Multisectoral Tasks in the Field of Waste Management with the Aim of Improving Environmental Protection

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Abstract

The rate of discovery of new environmental hazards to human health is increasing every year. Identifying these hazards, assessing the damage to human health that they may cause in the population, and evaluating these risks in a comparative manner is the task of health risk assessment. Today, the aim is to achieve a complex and comprehensive view of the interrelationships that can arise within ecosystems. Therefore, a multidisciplinary approach is needed by experts who assess the health status of the population and other specialized monitoring of parameters present in the environment.Surface mining in the zone of excavation, loading, transport and ancillary works results in numerous forms of environmental degradation. Exploitation activities should fully comply with the principles of adapting the technological process to the characteristics of the mineral raw material and environmental protection measures, i.e. the rational use of natural resources. All potential waste materials that pollute the environment in the mining complex must be analyzed through the categories defined by the pollutant register. Most of the hazards present in the environment to which the population is exposed are at a low level compared to the normative "low-level exposure", but the exposure relates to the entire lifespan. Although we know or assume from some data that even low-level exposure is harmful to health, it is not so easy to prove the clinical or physiological effects of such exposure at the population level. Often, there is a long incubation period between the first exposure and clinical effects and therefore we find a low incidence rate in those exposed. Especially if a small proportion of the population was exposed to a particular agent in early life, health damage may go undetected for many years. The impact assessment, or risk assessment, of the identified risk factors (direct and indirect) on human health was conducted using methodologies provided in the recommendations of recognized global (WHO, EU) and national (EPA) institutions that have dealt with this area. Achieving long-term terrain stability and establishing self-sustaining ecosystems will be ensured by permanent cessation of exploitation and includes a series of related activities that begin with conceptual closure planning. Supervision and maintenance of devastated areas and landfills includes all measures that the operator must take during exploitation and after closure, in order to prevent harmful impacts on the environment and human health, ensure the technical stability of the terrain and fulfill obligations towards the competent authorities.

Keywords: *waste, landfill, protection, environment*

1. Introduction

The process of accession to the European Union represents one of the most demanding development steps for the Republic of Serbia. Chapter 27 – Environment and Climate Change is particularly complex, encompassing more than 200 EU directives, regulations and standards [1]. This chapter is considered one of the most financially extensive and institutionally complex parts of the accession process. The formulation and implementation of multi-sectoral tasks in the field of environmental protection is of crucial importance for the harmonization of national policies with EU standards, as well as for improving the quality of life of citizens. Given that environmental protection is not an isolated area but encompasses multiple sectors, industry, energy, agriculture, transport, water management, urban planning, and healthcare, an integrated and strategic approach is necessary. Key aspects of waste management include effective waste management, which directly contributes to nature conservation through several levels, known as the waste management hierarchy:

- Phase - Description and goal
- Prevention - Reducing waste generation at the source (the most desirable option)
- Reuse - Using objects multiple times before they become waste
- Recycling - Processing waste materials into new products to save resources
- Energy utilization - Obtaining energy from non-recyclable waste
- Disposal - Safe disposal of remaining waste with minimal risk to the environment

2. Waste management

Waste management, as one of the most important segments of environmental protection, is based on landfilling, but it is clearly accompanied by insufficiently developed recycling and treatment mechanisms. Taking into account the legal regulations in the field of waste management, which require the introduction of a waste hierarchy, the construction of regional waste management centers, the closure and rehabilitation of unrepaired landfills, the development of an extended producer responsibility system, and adequate treatment of mining, hazardous, and special waste streams, activities are inevitable in implementing all of the above.

Water quality is one of the most sensitive indicators of the state of the environment. Alignment with the Water Framework Directive (WFD / Water Framework Directive, 2000/60/EC) and the Urban Wastewater Directive requires a thorough modernization of the water sector. The main tasks are the construction of wastewater treatment plants in all major cities, the modernization and expansion of sewage networks, the improvement of water monitoring systems, integrated river basin management, and the improvement of flood protection. Challenges include the extremely high costs of constructing WWTPs (Wastewater Treatment Plants), and the often insufficient institutional capacities of local governments. However, numerous projects are already being implemented with the support of the EU, the EIB and other partners.

