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THE SIGNIFICANCE OF ENVIRONMENTAL EDUCATION IN THE CONTEXT OF INCREASING ENVIRONMENTAL ISSUES OF SOCIETY

Summary:

The study brings an assessment of the significance of environmental education as one of the means of ensuring protecting of the environment. Environmental education is continually gaining importance due to the newly emerged environmental issues in society, particularly those with severe impact. One of the main goals of this study is to consider serious environmental issues of society and then analyse the significance of education in this area, as well as to classify ongoing forms of study programmes in particular stages of the educational system in The Slovak Republic.

Keywords: *environmental education, environmental problems, the environment, security*

Introduction

Nowadays, security has become one of the most popular terms used in the area of social sciences. A traditional view on national security, mainly from a military perspective, is being gradually abandoned in the present comprehensive understanding of security. This diversion in thinking about security seems to be a result of an increase in impacts of non-military risks. At present time, the environment degradation is beginning to outweigh the devastating effects of wars. For example, it is alarming that about half of the world's population does not have safe drinking water available and disputes over water are held in many corners of the world. Waste and pollution are different terms but they are actually in imminent relation. The most serious pollution of soil, surface water and groundwater is usually connected with anthropogenically produced waste and emissions. Every human activity is virtually

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associated with the waste production, and pollution is not related to landfills and waste storage facilities. Also emigration from affected areas results in environmental degradation and the situation is expected to deteriorate when considering the global warming related climate changes and decline in water sources. Floods affect millions of people who live at seashores.¹ With high probability this will increasingly place the huge environmental, social and economic burden on the hosting countries. Considering security in the environmental and social context, a current increase in risks of environmental degradation represents a much greater threat to the population of our planet as a threat of military conflicts.

Issues related to the environment have gradually become an integral part of our everyday life and they have appeared to be a relentless tax for comfort that paradoxically only a few percent of the total population of the world can afford today. These issues affect all components of the environment, such as soil, water, air, flora and fauna as well as man who cannot be exempt.

1. Social environmental issues

Nowadays, there are a lot of environmental crises all around the world requiring an increased attention. It is possible to identify the state of the environment according to its particular elements (air, water, soil, geological environment, biotit) by choosing suitable indicators. Then based on the trends in advancement of observed trends the prospects for further development can be also prejudged.

The following significant environmental crises are considered:

- pollution and declining of water sources,
- air pollution,
- climate change,
- soil degradation,
- unsustainable exploitation of natural resources,
- unrestricted exploitation of non-renewable energy sources,
- negative environmental impacts of transport,
- excessive waste production,
- extension of deserts and semi-deserts, shrinkage of steppes,

¹ J. Dworzecki, *Systém krízového riadenia v Pol'sku*, Košice 2012, pub. Multiprint, p. 78.

- wide fires,
- extensive fishing,
- reducing biodiversity, outbreaks of pests and invasion,
- radioactive contamination due to accidents and disasters,
- risk of biological, chemical, nuclear weapons,
- environmental crime².

Land, which consists of soil, water, plants and animals tied with it, belongs to the main resources available for man. Their economic exploitation should not cause their degradation and destruction, because the whole existence of mankind depends on their continuous productivity. Air, as one of the components of the environment, and as an integral part, is highly essential for life on the Earth.

1.1 Soil degradation

Soil degradation is understood as an influence of negative factors especially mining, intensive agriculture, expansion of settlements and infrastructure, usually resulting in damaging and altering of natural structure of the soil and its physical, chemical and biological properties. Soil contamination is pollution of soil that includes introduction of pollutants into the soil, mainly by extensive excessive fertilization and pesticide use. The soil is also contaminated through the air by air pollutants and emissions, as well as from water or waste.

As signs of contamination and soil degradation can be considered: groundwater pollution by harmful substances, reduced fertility often result in reduction of food and timber production and transfer of pollutants through the food-chain.

Soil pollution by liquids is mainly due to acid rains, which result from the reaction of fumes from combustion engines with atmospheric water, from groundwater when its level increases, for example during the floods, accidents and failures, in agriculture and forestry.

Soot from diesel combustion engines, solid lubricants containing organic volatile substances from agricultural and forestry vehicles are deemed as the main solid polluters. Contaminated soil layers have to be removed and categorized as hazardous waste.

