

LEGAL PROTECTION OF LAND FROM POLLUTION*Zdravko Petrović¹, Dragan Manojlović², Vojislav Jović³***Abstract**

Situated in the study conducted in this paper; using the method of analysis of contents, induction and deduction, historical and legal dogmatic indicated that ecology as their object of legal protection has three global natural values: air, water, land, and atmosphere, hydrosphere and lithosphere as constituent elements of the biosphere. Land as a special natural product comprises a solid layer of the Earth that is specific to the biosphere. The importance of land from the perspective of sustainable development is multifaceted, especially when seen through its environmental, industrial, manufacturing, socio-economic, educational, scientific, cultural, historical and any other useful functions. Its most important function is to fertility and the ability to flora supplying water, oxygen and mineral substances. Natural processes that led to the creation of land argue the view that it belongs to the so-called renewable resources, but only if it's a man rational use and encourages their natural reproduction. In accordance with current legislation and categorization of land, this survey includes agricultural land. In this paper, we have opted for ecological and legal land protection as one of the most important natural resources whose quality and extent of a very significant impact on the environment as a whole. The introductory part of the paper included a terminological demarcation and specificity of the case study of environmental law, as well as the possible forms of soil pollution. Methodological framework of research, using the method of content analysis of existing domestic and international legal legislation, method comparison and synthesis were studied legal documents that protect the land from pollution.

Key words: *environmental law, environment, land, legal protection, national and supranational regulations.*

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Introduction

Modern legal theory, since the second half of the last century, has introduced in the legal framework the 'ecology - living environment' as object of legal protection and its *ratio legis* is to 'regulate the behaviour of man in nature'. Terminological and essential dilemma regarding the question what is the object of legal protection here: ecology - *ekos* or living - *environmental*, tried to clarify the German biologist Ernest Hekel (Odum, Barrett, 2005) in his work 'History of nature' which was published in 1866, by interpretation that ecology is a broader term than the living environment, i.e. that ecology (Odum, Barrett, 2005) includes the wholeness of perpetual interaction of living and non-living on the planet, while on the other hand, the living environment implies spatially defined environment and does not deal with the totality of mutual relations of the living and non-living. Healthy ecology, i.e. healthy living environment is the most of international community on the whole and as such, enters the system of human rights which are proclaimed within the Universal Declaration on human rights as 'the third generation rights', the so-called 'solidary rights', i.e. rights to healthy living environment. The imperative and prohibiting legal provisions determine the legal framework of human behaviour, i.e. legal basis for application of sanction, and all this is contained within new branch of law - the environmental law. Environmental law as specific legal branch is dynamic and complex legal area, which is characterized by its multi-disciplinary nature, complexity of subjects of research and methods and principles coverage. Although it is an independent branch of law, the environmental law contains elements of other branches of law, especially administrative law, international public law and criminal law, although its *diferentia specifica* is environmental-legal relation as subject of environmental law which includes very important ecological values such as: right to live in healthy environment, right to sustainable economic development, rational use of natural resources, protection of integrity of biosphere, protection from all forms of environmental pollution, availability of information on the status of living environment and participation in decision-making regarding important ecology issues, adequate education and increasing awareness in the sphere of protection of living environment, international cooperation ... and correlation of all laws is the duty of every individual to protect the living environment (Lilić, Drenovak, 2010).

Ecology has, as its object of legal protection, three global natural values: air, water and land, i.e. atmosphere, hydrosphere and lithosphere as integral elements of biosphere (Jacqueline, 2005). Land, as special natural creation, is comprised of rigid superficial layer of the Earth which is specific to biosphere. By the way, soil is created as a result of interactive action of climatic and other endogenous and exogenous factors and living organisms on the geological base of the Earth, of which animals, herbal and microorganisms have very important role. Importance of soil from the point of view of sustainable development (Kramer, 2012) is multifold, especially if it is observed through its ecological, industrial, production, social-economic, instructional-educational, scientific-research, cultural-historic and all other generally useful functions. The most important function of it is fertility, i.e. ability to supply water, oxygen and mineral substances to flora⁴. Natural processes that led to creation of soil

4 <http://www.scribd.com/doc/180847538/Zagadivanje-zemljišta-pptx>

substantiate the point of view which is ranked in so-called recyclable resources, but only if man uses it rationally and incites its natural reproduction. In keeping with valid legal regulations and land categorization, this research will include agricultural and building land, i.e. mining and geological research.