Air pollution in several cities in Serbia reaches levels during the winter season that endanger the health of the population. Harmonization with European standards involves controlling emissions from industry, energy and transport. The EU requirements are the implementation of the Industrial Emissions Directive, the reduction of SO_2, NO_x and PM particle concentrations, the introduction of modern technologies in thermal power plants, and the development of urban and electric transport. The problem of air pollution encompasses the energy sector (use of coal and biomass), transport (age of the vehicle fleet), urban planning and household heating. The solution requires coordination of all these areas.

The European Union has a developed system of nature protection through the Natura 2000 network. Serbia is in the process of identifying and declaring these areas. The main priorities are mapping habitats and species of EU importance, preparing and adopting area management plans, preventing overexploitation of natural resources, and developing the capacity of nature protection institutions.

Cooperation with the population, farmers and businesses is crucial to make nature protection sustainable and economically acceptable. Agriculture in Serbia has a major impact on soil, water and biodiversity. Harmonization with EU standards involves controlling the use of agrochemicals and introducing good agro-ecological practices [2]. The requirements are to reduce the use of pesticides and mineral fertilizers, develop organic production, control erosion and protect soil, and protect groundwater and surface water from nitrates. Agri-environmental measures contribute to soil and biodiversity conservation, and enable farmers to access European funds.

Climate change is a global challenge, and Serbia is already exposed to extreme weather events. The EU requires candidate countries to adopt mitigation and adaptation strategies [3]. The measures include reducing greenhouse gas emissions, increasing the share of renewable energy sources, introducing energy efficiency in buildings, and developing the national ETS system (Emissions Trading System, which is a state system for trading greenhouse gas emissions).

Gradual reduction of fossil fuel use, modernization of the power system, and investment in green technologies represent the basis for the transition to a low-carbon economy.

Industry represents one of the main sources of pressure on the environment. The EU prescribes a system of integrated environmental permits and the application of best available techniques (BAT).

The tasks for Serbia are the full introduction of the IPPC system (Integrated Pollution Prevention and Control), control of emissions into air, water and soil, and increasing the transparency of pollution data. The benefits are reflected in compliance with BAT standards, which leads to more efficient production, less resource consumption and lower pollutant emissions.

Strengthening institutions is a prerequisite for implementing EU regulations. The necessary measures include strengthening inspection services, training of personnel in local governments, adoption of new laws and bylaws, and transparency and public involvement in decision-making processes.

Environmental protection is the most expensive chapter of EU accession. Serbia must secure significant funds from various sources.

Sources of funding are the European Union's IPA funds (Instrument for Pre-accession Assistance), the European Investment Bank, climate change funds, the domestic budget and private investments. It is estimated that full compliance will require several billion euros in the coming decades, with the largest share of investments in wastewater, waste and industrial emissions [4].

Regardless of whether mining waste is categorized as non-hazardous/inert, it is necessary to:

- Determine whether it is mining waste within the meaning of the law;
- Develop a Mining Waste Management Plan;
- Submit an application for a management permit (disposal, storage, treatment);
- Enter the location in the Register of Mining Waste Disposal Facilities. Enter the location in the Register of Mining Waste Disposal Facilities.

Collecting basic information involves identifying:

— Basic sources and methods of environmental pollution;
— Characteristics of the soil, relief and landscape at the facility location, climate of the area with meteorological data, etc.;
— Air quality;
— Water quality (groundwater and surface water);
— Flora and fauna in the observed area;
— Existing populations with demographic characteristics;
— Analysis of existing project documentation;
— Analysis of data from technical documentation related to facilities and technological production processes;
— Analysis of data from existing informational documentation;
— Insight into the operation of existing facilities and plants in the immediate vicinity of the location;
— Discussion with experts in the subject area;
— Discussion with the persons responsible for the project in question;
— Discussion with those responsible for environmental protection;
— Discussion with those responsible for development and investments;
— Analysis of domestic and international regulations relevant to the project in question;
— Insight into data on the internet related to the subject matter;
— Additional verification of key analysis findings;
— Analysis of data from previously completed projects related to the subject issue in the subject territory;
— Analysis of data provided by reviewing applicable standards related to the subject;

— Analysis of data provided from the literature;
— Analysis of technical and technological parameters key to the observed area;
— Analysis of data provided from external sources and obtained from state and related institutions;
— Comparative analysis of results with related data relating to similar problems in other locations around the world;
— Other unmentioned methods.