Soil protection must be declared as a general civil interest and should

² J. Dworzecki, R. Kochańczyk, *Współczesne zagrożenia*, Gliwice 2010, pub. GWSP, p. 114.

be an integral part of the measures to protect the environment and at the same long-term objectives of the national policy on these issues.³

1.2 Pollution of water sources

Volatile hydrocarbons, as compounds of fuel and lubricants are thought to be the main water pollutants. Water can be contaminated by pollutants leaking to groundwater or via drainage to the surface waters. The main sources of its pollution are usually leaks during refuelling at petrol stations or from damaged fuel tanks, by traffic accidents, the pipe network failures or leaks from oil tankers. Then various hydraulic fluids, brake fluids, antifreeze liquid mixtures, sulphuric acid from batteries are also recognized as significant polluters. Acid rains, as a product of reaction between emissions from combustion process and atmospheric water, cause secondary contamination of surface waters. Uneven presence of water together with water requirements in time and space often causes damages to human society, either in case of excessive amount of water or lack of water. The main sources of water pollution are: industry, agriculture and waste management.

Eutrophication is then over-enrichment of the surface water by nutrients (especially by nitrogen and phosphorus), which are biogenic elements necessary for the growth of aquatic organisms and thus for the development of the aqueous biomass in general. This effect is most visible in lakes, reservoirs, offshore areas as well as in large slow-flowing rivers.

1.3 Air pollution

Progress in production of emissions by road transport in recent years, including the year 2014, is influenced by two major factors. Firstly, it is by a negative impact of the rapid growth in environmentally unfavourable road transport, particularly in individual automobile transport. Secondly, by its constantly growing performance and fuel consumption, which reduces the effect of introduction of a new generation of environmental and energy more favourable vehicles.

Leakage of pollutants, called emissions, from many aspects of human activities is believed to be one of the main causes of air pollution.

³ E. Virčíková, P. Palfy, *Environmentálne manažérstvo teória a metodika*, Košice 2007, pub. VŠBM, p. 18.

Emissions of sulphur dioxide and nitrogen oxides contribute to acidification of the environment. Greenhouse gases also contribute to an increase in global temperatures on Earth and subsequent climate change.⁴

Emissions of substances, which damage the ozone layer, lead to its reduction in the atmosphere that significantly contributes to a greater penetration of harmful UV radiation to the Earth. Emissions of volatile organic compounds and nitrogen oxides together with UV radiation cause the formation of smog, which has an adverse impact on living organisms on the Earth.

Therefore, the limitation of emissions and their monitoring is regarded as an issue of high importance. In Slovakia, an inventory of emissions is conducted by the module of National Emission Inventory System (NEIS). Air quality condition is reflected by air pollutant emissions in the atmosphere. These are particularly the substances that are directly in touch with a live component of the environment. It is usually seriously threatened if it is exposed to higher concentrations of these substances. They are monitored by measuring of their levels in the air, which provides important information on the regional and local air pollution. These pollutants do not remain only in the immediate vicinity of their sources but they are transmitted over long distances by atmospheric processes that often explain the increased volume concentrations in the areas where the local sources of pollution cannot reach such concentrations of pollutants in the air.

The greenhouse effect is the global consequence of air pollution which leads to the global warming and eventually to the global climate change. Climate change is thought to be one of the greatest environmental, economic and social threats. Global climate changes resulting from greenhouse gas emissions which know no boundaries. Likewise, sulphur emissions, which have a cross-border impact, are responsible for acid rains and obviously harm forests, for example by die back of trees in many parts of the world.

Environmental problems such as photochemical smog, acidification, climate changes, forced particular countries to radically align with air protection, as well as on the international level in the form of implementation of commitments from various conventions and protocols.

⁴ R. Pado, *Horúca planéta – globálne klimatické zmeny*, Liptovský Mikuláš 2003, pub. OZ Tatry, p. 19.

1.4 Loss of biodiversity

The already mentioned air, water and soil pollution is harmful to flora and fauna. Pollutants usually enter the food chain in different stages and cause contamination of organisms often invoking creation of tumours and mutations and disrupting natural environment, resulting in decline or extinct of certain animal species. Since its beginning, mankind has used natural resources which are a prerequisite for its existence and survival. Animals, plants or people cannot live in isolation, there are interdependencies and relationships. A loss of one organism can influence living of others. Therefore, it is quite important to realize how biodiversity is important for our life. Though mankind is dependent on natural resources of our planet, which are limited, it exploits them to such extent that it eventually disrupts ecological systems. The traditional approach to conserving biodiversity, which was based on the protection of selected areas and species, has become insufficient.