Types of Land Pollution

It is general opinion that antropogenous factors are primary in the process of land degradation i.e. in reduction of its total area. Spreading of residential areas, construction of industrial complexes and traffic routes, depositing waste, irregular irrigation and other activities that man performs on the land, have permanent influence on its degradation and pollution. Non-implementation of measures for protection of land from the influence of natural factors such as water, wind and sun heat, leads to frequent processes of erosion, especially in areas which are not covered or are partly covered with vegetation (Kiss, Shelton, 2007). Most frequent forms of land pollution refer especially to: 1) appearance of great concentration of poisonous materials; 2) creating barren soil as the result of exploitation, processing or use of mineral raw materials or industrial plants; 3) important increase of concentration of certain elements such as phosphates and nitrates; 4) concentration of toxic and other elements from industrial waste waters; 5) urbanization and industrialization of agricultural land; 6) onset of pathogenous organisms, viruses and bacteria which come from fecal water; 7) onset of radioactive and other particles of organic and inorganic origin which come from subterranean waters (McIntyre, 2007) or atmospheric precipitations. Each of the afore-mentioned forms contribute, more or less, to degradation of land as natural resource which is hard to regenerate, the degradation of which has direct influence on the condition of living environment on the whole. Degradation of land is possible under influence of natural factors (water and wind erosion) and antropogenous factors which change and impair physical, chemical and biological (O'Neill et al., 1986) properties in land profile itself. Legal protection of land by the rule includes application of administrative-legal and criminal-legal measures harmonized with international legal standards.

Protection of Land from Pollution National Legislature

Protection of land from pollution is regulated by international legal acts and national legislature. Within national legislature (Hamidović, 2012) this area is regulated by systemic laws and in principle, by provisions of the Living environment protection Act (Environment protection Act - RS Official Gazette, no. 135/2004, 36/2009 - et al. 72/2009 - other laws and 42/2011 - decision of US) and in detail by the Agricultural land Act (Agricultural land Act - RS Official Gazette, no. 62/2006, 65/2008 - other laws and 41/2009), by Mining and geological research Act (Mining and geological research Act - RS Official Gazette, no. 88/2011) and certain bylaws. Land protection under terms of these Acts includes a set of physical, chemical, technical and biotechnical measures and procedures for securing all its functions:

1) Provisions of the *Law on protection of living environment* stipulate protection of soil and land, which as part of integrated protection of natural values is protected by measures of

systematic monitoring of land quality, monitoring indicators for assessment of risk from land degradation and by conducting remedial programme for removing consequences of contamination and degradation of land space, no matter if they happen naturally or as a result of human activity. General provisions stipulate duty of the subject whose right of use of land terminated due to change of holder of that right, and whose activity influenced, or could influence or hinder natural functions of land, to make a report regarding land condition. Programme of systematic monitoring of land quality, indicators for evaluation of risk from land degradation and methodology for making remedial programmes are stipulated by Government Decree (RS Official Gazette, no. 88/2010) and competent Minister prescribes the content and methodology of making a report regarding land condition. According to the Decree, the programme of systematic monitoring of land quality includes: 1) number and layout of localities, position of monitoring spots shown by Gauss – Kruger coordinates; 2) list of parameters to be gathered in spots of land sampling; 3) list of methods and standards which are used for land sampling, analyses of samples, processing and presentation of data; 4) determining expert accredited institutions to perform systematic monitoring of land quality.