Impact assessment based on the quantification of the following elements:

— Source sizes and types of pollution;
— Dominant pollutants and their characteristics;
— Environmental quality conditions;
— Estimates of spatial distribution of dominant pollutants.

Taking all of the above into account, it is necessary to analyze the vulnerabilities, which means identifying all sensitive resources in the vicinity of the complex, i.e. people, material and natural assets. In addition, it is necessary to determine protection measures based on the results of the impact assessment, for all environmental factors (air, water, soil), including preventive, technical and technological and organizational protection measures [5].

The following pictures show examples of the placement of by-products from the thermal power plant in Kostolac / the area of the internal disposal area of the Drmno surface mine.

Fig. 1. Gypsum FGD landfill at Open pit mining Drmno, TPP Kostolac, Serbia [6]

Fig. 2. Ash, slag and ODG gypsum landfill at Open pit mining Drmno, TPP Kostolac, Serbia [7]

3. Characterization of mining waste

Mining waste characterization refers to the systematic process of collecting, analyzing, and describing all essential properties of mining waste for the purpose of its safe management, storage, and disposal, as well as assessing its environmental impact.

Includes:

- Physical-mechanical characteristics – granularity, stability, compactness, load capacity, permeability, behavior under load;
- Chemical characteristics – content of heavy metals, sulfides, pH value, solubility and acid-forming potential;
- Mineralogical characteristics – the presence of minerals that can affect the behavior of the waste (e.g. pyrite as a source of acid drainage);
- Geotechnical characteristics – behavior of waste in embankments and landfills, stability of slopes and tailings pond bodies;
- Potential for environmental impact – possibility of contamination of water, soil and air, hazards to human health.

The goal of characterization is to obtain a comprehensive picture of how mining waste will behave during storage and in the long term, in order to take adequate management measures, prevent environmental damage, and comply with legal and environmental standards.

The issue of identifying the environmental impact of exploitation and processing facilities can be classified into two groups.

The first group consists of pollution resulting from exploitation, and the second group of pollution resulting from the technological process of primary processing itself [8]. Based on the above, the basic forms of pollution were identified with possible intervention measures during the exploitation of mineral raw materials and regular primary processing operations.

Tab. 1. Overview of basic forms of pollution with possible intervention measures [8]

