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Think Green for the World

Module-6 Environmental activities that people use to support or strengthen laws designed to help prevent or solve environmental problems

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PART ONE- Introduction to the Topic

Environmental law is a collective term that encompasses aspects of law that focus on protecting the natural environment, human health and natural resources. It is a complex web of regulations, policies and statutes designed to address issues such as air and water quality, waste management and pollution control.

The aim of environmental law is to protect human health, preserve the environment for present and future generations and ensure sustainable development. Environmental laws are implemented and enforced by various government agencies. These agencies are responsible for monitoring and regulating activities that may have an impact on the environment, including industrial operations, environmental impact assessment and conservation.

Environmental law focuses on a wide range of topics, such as air quality laws, water quality, waste management, chemical safety and the protection of endangered species. These laws are designed to minimise the impact of human activities on the environment and prevent environmental contamination.

At the international level, environmental law encompasses global environmental agreements that address global issues such as climate change, ozone depletion and biodiversity protection. These agreements are often negotiated and implemented through cooperation between national governments and international organisations.

Environmental law covers a wide range of issues, with air quality, water quality and waste management being some of its main areas of interest. These aspects of environmental law are key to maintaining a healthy environment and ensuring that we protect the environment and the well-being of present and future generations.

Regulations, through laws such as the Clean Air Act, aim to reduce air pollution by setting standards for emissions from various sources, including vehicles, power plants and factories. These regulations help combat smog, acid rain and other problems, ultimately protecting health and the environment.

Laws such as the Clean Water Act and the Safe Drinking Water Act protect water sources from pollution, ensuring they are safe for drinking, recreation and other uses. These laws regulate discharges of pollutants into waters and set standards for drinking water, protecting aquatic ecosystems and health.

Waste management is a key aspect of environmental legislation, covering solid waste, hazardous waste and nuclear waste. Regulations such as the Resource Conservation and Recovery Act (RCRA) set guidelines for the generation, transport, treatment, storage and disposal of waste, ensuring that waste is managed responsibly and does not pose a threat to the environment or health.

PART TWO- Specification of the elements to learn under this topic including learning tasks:

A. Air pollution

Air pollution is one of the forms of pollution with major, disastrous effects on the environment. Technically, any physical, biological or chemical change in the atmosphere can be called air pollution and occurs when any harmful gas, dust or smoke, enters the atmosphere and affects plants, animals as well as human beings.

Implicitly, air pollution involves pollution of the atmosphere and thus any gas or substance entering the atmosphere can create undesirable imbalances in the medium and long term. Therefore, the thinning of the ozone layer in the atmosphere (the one that protects us from the negative effects of ultraviolet radiation) caused by air pollution is a major threat to the existence of ecosystems on the planet and represents the ultimate challenge that mankind must overcome despite the political differences on the international scene.

A.1. Types of air pollutants

In order to better understand the causes of air pollution we need to know that pollutants entering the atmosphere can be divided into primary pollutants and secondary pollutants. Primary pollutants are the direct result of an industrial process (such as sulphur dioxide emitted by factories, for example) while secondary pollutants are caused by the reactions of primary pollutants.

A.2. Causes of air pollution

The causes of air pollution include a number of activities such as:

- Burning fossil fuels - sulphur dioxide emitted from burning fossil fuels (such as coal or oil) is one of the main causes of air pollution; at the same time, cars with internal combustion engines, the ones we use every day, are major sources of pollution with harmful effects on air quality because they release tens of thousands of tonnes of harmful gases into the atmosphere every day;
- Agricultural activities - ammonia, for example, is a product often used in specific activities in the agricultural sector, while being one of the most dangerous gases in the atmosphere. Moreover, the widespread use of insecticides and pesticides contributes to environmental pollution, including atmospheric pollution.
- Mining - Mining is an area where large equipment is used. During the process, dust and chemicals are released into the air causing massive air pollution. This is one of the reasons why this activity is responsible for the deterioration of the health of workers and residents near mining operations.
- Household activities: household cleaning or painting products emit toxic substances into the air causing environmental pollution. Have you noticed that when you paint indoors, even with windows

