – delegated acts – implementing acts.

In Romania, the classification follows the order: laws (8) – government decisions (5) – orders of the minister (6). This order of European legislation (depending on its rank and legal power) has a legislative and juridical correspondent at the level of member countries (implicitly of Romania).

In recent decades, improving air quality has been possible, as EU-wide mandatory limit values have been set for certain airborne pollutants and these thresholds have been constantly updated by lowering the values in each EU member state. The governments of all the member states concerned have acted by implementing regulations on measures to reduce air pollution and develop local, national air quality monitoring systems. At international level, EU air policy efforts have resulted in cooperation to support and facilitate effective action toward national emission reduction targets and ambient air quality standards.The endorsement of the European Green Deal underlines the need for coherence between clean air policy and other relevant policy areas.

A single legislative framework at European level offers the possibility of cross-border action and the adoption of joint programs at continental level. One of the problems solved at European level is common monitoring of air quality, according to common standards for all air pollution indicators.The most important European legislation (Directive 2008/50/EC) and Romanian legislation (Law 104/2011) guarantee that information on ambient air quality is made available to the public, which should lead to environmental protection and public awareness of the danger of air pollutants on human health.

The major coordinates of air quality protection in Europe and Romania, composed of decision centers, administrative structures and mechanisms for decision and implementation of legislation, have been *structured and are presented in a format more accessible* to both researchers and specialists in the field of air quality protection, as well as the entire human community in the territory concerned.

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