Polluted air has adverse effect on flora by weakening of photosynthesis – soiled leaves and atmosphere decline an intensity of solar radiation on chlorophyll. Polluters contaminate plants via their root system by water from soil and via leaves by soot and enter the food-chain. The most severe impact is felling of forests for the purpose of the construction of transport corridors.

1.5 Waste production

Waste that is produced by most human activities and its disposal is one of the risk factors threatening the quality of the environment. Waste is produced at different stages of human activities and its composition and quantity depends on consumption patterns, industrial and economic structures. Its impact on the environment and quality of life is mainly associated with contamination of air, water and soil, but also includes depreciation of life space and problems with stink and aesthetic values.⁵ In the process of ensuring the environmental security it is necessary to pay raised attention to the issues related to waste, as well as to processes, procedures and waste management possibilities. It is about these particular problems and threats: too much waste produced, the hazards of

⁵ E. Virčíková, P. Palfy, *Environmentálne manažérstvo teória a metodika*, Košice 2007, pub. VŠBM, p. 22.

particular wastes, illegal dumps, old environmental burdens, inadequate ratio of recycled amount to its production.

Another environmental risk can be old environmental loads, defined as the pollution of particular area caused by human activity, which constitutes a serious risk to human health or the geological environment, groundwater and soil with the exception of environmental damage⁶. It is about a wide range of areas contaminated by industrial, military, mining, transport and farming, as well about an inappropriate waste disposal. A rapid growth in waste production is caused by the development of industrial production, concentration and intensification of agriculture, and mainly by the growth of living standards, which is associated with the use of various packaging materials. It is not possible to omit the advance in the car industry which brings a great production of waste. It can be concluded that waste is even more often considered as raw resource placed at the wrong location. Therefore, it puts more pressure on more effective ways of collecting and sorting of waste, its processing and reuse.

In 2012, there were almost 8.7 million tons of waste produced in Slovakia. Hazardous waste was around 0.377 tons, from this amount consisting of thousand tons of flammable, explosive, irritating, corrosive, radioactive and other waste, that directly threaten environmental safety.

1.6 Disturbance of geological environment

Non-renewable natural resources whose quality and quantity are given by the natural structure of the landscape and represent the initial (hardly modifiable) factors of land exploitation are called the geological environment. There is imminent connection between the geological environment and issues of mineral resources, geological factors, groundwater, geothermal energy and environmental burdens of the geological environment. Non-renewable natural resources are an integral part of the environmental space in Slovakia. They consist only of reserved and non-reserved mineral deposits, including energetic prognosis mineral resources, ore, non-metallic one and those for construction industry. Usage of non-renewable mineral resources should take in account their rarity, non-renewability, respecting the level of technology and the availability of spare resources.

⁶ M. Mačala, J. Drotárová, V. Bohušová, *Environmentálne záťaž v SR*, Karlovy Vary 2012, pub. VS Karlovy Vary, p. 47.

To the most serious impacts of mining we can include: great extracted mining claims on the surface or underground and related subsidence of surface, creating of drain less depressions, activation of geodynamic phenomena (mainly slope deformations), drainage geological complexes, reducing the yield of the water resources, the accumulation of large amounts of residual materials containing contaminants.

1.7 Unsustainable energy consumption

Population growth, altogether with the industrialization and modernization of society, is closely related to annual increase of energy consumption. A significant increase in energy consumption occurred in the middle of the 19th century, since when the consumption has been enormously growing and it is still rising. In 1990 it was 346,8.1024 BTU, in 2007 it increased to 495.2. 1024 BTU. Annual growth varies from -1.6% to 5.37%. The prognoses for the next development of the energy sector of EIA assume an annual increase of energy consumption by 1.4%, while the level of the energy consumption would increase to 739.1024 BTU⁷.

Energy, we use nowadays (heat, electricity, fuels), originates mainly in fossil fuels, such as crude oil, coal or natural gas. These fuels are located below surface, where they were formed over millions of years by decomposition of prehistoric plants and animals. Although they are still continuously created by forces of nature (heat and pressure), the current consumption far outweighs their formation.