A.3. Effects of air pollution

Among the effects of air pollution, the most serious are:

- Respiratory and cardio-respiratory problems - the effects of air pollution on our health are alarming. They cause respiratory and heart problems, which are the most common medical conditions in these cases. Studies have shown that people living in areas with high levels of air pollutants in the air are prone to conditions such as pneumonia and asthma, among many others.
- Global warming - rising global temperatures, rising sea levels and melting glaciers are alarming signals that unless urgent action is taken to stop air pollution, the environment will suffer irreversible damage. Unfortunately, the planet's leaders do not seem to understand each other or reach a consensus when it comes to limiting or preventing the irreversible...
- Acid rain - gases entering the atmosphere, such as nitrogen oxides and sulphur oxides, mix with water droplets in the atmosphere, resulting in acid rain, with damaging effects on soil and plants.
- Water eutrophication - eutrophication occurs when a large amount of nitrogen is deposited on the surface of the sea, favouring the growth of algae that adversely affect the underwater flora and fauna. Green algae that are present on lakes and ponds occur because of the presence of nitrogen in the air above a certain limit.
- Effect of pollution on animals

A.4. Measures to prevent and reduce air pollution

We all have an obligation to contribute to the protection of the environment and to ensure better air quality for ourselves and future generations. Here are some of the measures to prevent air pollution:

- Use public transport - using public transport considerably reduces air pollution and relieves traffic congestion at the same time; do an exercise in imagination - put 60 occupants of a trolleybus or bus into 60 cars. Already you will have a roadway at least 200 m long (compared to the maximum 7 m of a trolleybus), a traffic jam and unbreathable air in the immediate vicinity of the "motorised caravan". So try to use the trolleybus or metro from time to time - you'll know you've done a bit more to protect the environment that day!
- Save energy - turn off lights and any energy-consuming appliances when you leave home or when you are not using them. Electricity seems like a 'green' or clean source when compared to petrol, for example, when it comes to car fuel, but we forget that it is also produced in processes that generate pollution, such as during the process of burning hydrocarbons to produce electricity.
- Reusing and recycling materials - reusing objects or recycling

A.5. Sanctions

Romanian legislation stipulates precise obligations for economic agents by Law 104/15.06.2011, a law that aims to protect human health and the environment by taking mandatory measures to maintain air quality.

Article 79 of Law 104/2011 establishes sanctions for legal persons in case of non-compliance with the provisions of the law on ambient air quality.

B. Water pollution

Water pollution can be defined as the release of substances into groundwater or into lakes, rivers, estuaries, seas and oceans. These end up interfering with and affecting the beneficial use of water and also the normal functioning of ecosystems. In addition to the release of chemicals or micro-organisms, water pollution can also include the release of energy, in the form of radioactivity or heat. For example, groundwater is a source considered potable by many people and is used for domestic purposes. Although it may appear clean, it is not excluded that it is still polluted by chemicals, bacteria and viruses.

Although seas and oceans contain large volumes of water, their natural capacity to absorb pollutants is limited. Contamination from sewage pipes, sludge or oil spills can harm marine life, especially microscopic phytoplankton that serve as food for larger aquatic organisms.

B.1. Sources of water pollution by nature of substances

All water sources can be polluted by a variety of substances such as decaying organic waste, toxic chemicals, oil, oil, pathogenic micro-organisms, plant nutrients, sediments and radioactive substances.

Water pollution has many causes and can be caused by nitrates, detergents, pesticides, heavy metals and many other harmful substances from a variety of sources. Thus, there are several types of water pollution.

I. Physical water pollution

Physical pollutants are those that include most of the toxic wastes that can end up in water. Radioactive deposits and wastes, water used in atomic plants, water used for cooling plants and thermal waters are just a few examples of pollution.

Also, even oil and petrol from millions of cars end up in the water. Nearly half of the estimated 1 million tonnes of oil entering the marine environment each year comes from land-based sources. At sea, tanker spills account for about 10% of the oil in the world's waters, while regular shipping industry operations through both legal and illegal spills contribute about a third. Oil is also naturally released from beneath the seabed through fractures known as seeps.