Operation		
Forms of pollution	**Origin**	**Possible interventions**
Land occupation and degradation	Open pit mining	Reclamation of degraded areas
Air pollution	Mining equipment internal combustion engine operation (exhaust gases) Drilling (dust) Blasting (dust and gases) Loading and transportation (dust raising)	Use of equipment with SUS engines in eco-design. Use of a drilling rig with a dust extraction device. Use of explosives with zero oxygen balance. Spraying of loading areas and transport routes. Blasting should be carried out during light winds.
Water pollution	Mining equipment (leakage of oil and lubricants, accidental spillage of oil derivatives from tanks and plumbing of mining equipment).	Regular control of the tightness of installations. Prohibition of manipulation of fuel and lubricant in surface mining. Controlled collection of surface water from the surfaces of the working floors, collection and settling in the clarifier and discharge of the water into the recipient after treatment in the grease and oil separator.
Soil pollution	Drilling, blasting and mining equipment (dust, oil and lubricant leaks, explosive packaging, worn out equipment parts). Stay of employees (distribution of municipal waste).	Procurement of certified equipment. Acquisition of a drilling rig with a device with dust extraction. Traffic regulation. Sprinkling of loading points and transport routes. Controlled disposal of municipal waste in closed metal containers.
Noise and vibrations	Operation of SUS engine of mining equipment. Drilling. Blasting. Loading and transport.	Procurement of certified equipment. Trial blasting and correction of designed blasting parameters. Planting a multi-row field of protective forest belt.
Primary processing		
Air pollution – Diffuse ejection	Primary crushing	Dust removal for dusting
Air pollution – Channeled ejection of dust through the emitter.	Lifting of material from the landfill of primary crushing products. Raising dust during manipulations, unloading crushed stone into the receiving funnel. Equipment failure - crushing plant.	Spraying and regular maintenance of roads and manipulative plateau, rules for vehicle movement, covering of dispensers, hermeticity of devices.
Soil pollution	Spilling of petroleum products (fuels and lubricants). Dust.	Regular control of the tightness of installations. Prohibition of fuel and lubricant manipulation on the plateau of the primary processing plant. Sprinkling of the manipulative plateau of primary processing and transport roads.
Forms of pollution	**Origin**	**Possible interventions**
Water pollution	Spilling of petroleum products (fuels and lubricants). Dust.	Controlled collection of surface water from the surfaces of the working floors, collection and settling in the clarifier and discharge of the water into the recipient after treatment in the grease and oil separator.
Noise and vibrations	Crushing and sieving equipment, fan and compressor of the dedusting system. Noise from ore at loading - transshipment places. Transport vehicles.	Unfolding. Traffic regulation.
Solid waste	Worn spare parts. Stay of employees.	Controlled collection and delivery to an authorized organization for the collection of secondary raw materials. Controlled disposal of municipal waste in a closed metal container.

In the previous table, the sources of pollution were identified and the basic patterns of their occurrence were defined for the object in question [8]. Due to the need for a detailed description of the possible occurrence of pollution, it is necessary to identify the elements of the technological process of exploitation and processing of mineral raw materials as a source of pollution.

The proposed landfill category depends on the type of waste being disposed of, as well as the conditions and regulations in force in the relevant jurisdiction.

According to European and Serbian standards, in accordance with Regulation [10], landfills are classified into the following three basic categories:

- Non-hazardous waste landfill (category II)

— For municipal and non-hazardous industrial waste. Example: landfills where mixed municipal waste is disposed of.

- Hazardous waste landfill (category I)
  — For waste that has dangerous properties (eg explosiveness, toxicity, infectiousness);
  — It requires special measures to protect the environment and human health.
- Inert waste landfill (category III)
  — For inert waste that does not undergo significant physical, chemical or biological changes (eg concrete, brick, soil without pollution);
  — The lowest risk to the environment.

To determine waste, in the Waste Catalog, according to the Rulebook on categories, testing and classification of waste [9], it is necessary to identify the source of waste generation in groups and determine the waste designation, excluding the designations they have in those groups. When identifying specific production units, waste is labeled according to the different production processes in which it is generated. If the appropriate waste label cannot be determined, waste identification groups are considered.

The said rulebook prescribes:

- Waste catalogue;
- List of waste categories;
- List of hazardous waste categories according to their nature or the activity by which they are created;
- List of waste components that make it hazardous;
- List of hazardous waste characteristics;
- List of procedures and methods of waste disposal and reuse;
- Threshold values for the concentration of dangerous components in the waste, based on which the characteristics of the waste are determined;
- Types of parameters for determining the physical and chemical properties of hazardous waste intended for physical and chemical treatment;
- Types of parameters for testing waste for the needs of thermal treatment;
- Types of parameters for testing waste and testing eluate intended for disposal;
- Types, content and form of reports on waste testing and the manner and procedure of waste classification.

Waste testing is performed based on the following procedures:

- Waste sampling;
- Identification of waste with determination of the category of waste;
- Characterization of waste depending on the degree of danger (inert, non-hazardous, dangerous) and determination of hazardous characteristics of waste;
- Characterization of hazardous waste and determination of the concentration of hazardous substances in waste;
- Determination of physical and chemical characteristics of waste;
- Determination of toxicological characteristics and effects on human health;
- Determining possible impacts on the environment;
- Other procedures in accordance with the applied methodology;
- Preparation of the Waste Examination Report.