Programme of systematic monitoring of land quality includes establishing state and local network of localities for monitoring land quality, of which state network refers to monitoring land quality on the level of the Republic of Serbia on localities on which land pollution occurred or might have occurred, and which are of special interest to the Republic of Serbia, while local network is established for monitoring land quality on the level of autonomous province and unit of local self-government. On selection of parameters in places of land sampling, those parameters the values of which can cause significant risk to human health and living environment are taken into consideration. Time schedule of land sampling, sample analysis, processing and presentation of data depends on reliability of analyzed parameters, their forms and concentrations in living environment, and for those reasons parameters with annual, three annual and five annual schedule of measuring are determined. All data obtained by implementation of programme of systematic monitoring of land quality are submitted to the Agency for environment protection until 31st March in current year for previous year and are used for evaluation of land quality and for making a report on land condition and they are integral part of information system of environment protection. Agricultural land includes land used for agricultural production (crop fields, gardens, orchards, vineyards, pastures, meadows, ponds, swamps and marshes) and land that can be brought for the purpose of agricultural production. According to the Census of Agriculture 2012th, in the Republic of Serbia has 631,122 farms, as follows: 2,567 households entrepreneurs and legal persons (99.6 % of the total number of farms) and 628 555 family farms. The total agricultural land use in the territory of the Republic of Serbia is 3,355,859 ha. The average family household uses 4.5 hectares of agricultural land, has a two-axle tractor and harbors: one head of cattle, four pigs, three sheep, 26 head of poultry and one colony. However, most of them are farms that used 2 ha of agricultural land. According to the “Statistical Yearbook of the Republic of Serbia in 2012”, the total agricultural area in the 2011th year, fields and gardens accounted for 64.6 %, with 4.7% of orchards, vineyards, from 1.1 % to 12.2% meadows and pastures 16.6%. The structure of

sown areas of arable land and wheat accounted for 58.0 %, industrial crops with 13.0%, Vegetables with 8.3% roughage with 13.8 % (based on the research library of the National Assembly on the topic: Ownership structure of agricultural land, 19 04 3013. pcs. Z-05/13).

Indicators for evaluation of risk from land degradation prescribed by the Decree are: 1) degree of endangerment of land from erosion; 2) degree of endangerment of land from loss of organic materials; 3) degree of endangerment of land with risk from land compaction; 4) degree of endangerment of land from salination and/or alkalization; 5) degree of endangerment of land from slides, except slides which can be created by mining activities for the duration of activities; 6) degree of endangerment of land from acidification; 7) degree of endangerment of land from chemical pollution. Said indicators are evaluated on the basis of general elements for evaluation of risk from degradation of land which include: 1) elements for identification of area with risk from erosion; 2) elements for identification of area with risk from loss of organic material from soil; 3) elements for identification of area with risk from compaction; 4) elements for identification of area with risk from salination and/or alkalization; 5) elements for identification of area with risk from slides; 6) elements for identification of area with risk from acidification.

Methodology of making remedial programmes contains: 1) type of location, quantities and concentrations of hazardous materials; 2) determining status of endangering of living environment; 3) type, load and migration of pollution in the course of time, existing and possible influences on the living environment; 4) measures which will be implemented and evidence of their purposefulness; 5) internal control measures which provide proper performance and efficiency of planned measures; 6) internal control measures which include programme of monitoring in order to monitor the course of remedying i.e. reduction of risk for human health and living environment; 7) schedule of implementation and costs of remedying. In the aim of making remedial programmes, contaminated locations are determined which include areas on which degrading or destructive processes occurred, namely: 1) waste disposal; 2) locations of business entities-operators i.e. locations the pollution of which are caused by active or inactive installations or operators in whose environment hazardous materials are disposed; 3) accident locations i.e. locations polluted due to extraordinary events, including breakdowns; 4) industrially devastated locations (*brownfield* locations) on which activities which could have contaminate land were performed. Inventory of contaminated locations presents integral part of information system of protection of living environment which is kept by the Agency for environment protection.

Surveillance over application of this Act and regulations made in keeping with the law is performed by competent ministry as part of inspective surveillance through inspector for protection of environment. In performing the inspective surveillance, inspector is authorized to: forbid discharge of polluting and hazardous materials, waste waters or energy into the air, water or land in the manner and in quantities i.e. concentration or levels above prescribed ones and to take samples of land, water, waste, air through authorized organization. Violation of legislative provisions and regulations passed on the basis of the laws is incriminated in the form of commercial offences and torts, for which a fee is

prescribed for legal entity and responsible person/physical person, which is imposed in proportion with the level of damage made, non-performed obligation or value of goods or other thing which is the subject of commercial offence, up to 20 fold amount of damage done, non-performed obligation or value of goods or other thing which is the subject of commercial offence, and also a protective measure of prohibiting performance of certain business activity in duration of up to 3 years and to responsible person, performance of certain activities in duration of up to 1 year can also be imposed;