II. Chemical pollution of water

Pollution of water with pesticides, oil spills, carcinogens, detergents or other substances specific to different industries is called chemical pollution. Waste is considered toxic if it is poisonous, radioactive, explosive, mutagenic, causing chromosome damage, teratogenic, causing birth defects, or bioaccumulative.

Sources of toxic chemicals include:

- Improperly disposed wastewater from industrial plants and chemical processing facilities (lead, mercury, chromium);
- surface runoff and sewage containing pesticides used in agricultural areas and on suburban lawns;
- toxic waste from industrial, chemical and biological processes;
- batteries for electronic devices, pesticides, mobile phones and computers;
- household waste;

Toxic waste leads to huge costs in terms of economic expenditure, human and ecosystem health. They also cause substantial damage to animal and plant populations. Such wastes hinder natural restoration processes, destroy habitats, permanently reduce populations of sensitive species or inhibit their reproductive success.

III. Biological water pollution

One of the main water pollutants is the city's sewage, as it is the main source of pathogens (disease-causing micro-organisms) and decaying organic substances. All of these pose a direct threat to human health. Decomposing organic matter is another type of threat to water quality. As organic matter is naturally broken down in sewage by bacteria and other micro-organisms, the oxygen content in the water is depleted. This endangers the water quality of lakes and streams, where high levels of oxygen are needed for fish and other aquatic life to survive. Wastewater treatment processes reduce the level of pathogens and organics in wastewater, but do not eliminate them completely.

At the same time, sewage is considered a major source of nutrients for plants. Excess nitrates and phosphates in the water encourage algae growth, sometimes causing unusually rapid growth. However, this is not necessarily a good thing, because when algae die the dissolved oxygen in the water decreases, as micro-organisms use it to digest the algae during the decomposition process. Anaerobic organisms (organisms that do not require oxygen to live) then metabolise the organic waste, releasing gases such as methane and hydrogen sulphide, which are harmful to aerobic (oxygen-requiring) life forms. So the process by which a lake changes from a clean, clear state to a nutrient-rich, algae-filled state and from there to an oxygen-deficient, waste-filled state is called eutrophication, a natural, inevitable and slow process. However, when accelerated by human activity and water pollution it can lead to premature ageing and death of a water body.

IV. Radioactive water pollution

Radioactive waste is also extremely harmful and includes elements and compounds that produce or absorb ionising radiation and any material that interacts with such elements and compounds.

Medical waste is also a broad category of things harmful to water and aquatic life, and includes equipment and materials, used bandages, needles, fluids capable of harbouring organisms that cause infectious diseases, and other materials from hospitals or biological research facilities. These can very quickly transfer into the water and contaminate it.

V. Thermal water pollution

Heat is considered to be a water pollutant because it decreases the water's ability to retain oxygen and increases fish mortality. Important fish species, such as trout, cannot survive in waters with very low oxygen levels. A major source of heat is power plants that discharge cooling water directly into rivers. The discharged water can be up to 15 degrees Celsius warmer than natural water.

B.2. Effects and consequences of water pollution

The effects of water pollution on human health are many and extremely harmful. It is very important for everyone to be aware that polluted water can make any healthy body ill and, moreover, can lead to death. Pathogens in water in the form of disease-causing bacteria and viruses from human and animal waste are a major cause of illness from drinking water.

Even swimming can pose a risk. There can be many chemical pollutants in water, from heavy metals such as arsenic and mercury to pesticides and nitrate fertilisers.

Once ingested, these toxins can cause a range of health problems such as:

- cancer;
- hormonal disorders;
- harmful effects on brain function;
- skin rashes;
- inflamed eyes;
- respiratory infections;
- hepatitis;

It is also important for nature to have a healthy ecosystem if the waters are to benefit from oxygen. Where this is lacking, plants and animals suffocate and die. In some cases, these harmful substances can affect the lives of whales and sea turtles.

Contaminants in the water are toxic not only to aquatic life but also to humans. Thus, fish accumulate large amounts of toxins such as mercury, then they move up the food chain as predators eat their prey. At some point, they end up being consumed by humans.