The fact that they are not formed and replenished at the same pace as they are consumed can suggest that by this pace they will be soon run out. The limitation of resources is not the only threat mankind has to face. Greenhouse gas emissions created by the burning of fossil fuels are currently considered the most important cause for effort to switch to cleaner fuels and reducing their consumption all over the world.

The current main issue does not seem to be the fact that we use energy, but the way how we create and consume energetic sources. Unless we do not cover our energetic needs in different way as by burning the fossil fuels or by nuclear power, we will encounter more and

⁷ M. Blišťanová, P. Blišťan, *Možnosti zvýšenia energetickej bezpečnosti SR využitím podzemného splyňovania uhlia*, Košice 2012, pub. Vysoká škola bezpečnostného manažérstva v Košiciach, p. 161.

more problems. As our world depends on energy, we would need inexhaustible resources of energy. Such kind of resources, able to ensure the sustainable development of society, is called renewable. Moreover, these resources when used are much more cleaner for the environment than fossil fuels⁸.

1.8 Negative impact of transportation on the environment

The upsurging amount of cars is thought to be the reason of the increase of difficulties in transportation in most of agglomerations. These issues come usually from exceeding capacity of roads and intersections by cars which are in continuous motion, as well as from almost exhausted options how to satisfy needs for parking⁹. Undeniable benefits of using an individual car for its driver are in contrast to the negative consequences on society, such as requirements for a large space for construction, air pollutants, noise and accidents. Almost any large city is failing to meet these needs completely. Transportation sector as a whole has a negative impact on all components of the environment (air, water, soil, fauna and flora). Air is the most impacted component by the influence of combustion of hydrocarbon fuels engines of vehicles. In the combustion process, there are created toxic or carcinogenic substances and other which contribute to global warming of the Earth. Negative impacts of transport: consumption of natural resources - production, fuel, land use - building of transport infrastructure, car parks, petrol stations, airports, noise and vibration, waste transport; accident rate.

Emissions are considered to be the negative key factor to the environment. Means of transport produce quantities of pollutants, e.g. carbon monoxide, carbon dioxide, nitrogen oxides, sulphur dioxide, polycyclic aromatic hydrocarbons, ketones, acids, soot. These substances contaminate the environment directly from vehicles' exhausts to the atmosphere or they react with water as acid rain fall on the Earth's surface and contaminate all components of the environment. Besides, the ecological impact on the environment, they affect mutagenic and toxic to humans. The type and volume of emissions depend on the fuel used, technical design of combustion device and from the controlling of the combustion process.

⁸ E. Béd'i, *Obnoviteľné zdroje energie*, Bratislava 2001, pub. SZOPK, p. 70.

⁹ M. Majerník, M. Mesároš, M. Bosák, *Environmentálne inžinierstvo a manažérstvo*, Košice 2003, pub. VŠBM, p. 44.

Over the last several years, the progress in the production of emissions is influenced by two key factors. Firstly, it is a negative impact of the rapid growth in environmentally unfavourable road transport, particularly in individual automobile transport. Secondly, by its constantly growing performance and fuel consumption, which reduces the effect of introduction of a new generation of environmental and energy more favourable vehicles.

1.9 Nuclear power production

The production of nuclear power does not only include operating reactors, but the entire nuclear cycle including uranium mining, its processing, transport, production of fuel cells, as well as handling the exhausted nuclear fuel, or other materials and wastes that are created during this process. Each from these processes represents high risks for the health of population and for the environment and may threaten environmental security particularly in the case of an incident, which may result in explosion, fire or eventually radioactive contamination.

Nuclear power raises serious strategic risks of fraud of technology and nuclear materials for the purpose of military use. Spreading of nuclear technologies inevitably increases the probability that they can get to the wrong hands. Nowadays, several countries have already developed their own military nuclear arsenal by using the nuclear power technologies applied for peaceful use. Over the last years, the risk of international terrorism has become the most current, as there is no reactor built which would be able to sustain a crash of a big commercial airliner.

Spent nuclear fuel is thought to be one of the most dangerous materials in the world and likely the most dangerous waste produced by man ever. Its long lasting and strong radiation, toxicity and risk of abusing for constructing of the nuclear weapons bring a big risk either for the environment or for a human health¹⁰. Spent nuclear fuel, partially burned in a nuclear reactor, is in the most cases stored at the reactor site where it was produced and stays there waiting for a “definitive” solution. In fact, deep geological repositories are the only solutions offered by nuclear industry so far.