2) Provisions of the Agricultural land Act stipulate that planning, protection, development and use of agricultural land and measures of surveillance over application of the law. Protection of agricultural land is performed on the basis of planning documents i.e. as part of accepted agricultural basis that the Government adopts for the territory of the Republic and for the territory of autonomous province in keeping with spatial and urban plans. Basic principles which apply in the sphere of protection of agricultural land pertain to: a) purposeful use of agricultural land, in such manner that agricultural land is used for agricultural production, and for other purposes only when permitted by the laws; b) prohibition to discharge and dispose hazardous and noxious materials on agricultural land, drainage and irrigation channels and prohibition of use of non-degradable foils on arable agricultural land; determining existence of hazardous and noxious materials in agricultural land and water for irrigation, on the basis of examination, according to programme adopted by competent minister who will, in case of determination of existence of hazardous materials in un-allowed quantities, Regulations on permitted amounts of hazardous and noxious substances in soil and water for irrigation and methods for their examination, provided their maximum level that can damage or change in productive capacity (fertility) of agricultural land and water quality for irrigation, the discharge coming from the factory, overflowing landfills or improper use of fertilizers and plant protection products. Catalog of hazardous and harmful substances regulated by this Ordinance include: cadmium, lead, mercury, arsenic, chromium, nickel and fluorine, as dangerous, and copper, zinc and boron, as well as harmful substances, and the plant protection products which are used for suppression weed-based triazine preparations: atrazine and simazine (Official Gazette of RS, no. 23/1994) forbid or restrict production of agricultural cultures on that land, as well as use of water for irrigation; c) undertaking anti-erosion measures which imply: temporary or permanent prohibition of ploughing meadows, pastures and other surfaces in the aim of converting them into arable fields with one-year crops; introduction changing of crops; growing long-term plantings; building specific civil engineering structures; adequate method of treatment of agricultural land; erection and keeping of crop-protection strips including planting long-term woody plants; prohibition of pasture for certain period of time or limiting the number of heads of cattle that can be released on certain areas of land; prohibition of deforestation or cutting forest plantings above endangered plots; and undertaking other measures in order to prevent agricultural land erosion; d) control of fertility of arable agricultural land and quantities of mineral fertilizers and pesticides entered into arable agricultural land, which is performed by the rule once in 5 years or sooner if necessary, all in the aim of protection and preservation of chemical and biological properties of agricultural land from 1st to 5th cadastral class. Cadastral land is

determined by culture and class of each parcel of arable land is carried out by municipalities, based on the natural and economic conditions of production and established the basics of land classification. According to the use plots of fertile land are classified in one of the following eight cultures: 1) field, 2) garden 3) orchard, 4) vineyard, 5) meadow, 6) pasture, 7) forest, 8) reed marshes, all the Rules of cadastral land (Official Gazette of RS, no. 37/94 and 49/94) and securing proper use of mineral and organic fertilizers and pesticides; e) prohibition of use of arable agricultural land in non-agricultural purposes, and especially arable agricultural land from 1st to 5th cadastral class, except in special cases when it is used for making artificial meadows, pastures and forests, then for exploitation of mineral raw materials (clay, gravel, sand, peat, stone) i.e. for carrying out works on disposal of slag, ashes, cinder and other hazardous materials and in other cases in which general interest has been determined; f) inability of chopping up cadastral plots of arable agricultural land into plots the area of which is less than half a hectare i.e. plots the area of which is less than one hectare of arable agricultural land as regulated by redistribution of land; g) field damage which implies prohibition of destroying or damaging crops, plantings, trees and agricultural mechanization on estates and other damages which lead to reduction of productivity of agricultural land and prohibition of burning organic remains after harvest or cattle grazing; h) protect agricultural land from frost, ice, fire and other elements, which implies obligation of the unit of local self-government to prescribe measures for protection of said factors.