B.3. Measures to prevent water pollution

Perhaps the most effective method of reducing the effects of toxic waste on human health and the environment would be to eliminate its production. Toxins can be reduced by replacing some products with their non-polluting alternatives. Efficient production processes and proper maintenance of machinery also reduce toxins. Some wastes, such as heavy metals, can be recycled, which can reduce both the amount of toxins needed in the production process and the manufacturer's costs.

It's also up to each individual to help rebalance this balance. Here's what you can do:

- Don't pour the fat or oil you cook with directly down the sink or toilet. Try having a special storage jar and leave it in the bin when it's full;
- don't use the toilet as a bin. Avoid flushing make-up remover pads or wet wipes down it;
- only use the washing machine when the tub is full;
- make sure you use a minimum amount of detergent when washing clothes and dishes;
- buy only biodegradable containers;

- avoid using plastic as much as possible;
- sort household waste;
- dispose of batteries and light bulbs only in bins specially designed for them;
- if you visit an area where there is a lake, river or ocean nearby, do not throw any rubbish in or near water;

C. Waste management

Proper waste management is a key issue in the fight to protect the environment and ensure a sustainable future for society. Over time, industrial development and population growth have led to an increasing production of waste, and the lack of effective management can have devastating consequences for ecosystems and human health.

The importance of waste management:

I. Protecting the environment:

One of the most important aspects of waste management is protecting the environment. By properly collecting, treating and disposing of waste, soil, water and air pollution is prevented, thus protecting natural ecosystems and biodiversity. Proper waste management also reduces the risk of fires or toxic spills that can seriously affect natural habitats and wildlife.

II. Reducing greenhouse gas emissions:

Improper disposal of waste can contribute to emissions of greenhouse gases such as methane, a gas with a global warming potential about 25 times that of carbon dioxide. By managing waste sustainably, through recycling, composting or other treatment methods, we can reduce our impact on climate change and contribute to efforts to combat global warming.

III. Saving natural resources:

Proper waste management can help save natural resources. Through recycling and reuse, valuable materials can be extracted from waste and reintroduced into the economic cycle, thus reducing the need to exploit new natural resources. This contributes to conserving natural habitats, reducing energy consumption and minimising negative environmental impacts.

IV. Protecting human health:

Improper disposal of waste can pose a direct threat to human health. Toxic and hazardous substances contained in waste can enter soil and water, affecting their quality and potentially contaminating drinking water sources. Uncontrolled waste burning can also release chemicals into the atmosphere, which can cause respiratory and other health problems for local communities.

Proper waste management ensures that waste is collected, transported, treated and disposed of in a safe and responsible way. In this respect, local authorities, government organisations and civil society play an important role in developing and implementing effective waste management policies and

strategies. At the same time, education and public awareness are essential to promote responsible waste management behaviour.

Recycling is one of the most effective methods of waste management, as it allows recyclable materials to be transformed into valuable resources for industry. Plastics, paper, glass and metal can be recycled into new products, reducing the need for raw materials and the energy required for production.

Another important waste management practice is **composting**. Organic materials such as food and garden waste can be turned into compost, a natural fertiliser and soil nutrient. Composting reduces the amount of waste going to landfill and at the same time improves soil fertility and reduces the use of chemical fertilisers.

In addition, promoting **the circular economy** is an essential step towards sustainable waste management. This concept involves extending the life of products through repair, reuse and refurbishment, thereby encouraging a reduction in the amount of waste generated.

An important aspect in ensuring effective waste management is the involvement and collaboration of all stakeholders. Government authorities need to create the necessary legislative framework and infrastructure for waste management, and private companies need to adopt responsible waste production and management practices. At the same time, citizens need to be aware of the importance of responsible waste management and actively participate in selective waste collection and recycling.

In conclusion, waste management is of crucial importance in protecting the environment and ensuring a sustainable future for society. By adopting responsible practices such as recycling, composting and promoting the circular economy, we can contribute to reducing pollution, conserving natural resources and protecting human health. Education and public awareness of the importance of proper waste management also play an essential role in the fight to protect the environment.