4. Impact of mining waste disposal on the environment

The consequences of the exploitation of mineral raw materials are numerous, starting with soil pollution, land occupation, disruption of the ecosystem, transformation of the landscape, etc. In addition, surface mines that have stopped working, in the event that rehabilitation and recultivation measures are not undertaken in accordance with legal regulations, also contribute to the devastation of space.

Impacts on the environment during the opening of a surface mine occur due to the need to arrange the location and are, as a rule, of a temporary nature. These impacts occur as a result of the presence of people and machines, technology and the organization of preparatory works in order to arrange the site, build roads and other infrastructure facilities, as well as due to the permanent or temporary removal of overburden deposits.

Impacts that occur as a result of surface exploitation can be classified as temporary, permanent and post-exploitation. In the category of temporary degrading impacts, it is possible to classify the impacts that manifest themselves during the exploitation life of the mine (air pollution, water pollution, soil pollution, increase in noise and vibration levels, impacts caused by drilling and mining works, etc.). The permanent consequences of endangering and degrading the environment are reflected in the disturbance of the environment (change in the physical appearance of the terrain), soil degradation, changes in the movement regime of surface and underground water, destruction of micro watersheds, autochthonous vegetation cover, displacement of communications, human settlements and the like. The definition of certain criteria and the quantification of certain indicators, in terms of detail and exactness, is essentially related to the scale of the information base as well as the existing information about the given spatial entity. The facts that represent the basis for the previously described can only be defined through an in-depth analysis of the relationship between surface mining and the environment. For each analyzed location, these criteria do not have the same weight with regard to specific spatial relationships. Impacts on the environment, which occur as a consequence of exploitation and which have a permanent character, can be analyzed based on the following parameters, Figure 3.

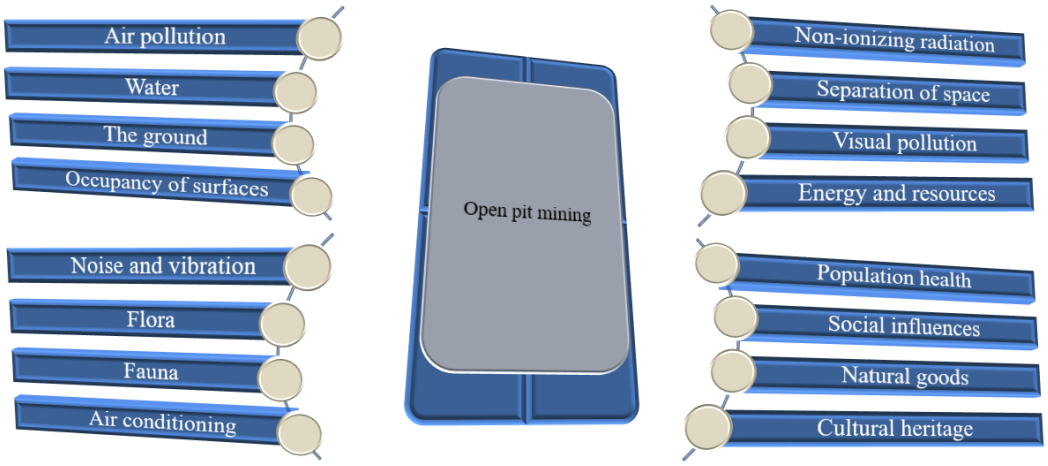

Fig. 3. Presentation of the relationship between surface mining and the environment

The success of any solution in the field of environmental protection implies comprehensive consideration and definition of all categories of the mentioned impacts. In this sense, the obligation to define them in relation to the basic natural factors is always set as a priority. All processes within the elements of this complex system take place on the basis of dependence on each other, whether they are organic or inorganic elements, in which sense each project and technological process with its specific characteristics in certain circumstances can lead to disruption of mutual relations. A systemic approach to the mentioned relationships through the analysis of system elements in most cases gives satisfactory results, but only in their quantification and consistent respect for mutual relationships.