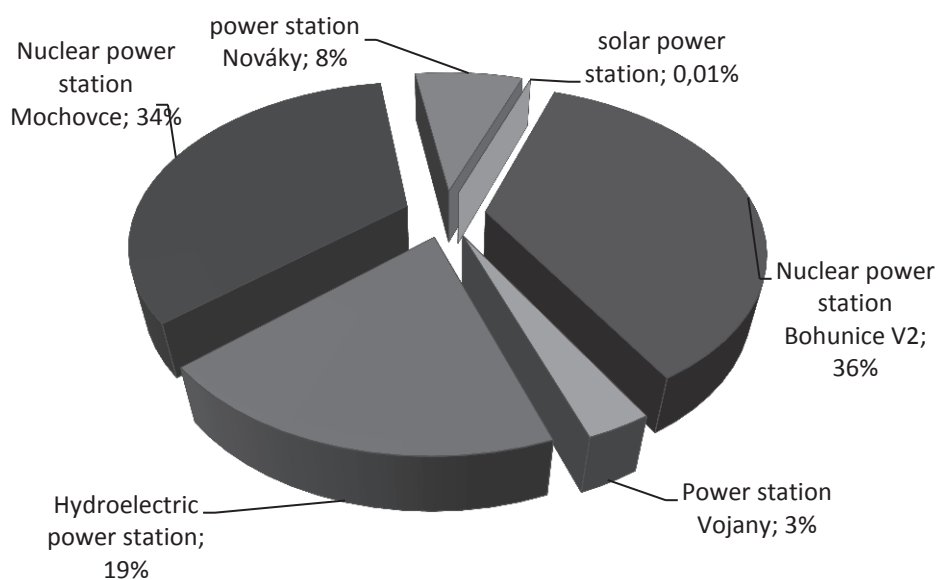
Based on fears of a nuclear accident, a wave of resistance against the use of the nuclear power has surged in many countries all over the world. The most serious one at Chernobyl or the last one at Fukushima have

¹⁰ <http://www.greenpeace.org>

emerged these fears of radiation, the risks associated with their operation and problems of nuclear waste. In Austria, Sweden and Italy even referendums were held resulting in giving up of the use of nuclear energy. There are also voices in favour of nuclear power arguing that nuclear energy is the only possible solution to the looming energy crisis and global warming, because it does not produce large amounts of greenhouse gases. They see nuclear power plants as one of the few ecologically acceptable and realistic solutions of awaiting energetic problems in 21st century.

In connection to the area of environmental security, the needs of society and environmental aspects of nuclear power production should be considered due to the fact that Slovakia is currently operating two nuclear power stations in Mochovce and Bohunice, which together covered 70% share of electricity produced in Slovakia in 2012¹¹. Therefore a question arises whether there is more severe burden on the environment and impact on the comprehensive national security if electricity would be produced by other methods or nuclear power would be decommissioned completely.

Fig. no. 1. Production of electrical energy in Slovakia in 2012



Source: Slovenské elektrárne 2012 <http://www.seas.sk>

¹¹ <http://www.seas.sk>

1.10 Floods

Floods are regarded as a significant natural risk, not only thanks to its devastating impacts, but also to the size of the stricken area. They are consequences of the meteorological and hydrological extremes combined with and often influenced by a human factor. Floods affect almost all spheres of life in stricken areas and in many occasions they directly threaten human health and lives. Every year, floods cause significant financial losses in Slovakia. The average costs of loss caused by flood damage during the period 1996 - 2010 were calculated to 75.595 million. €, with the highest damage recorded in 2010, when the total costs reached 480.852 million. €. ¹²

The flood protection has never been, is not and, as it seems, will not be absolutely perfect. An effective prevention can be the possibility to minimize the impacts. The prevention of floods is necessary to understand in a wider context as group of processes in which the flood risks should be considered, such as land use planning, construction permitting, in a suitable land use, in the rational forest management and on agricultural land.

1.11 Environmental crime

The term environmental crime is generally understood as a crime committed against the environment as a whole, or against one of its components (water, soil, air, fauna, flora, forests). In several European countries, including Slovakia, environmental crime also involves food safety as well as the illegal production and possession of radioactive and nuclear materials and other hazardous substances.