Bylaws which prescribe in detail the protection of agricultural land from pollution are passed by competent minister, and surveillance over implementation of legislature and bylaws is conducted by competent ministry as part of inspective surveillance through the agricultural inspector of Republic Serbia. The inspector is authorized, among other things, to forbid discharge and disposal of hazardous and noxious materials on agricultural land and channels for irrigation in quantities which can damage and reduce production ability of agricultural land and quality of water for irrigation; to prohibit use of arable agricultural land from 1st to 5th cadastral class for non-agricultural purposes; to prohibit exploitation of mineral raw materials i.e. disposal of slag, ash, cinder and other hazardous and noxious materials on agricultural land. For violation of provisions of this Act and regulations passed in keeping with the laws, incrimination is determined in the form of tort for which a fine is imposed for business enterprise, company or other legal entity i.e. responsible person within business enterprise, company or other legal entity, as well as to the owner or user of agricultural land - physical person.

3) Provisions of Mining and geologic research Act stipulate measures and activities of mineral policy and method of its implementation, terms and method of carrying out geologic research of and other geologic resources (*Geological resources* include: space with its geological, ambiental and other characteristics, mineral resources, resources of ground waters and geothermal resources) research of geologic environment as well as geologic research for spatial and urban planning, designing, constructing buildings and land reclamation, method of classification of resources and reserves of mineral raw materials (*Geologica environment* is part of Earth crust which is consisted of: land with aeration zones and mineral feeding of plants, rocks, superficial and ground waters, mineral and other

resources) and groundwater, exploitation of reserves of mineral (*Mineral raw materials* are concentrations of mineral materials of organic and inorganic origin, which at certain level of development of equipment and technology, may be used economically, either in natural condition or after proper processing) raw materials and geothermal resources (*Geothermal resources* represent a set of recyclable geological resources that include ground waters and heat of rock masses from which it is possible to separate heat energy) building, use and maintenance of mining facilities, plants, machines and equipment, execution of mining works, managing mining waste, procedures of reclamation and re-cultivation of deserted mining facilities, as well as surveillance of enforcement of this law. From point of view of endangering land within this law, the following fields will be stressed: managing mining waste; deserted mines and mining facilities; temporary and permanent cessation of mining works; reclamation and re-cultivation; inspective surveillance and punitive policy.

Managing mining waste as potential polluter of land is performed on the basis of license for managing waste which is issued in keeping with the waste management plan and other documentation which defines category, management and reporting on mining waste. Criteria, procedure and method of making disposal, management and classification of mining waste, as well as reporting on mining waste, are determined by the Government.

Abandoned mines and mining facilities and procedures of their reclamation and re-cultivation is performed on the basis of: case study of as-found condition, mining works and facilities, as well as condition of resources and reserves of mineral raw materials and other geology resources; projects of engineering-geologic and mining research for determining technical-technological basis for making projects of reclamation and re-cultivation; project of reclamation and re-cultivation of abandoned mines and mining facilities; project of as-executed condition following completed reclamation of abandoned mines and mining facilities. Contents of case study and projects, in keeping with modern scientific achievements and rules of mining and other professions, are prescribed by competent Minister.

Permanent cessation of mining works implies the duty of exploitation-carrier (Bearer of operation is a company or other legal entity or entrepreneur where the competent authority has approved the exploitation of mineral resources and geothermal resources) to undertake all measures of protection of mining facility and land on which works were performed and measures of protection and reclamation of living environment in order to provide life and health of people and property, in all according to main mining project of permanent cessation of works. Complete mining documentation: projects, plans and sketches, survey ledgers and other documentation regarding status of mining works and status of resources and reserve of mineral raw materials at the time of cessation of works, the exploitation-carrier is obligated to hand over for safekeeping to the organ that issued approval for exploitation i.e. approval for performing mining works. This documentation is available to any business entity who is interested for restoring works on the abandoned exploitation field.

In cases of planned permanent cessation of mining works, exploitation-carrier is obligated to make a programme for mine closing, which beside other measures contains: reclamation and re-cultivation of land on which exploitation was made and resolving problems of protection of living environment created as a result of mine closing.