The analysis of possible causes of environmental pollution and degradation within the framework of the assessment and amount of expected waste materials [10] and emissions from the exploitation of mineral raw materials includes all elements of the technological system.

In the most common case, the technological system of surface exploitation of mineral raw materials consists of the following production processes:

- Drilling and blasting of useful raw materials;
- Loading of demined material into trucks;
- Transportation of demined material to the reception bunker of the processing plant;
- Crushing and sieving;
- Loading aggregates into trucks.

All other technological operations are preparatory and auxiliary, and they include construction and maintenance of roads, fuel supply, transport of explosives, sprinkling of access roads and working plateau with water to suppress dust, etc.

5. Proposed procedures for controlling the composition of mining waste and monitoring the landfill

Control of the composition of waste is carried out in order to verify the non-hazardous character of the waste and compliance with the requirements of the Regulation on waste disposal [11]. The control procedure includes:

Initial characterization:

- Regular monitoring of the composition of waste (if it is a continuous generation):
  - — Periodic sampling (eg once a year or every 1,000 t of waste);
  - — Laboratory analysis on:
    - pH value;
    - content of heavy metals (Pb, Cd, Cr, Hg, Ni, Zn, etc.);
    - solubility and eluate values;
    - percentage of organic matter (if relevant).
- Storage of results: All analysis reports are archived for at least 10 years.

In order to protect the environment and human health, the following procedures are foreseen:

- Visual inspection of the landfill:
  - — At least once a month;
  - — Checking the condition of embankments, drainage channels, possible erosion or deviations in the structure of the landfill body.
- Control of the system for drainage and protection of the substrate:
  - — Checking the functionality of the drainage system and barriers (if any);
  - — Examination of possible infiltrations into underground water;
- Environmental sampling (if necessary):
  - — Monitoring of underground and surface water in the vicinity of the landfill (if necessary, in accordance with the conditions of the permit);
  - — Control of air quality (dust and gas emissions), if there is a risk.
- GPS and geotechnical monitoring (if necessary):
  - — Periodic recording of the location and state of the landfill;
  - — Geotechnical stability of the body of the landfill (in case of large quantities).
- Disposal and documentation:
  - — Waste classified as non-hazardous is disposed of at a non-hazardous waste landfill, in accordance with the legal

regulations on waste disposal at landfills;
— All documentation on transport, sampling, analysis and disposal is maintained and stored in accordance with the legal regulations on waste management.

Based on the performed examination, the classification procedure and in accordance with the applicable regulations, the proposed measures and procedures ensure that the composition of mining waste is adequately monitored and that the landfill is maintained in a safe and environmentally acceptable condition. Monitoring should enable the development of a strategy and plan of activities to control the emission of polluting substances. Pollutant emissions are measured on the basis of a previously prepared and adopted Emission Measurement Plan, in accordance with the legal regulations on conditions for monitoring and air quality requirements, i.e. limit values of pollutant emissions in water and deadlines for their achievement, soil quality monitoring program, indicators for assessing the risk of soil degradation and methodology for the development of remediation programs and noise indicators, limit values, methods for evaluating indicators of noise, disturbance and harmful effects of noise in environment.

The emission measurement plan must contain the identification of:

- All sources of emissions of polluting substances;
- All discharges of polluting substances (eg: sedimentation tank overflow, etc.);
- All polluting substances and parameters that are measured for each individual discharge with an explanation of the choice in relation to the technological process;
- The number of successive analyses, for each of the pollutants, depending on the working conditions;
- Criteria for establishing measuring points for emission measurement, if measuring points do not exist or the existing ones are not representative;
- Emission measurement method;
- Emission limit values;
- The frequency of emission measurements on an annual level at each individual outlet according to the provisions of the aforementioned regulations;
- Obligation of the operator and the authorized legal entity for emission measurement, as well as indicative deadlines for the completion of preparatory actions, the execution of measurements, as well as the preparation and submission of reports.