The issue of environmental crime is quite comprehensive area and its each part is a subject to particular legislation. The subjects of crime against the environment refer on included in a separate head of the Criminal Code entitled "Crimes generally dangerous and against the environment". The second section defines the following offenses as:

- threatening and damaging the environment,
- unauthorized waste disposal,
- violation of water and air protection,

¹² M. Bačík, Z. Ryšavá, *Povodne, manažment povodňových rizík a povodňové škody*, Piešťany-Voda 2011, pub. Slovenská technická univerzita v Bratislave, p. 167-173.

- violation of the protection of flora and fauna, including trafficking endangered species of flora and fauna and illegal logging outside official forest resources,
- violation of the protection of trees and shrubs growing in the official forest resources,
- spreading of infectious animal and plant diseases,
- launching of genetically modified organisms,
- poaching.

Committing environmental crime often goes hand in hand with another crime, for example: fraud, corruption¹³, abuse of authority, etc. Extent of environmental crime is defined by the Regulation of Ministry of Interior on the procedure to prevent, detect and record of environmental crime, in identifying the offenders. In its investigation and shortened investigation. Under this Regulation, the environmental crime is also considered a crime of illegal production and possession of nuclear materials, radioactive substances, highly dangerous chemicals and high biological agents and toxins, endangering the health harmful foods and other needs, animal cruelty and theft of timber from official forest resources including timber already harvested¹⁴.

2. Significance of environmental education

Environmental education and guidance is considered to be an important means of ensuring environmental awareness. A progressive deterioration of the environment due to the human activities in the past but also at the present time is actually connected to the relatively low level of environmental awareness of man. Globally, it is possible to slow down this deterioration process at a low cost by increasing of the awareness. Already in 1972, Stockholm Conference on Environment pointed on the need to increase the environmental awareness of people (Principle No.19 of the Stockholm Declaration).

It is necessary to realize that the condition of the environment and sustainable development, both depend on the particular individual and not just on the large companies and organizations and their operations. Environmental education is not only about increasing the skill levels of

¹³ J. Dworzecki, J. Szymczyk, *Kryminologia. Wybrane zagadnienia*, Gliwice 2010, pub. GWSP, p. 189.

¹⁴ <http://www.minv.sk>

employees working in the area of the environment protection, but also about manufacturing companies, which are also responsible for compliance with environmental legislation. It is essentially to take it as an effective education system of shaping environmental awareness and attitudes to environmental behaviour and to the actions in the context of life-long learning from pre-school education to the economically active people. Environmental education should be focused on every age group as well as social group of the population. At his or her earliest age, a child should already know about the uniqueness of nature and the need for its protection. Therefore, environmental education is also being instituted in primary and nursery schools. It is also necessary to ensure the continuity and coherence of the various stages of education due to its higher efficiency. It implicates that in terms of educational and learning potential, the most important school system is that one, which consists of pre-primary, primary, secondary schools and universities, universities of the third age, educational institutions managed by universities, methodical centers, institutes of further education and similar.

The fundamental educational material for pre-school education is the "Program of educational work in nurseries and kindergartens" that is focused on the issue of creation of the child's relationship to the environment from various aspects. An analytical learning about the natural and social reality is spread at primary schools as it is included in several subjects such as Science, Biology, Geography, Physics, Chemistry, Civil Education and Ethics. At gymnasiums and other secondary schools, environmental education and guidance is included in the following subjects: biology and geography both are focused on nature and landscape protection and health protection. Finally, universities are in a dominant position to prepare professionals, scientific and educational staff-ecologists and environmentalists. Attention is also turned to the education of specialists in natural, technical and social sciences, who during their graduate studies can acquire the necessary knowledge in the environmental area for their further career. In Slovakia, there are several reasons in favour of an intensive and extensive development of the education of experts in environmental area.¹⁵ Firstly, there is the high environmental debt of Slovakia. Numerous environmental problems which have not been handled for a long time require hundreds of millions

¹⁵ M. Majerník, M. Mesároš, M. Bosák, *Environmentálne inžinierstvo a manažérstvo*, Košice 2003, pub. VŠBM, p. 6.

of Euros (the environmental debt) and a range of experts who will be able to deal with them effectively.