PART THREE- Best practices we have in our institution, in our city or country even in the partners' countries

According to the National Oceanic and Atmospheric Administration, climate change continues to increase the rate of extreme weather events, disrupt ecosystems and cause sea level rise. Fortunately, there are hundreds of organizations around the world working collaboratively and inclusively to find solutions. Involving community activists, policy makers, artists, families and more, they are helping people take a step forward and hopefully save the planet.

1. 350.org, International

Writer and activist Bill McKibben and a group of university friends founded 350.org in 2008 with the goal of keeping global carbon dioxide concentrations below 350 parts per million. They are using the power of collective individuals internationally to stop the exploitation of oil and gas and switch to 100% renewable energy.

2. Institute of Biomimicry, International

Biomimicry is a design technique that solves problems by imitating nature. The mission of the Biomimicry Institute is to promote the transfer of ideas, models and strategies from biology to the design of sustainable human systems. For example, a person who wants to spend less energy on construction might consider using Moist Brick, a naturally cooling building material that can condense water from the night air, similar to the skin of a Texas horned lizard.

3. Climate Action Network (CAN), International

CAN is a global network of over 1,300 environmental NGOs. With regional hubs in regions such as West Africa, South Asia, Latin America and Eastern Europe, the network works to promote government and individual action to address the impacts of climate change. CAN's working groups address a variety of issues including agriculture, science policy and technology.

4. Greenpeace, International

Founded in 1971, Greenpeace is a global organisation that uses peaceful protest and strategic communication to highlight environmental issues and promote solutions. Currently present in over 50 countries, Greenpeace works to stop deforestation, protect ocean health, stop nuclear testing and more. Through solutions rooted in social justice, they hope to help communities disproportionately affected by climate change.

5. Health and Environment Alliance (HEAL), Europe

HEAL works to develop laws and policies that protect global and human health and to raise awareness of the benefits of climate change mitigation. Their goal is to create a toxic-free, decarbonised and climate-resilient future. With over 90 member organisations, HEAL represents 200 million people in the 53 countries of the European region.

6. World Wildlife Fund (WWF), International

WWF is an international nonprofit organization that helps local communities access cutting-edge conservation science to protect natural resources. WWF's local chapters around the world address climate change by preparing for potential future disasters and studying how these changes will affect ecosystems and wildlife.

7. Centre for Environmental Research (CCMESI), Romania

CCMESI conducts theoretical and field research on topics related to environmental sciences and biodiversity. Their mission is to help practitioners address local, regional and global environmental

issues. Research results are shared with the general public, practitioners and the scientific community through research papers, books, technical reports, conferences and participation in debates. They successfully address topics such as rural and urban landscape, environmental quality, water quality, species protection (large carnivores, reptiles, amphibians, birds). The work of the research centre involves academics, PhD students, MSc students and undergraduate students.

The objectives of CCMESI are:

- To develop solutions to local, regional and global environmental problems;
- To promote the concept of sustainable development in Romania;
- Develop partnerships with universities, industry, local and national authorities;
- To train young researchers and trainees in environmental sciences;

8. National Environmental Guard (GNM), Romania

The National Environmental Guard (GNM) is a government agency in Romania under the Ministry of Environment. It controls activities that have an impact on the environment, and imposes fines as provided for in environmental legislation.

In the field of environmental protection

- controls activities with an impact on the environment and applies the contraventional sanctions provided for in the environmental protection legislation;
- controls compliance with the provisions of environmental protection legislation, including the measures laid down in the compliance programmes for economic and social activities and compliance with the legal procedures for issuing legislation;
- exercises control over import-export activities of products, goods and other materials with special marketing regime;
- controls activities with major accident hazards and/or significant transboundary environmental impact in order to prevent and limit pollution risks;
- participates in interventions to eliminate or mitigate the major effects of pollution on environmental factors, as well as in determining their causes, and applies the penalties provided for by law;
- controls environmental investments in all phases of execution and has access to all documentation;
- propose to the issuing body the suspension and/or annulment of regulatory acts issued in breach of legal provisions;
- ascertains the facts which constitute contraventions and applies the contravention sanctions in the field of environmental protection; refers the matter to the criminal investigation bodies and collaborates with them in ascertaining the facts which, according to environmental legislation.