After receiving the measurement results, the results are analyzed in order to assess the impact of exploitation and processing of mineral raw materials, as well as the status of environmental protection and human safety and health.

6. Environmental Impact Monitoring Program

This paper analyzes the main multisectoral tasks, their challenges, opportunities and importance with reference to mining waste. In order to detect the negative impacts of exploitation activities on the environment during design, it is necessary to develop monitoring of environmental protection for the area of surface mines, by looking at the nature of potential impacts on the analyzed receptors while defining appropriate measurements and assessment techniques. This system should enable a reliable assessment of the size and intensity of pollution and possible damage due to the regular operation of the facility and the timely taking of measures to prevent wider pollution, i.e. to successfully remediate observed and recorded pollution.

The environmental protection monitoring program monitors all potential sources of pollution and emitted pollutants resulting from the planned exploitation of surface mines [12]. In this way, adverse impacts on the environment can be detected at an early stage, thus creating the conditions for successful removal of negative impacts. The mentioned measures enable the development of a strategy and action plan for sustainable management of environmental protection for the subject area.

The measurement and evaluation of the achieved effects in the field of environmental protection should be, in the first place, the subject of engagement of the mine. Competent state, regional and local authorities should monitor, evaluate and confirm their acceptability or seek improvements to the established system.

A reliable system for monitoring environmental protection in the area of surface mines should include:

- Identification of pollution sources and parameters (type and dimensions);
- Identification of sources and parameters of pollution (type and dimensions); Selection of environmental parameters for which measurements are made (in space and time);
- Determination of critical areas;
- Data collection, analysis and evaluation.

The proposed monitoring program monitors the emission of polluting substances in the area of mining activities while covering the following environmental entities:

- Air;
- Purified waste atmospheric water and surface water;
- Land (use and rehabilitation of land);
- Noise;
- Monitoring of blasting.

The proposed environmental protection monitoring program should contribute to the establishment of the environmental impact assessment procedure caused by mining activities, as well as the status of environmental protection. The establishment of such a system should be realistic in order for the development of the system to enable effective monitoring in the area of the exploitation field and in the surrounding area.

7. Method of reporting to competent authorities for emergency situations

In the event of an emergency situation, such as: slippage or rupture of the body of the landfill, spillage of polluted water (leakage or overflow), damage to the drainage or dam structure, fire or explosion at the landfill, unexpected chemical incident (e.g. reaction or evaporation) and the observation of a significant impact on the environment or human health, the landfill operator is obliged, in accordance with current regulations, without delay, simultaneously with informing the competent authorities, i.e. while the initial notification is delivered by phone or other means (within the first hour of the event), fill out the form for reporting an emergency situation, as a basis for an official written report, which is delivered to the authorities within 24 hours.

The plant manager, the authorized person for environmental protection or the emergency headquarters within the operator is

responsible for the filling.

The waste operator has the obligation to: immediately (within a maximum of 1 hour) notify the Ministry of Environmental Protection, the Ministry of Mining and Energy, the Republican Inspection for Environmental Protection and/or the Mining Inspection, the Local Self-Government (Center for Emergency Situations), the Sector for Emergency Situations (MUP) and Public Utilities and other interested parties (if necessary) by phone.

The report (oral or written) must contain the following: the name and contact of the reporting person, the name and location of the facility / landfill, the time and date of the event, a description of the emergency situation (type, extent, potential or actual impacts on people and the environment), emergency measures taken and a plan for further activities.

Within 24 hours of the event, the operator is obliged to submit to the competent authorities a written report containing a detailed description of the event, analysis of causes and consequences, as well as proposals for measures to prevent similar events in the future.

8. Conclusion

Multisectoral tasks in the area of environmental improvement represent a fundamental part of the process of Serbia's accession to the European Union. Their realization requires strategic planning, significant financial resources and coordination of a large number of actors, starting from state institutions to the private sector and citizens. Although complex and financially demanding, these tasks represent an investment in the health of the population, economic development and a sustainable future.

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