The way of environmental science teaching in schools is based on the development of general knowledge of the biosphere, pedosphere, atmosphere, hydrosphere, and lithosphere and with associated knowledge from areas of chemistry, mathematics and physics. This knowledgebase is then followed and extended by close environmentally oriented courses and further specialization according to the interests of students. Out-of-school environmental education is mainly implemented by the state budgetary and subsidized organizations of the particular ministries covering areas such as the environment, culture, health, then as well as by cultural and educational facilities, system of museums, galleries and libraries, citizen associations and similar.

Conclusion

Environmental education is an important part of the whole complex of education at schools including universities. Its improvement and increasing its efficiency is a multidisciplinary and interdisciplinary problem requiring systematic and permanent solution based on research as well as on the recent developments and other projections. Environmental approaches are currently considered as one of the starting points of the economic strategy. New environmental legislation of the European Union and the Slovak Republic, as well as the restructuring of the economy creates the need of environmental quality demonstrating, which becomes an existential necessity for organizations. Education in the area of nature protection, environment, relations between man and the environment is constantly advancing. The need to recognize preciousness of nature should be taught at the earliest possible age, so environmental education is already implemented in kindergartens and primary schools.

Literature

- [1.] Bačík, M., Ryšavá, Z., *Povodne, manažment povodňových rizík a povodňové škody*, Piešťany-Voda 2011, pub. Slovenská technická univerzita v Bratislave.
- [2.] Béd'i, E., *Obnoviteľné zdroje energie*, Bratislava 2001, pub. SZOPK.
- [3.] Blišťanová, M., Blišťan, P., *Možnosti zvýšenia energetickej bezpečnosti SR využitím podzemného splyňovania uhlia*, Košice

- 2012, pub. Vysoká škola bezpečnostného manažerstva v Košiciach.
- [4.] Dworzecki, J., Kochańczyk, R., *Współczesne zagrożenia*, Gliwice 2010, pub. GWSP.
- [5.] Dworzecki, J., Szymczyk, J., *Kryminologia. Wybrane zagadnienia*, Gliwice 2010, pub. GWSP.
- [6.] Dworzecki, J., *Systém krízového riadenia v Pol'sku*, Košice 2012, pub. Multiprint.
- [7.] Mačala, M., Drotárová, J., Bohušová, V., *Environmentálne záťaž v SR*, Karlovy Vary 2012, pub. VS Karlovy Vary.
- [8.] Majerník, M., Mesároš, M., Bosák, M., *Environmentálne inžinierstvo a manažerstvo*, Košice 2003, pub. VŠBM.
- [9.] Pado, R., *Horúca planéta – globálne klimatické zmeny*, Liptovský Mikuláš 2003, pub. OZ Tatry.
- [10.] Virčíková, E., Palfy, P. *Environmentálne manažerstvo teória a metodika*, Košice 2007, pub. VŠBM.

Internet

- [1.] <http://www.greenpeace.org>
- [2.] <http://www.seas.sk>
- [3.] <http://www.minv.sk>

ZNACZENIE EDUKACJI EKOLOGICZNEJ W KONTEKŚCIE PODNIESIENIA ŚWIADOMOŚCI SPOŁECZNEJ O POTRZEBIE OCHRONY ŚRODOWISKA NATURALNEGO

Streszczenie

Opracowanie koncentruje się na ocenie znaczenia edukacji ekologicznej, jako jednego z komponentów, wpływających na aktualny stan ochrony środowiska naturalnego. Edukacja ekologiczna sukcesywnie zyskuje na znaczeniu, co wynika ze wzrostu świadomości społecznej, coraz częściej skoncentrowanej wokół zagadnień z zakresu ochrony środowiska. Do tego typu dynamizacji aberracji poznawczej społeczeństwa, przyczyniają się zwłaszcza sytuacje kryzysowe, m.in. klęski żywiołowe, katastrofy przemysłowe, komunikacyjne, budowlane. Wiodącym elementem rozważań, którym poświęcono niniejsze opracowanie, jest zidentyfikowanie najpoważniejszych zagrożeń wpływających bezpośrednio na stan środowiska naturalnego, a następnie przeanalizowanie dotychczas realizowanych zagadnień w ramach edukacji ekologicznej, wskazanie najlepszych rozwiązań i praktyk, które na wszystkich szczeblach edukacji są realizowane na terenie Republiki Słowackiej.

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Słowa kluczowe: *edukacja ekologiczna, problemy ochrony środowiska, środowisko, bezpieczeństwo*