PART FOUR- Links to videos and further reading sources for the content of module

https://education.nationalgeographic.org/resource/air-pollution-101/

https://www.protectiamediului.org/anm/

https://www.greenpeace.org/eu-unit/

https://www.worldwildlife.org/

https://www.epa.gov/education/what-environmental-education

https://www.facebook.com/joinundesa/videos/strengthening-sustainable-forest-and-ocean-management-to-mitigate-climate-change/315047640070094/

https://study.com/academy/lesson/video/the-role-of-individuals-in-protecting-the-environment.html

PART FIVE- The importance of the module in Youth Education

The role of environmental education and protection of the environment is obvious, it focuses on shaping the future citizen able to form an objective point of view on the surrounding reality, to incite him to participate, thus becoming aware of the future and the fact that the life of tomorrow's generations depends to a large extent on his choices. Environmental education is an education through and for values, which can take concrete forms at different levels of schooling, delivering information content in a transdisciplinary way, in formal or non-formal contexts.

PART SIX- Implementation activities for the content of module

1) Developing the ability to explore the surrounding reality

Young people will be able to:	Activities
- determine the degree of pollution of water, air, soil;	- investigation of the pollutants in the local horizon and the creation of an observation sheet; - carrying out case studies: determining the degree of pollution of water, air and soil;
- graphically represent information acquired through direct and indirect observations;	- individual or group mini-projects; - making posters, leaflets, flyers with messages to raise awareness among community members;
- experiment with their own solutions to ameliorate the negative impacts on an area;	- case study;

2) Taking responsibility for the environment

Young people will be able to:	Activities
- to develop responsible behaviours and attitudes by referring to the legal norms in the environmental field;	- evoking own observations and debating them in interest groups; - popularizing models of good practice;
-to make responsible and correct decisions on environmental behaviour;	- making decision schemes about one's attitudes and decisions; - developing a set of rules on environmental protection; - case study;
- demonstrate an understanding of the consequences of inappropriate behaviour in relation to environmental health;	- participation in debates; - producing promotional materials; - participation in partnership activities with institutions and NGOs for the conservation and protection of the environment.

PART SEVEN- You can include a self-Check for the learner at the end, a checklist about competences they have got from the module.

Circle the correct choices:

1. Pollutants entering the atmosphere can be divided into:
   a. primary pollutants
   b. secondary pollutants
   c. tertiary pollutants

2. Types of water pollution:
   a. physical pollution
   b. biological pollution
   c. chemical pollution
   d. thermal pollution
   e. radioactive pollution

f. conscious pollution

3. List 5 activities, which contribute to air pollution:

_____

_____

_____

_____

_____

4. Fill in the blanks using the appropriate expressions (**recycling, reuse, reducing, resources**):

Proper waste management can help save natural resources. Through ..... and **.....**, valuable materials can be extracted from waste and reintroduced into the economic cycle, ...the need to exploit new natural **.....** .

PART EIGHT- Conclusion

Education is the basis of everything in the world today, including the environment. Environmental education provides knowledge about the current state and future prospects of nature. It teaches people to explore all issues related to the environment and to consciously engage in its conservation. To take any step towards protecting the environment, we need awareness, which can only come through studying topics related to our ecosystems. What are the issues facing the world today? What are the components that make up the universe? What are the different species of plants and animals? How can we ensure their long-term survival? What is sustainability and how can it be achieved? The answer to these questions can only be found if we learn about the environment and apply this knowledge in practice.

Ensuring that the needs of future generations are met from the earth's resources would be a sustainable way of consuming these resources today. At the current rate of consumption, natural

resources will be depleted too quickly for future generations to survive. Irresponsible use of these resources will leave future generations to bear the consequences of this exploitation. Environmental education helps people understand the repercussions of over-exploitation and act accordingly.

Environmental education connects students to the world around them, learning about natural and built environments, raising awareness of the issues affecting the environment on which we all depend and the actions we can take to improve and sustain it. Whether bringing nature into the classroom, taking students outside to learn, or relaxing on a family walk, contact with nature has many benefits for young people, educators, schools, and the community.

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