Reclamation and re-cultivation in the course and upon completion of works on exploitation i.e. at latest within one year from completion of works on areas on which works are completed, implies duty of exploitation-carrier to make re-cultivation of land according to re-cultivation project i.e. to undertake steps for protection of land on which works were performed and steps for protection and reclamation of living environment and waters, for safety and health of people and safety of property, all in keeping with the procedure, conditions and method of making reclamation and re-cultivation which is prescribed by competent minister. It is of importance to point out that in keeping with the principle 'the user pays', exploitation-carrier is obligated to pay certain fee for geologic research and for use of mineral raw materials and geothermal resources. Amount of fee and method of payment are determined by special document which is issued by competent minister.

4) Provision of the Chemicals Act (RS Official Gazette, no. 36/2009) among other things, stipulate integrated management of chemicals, classification, packaging and marking of chemicals, integral register of chemicals and register of chemicals which are placed on the market, limitations and restriction of production, putting on the market and use of chemicals, import-export of certain hazardous chemicals, permits for performing marketing activities and permits for use of very hazardous chemicals. This Act implicitly stipulates protection of land from pollution through protection of living environment, especially by application of principles of caution i.e. principle that producer, importer or end user produces, puts on the market or uses chemicals in the manner which has no side effects on health of people and the living environment. Important provisions of this Act pertain to the List of substances that cause concern in the register of chemicals, which are scientifically proven as causing significant consequences to health of people and living environment (Chemicals Agency issued je 2011. The list of substances of concern, which according to the classifications and properties classified as category: highly-persistent very bio-accumulative-vPvB) as well as provisions which pertain to limitations and restriction of production, putting on the market and use of chemicals which present unacceptable risk to health of people and living environment.

Criminal law protection of living environment includes (Vrhovšek, 2007) incriminations prescribed as part of 18 criminal offences classified in unique Chapter of Penal Code. From standpoint of protection of land from pollution, its criminal-legal protection (Rakočević, 2011) is, by the rule, exercised by means of general criminal offences against living environment and criminal offences in connection with hazardous materials (Jovašević, 2011). In general criminal offences by which land is directly or indirectly polluted, are classified: 1) Pollution of living environment by which land is polluted by violation of regulations to greater or lesser extent or in broader area i.e. is left in such condition so that it represents a danger to life and health of people and survival of herbal and animal population. Performance action can be made by discharge of waste water into soil, by spilling hazardous chemicals and other substances on land, by disposing and storage of hazardous materials on the land etc. If by said

actions the soil is polluted in such extent the result of which was destruction or damaging of herbal or animal population to great extent or if pollution is of such nature that for its remedy long time or big expenses are required, the criminal offence gets a qualified form; 2) Non-performance of measures for protection of living environment, implies non-performance i.e. failure to undertake protection measures laid down by the laws or by decision of competent authority, because of which pollution of land occurred, i.e. if land is polluted in great extent or in broader area. Non-performance i.e. failure to perform protection measures makes this offence consummated, no matter if the consequence actually occurred or was manifested in the form of abstract danger; 3) illicit building and commissioning of installations that pollute living environment, represents a form of incrimination which in illicit manner, contrary to regulations is allows construction of buildings and installations, their commissioning or use or change of technology, by which land is polluted to large extent or in broad area, or resulting in destruction or damaging of herbal or animal population to great extent, i.e. if land is polluted in such extent that for its remedy long period of time or big costs are required; 4) damage of buildings and equipment for protection of living environment, implies damage, destruction, removal or otherwise rendering unusable the building or equipment for protection of living environment (egg. land decontamination equipment, containers for storage of hazardous waste, etc.), because of which land is polluted to large extent or in broad area occurred or might have occurred. Damage implies partial destruction of structures and equipment by which in certain extent is reduced their useful function, while by destruction they are left in completely unusable condition. As part of incrimination in connection with hazardous materials, land can be polluted by exercising the very being of criminal offence: by bringing hazardous materials to Serbia and prohibited processing, disposal and storage of hazardous materials, which include radioactive or other hazardous materials and hazardous waste which are illicitly brought to Serbia, or transported, processed, disposed, collected or stored, because of which pollution of living environment or land can occur or has occurred. All afore-said criminal offences (Lukić, 2012) beside its basic form, have a qualified form too, which is created if by performance action herbal or animal population is destroyed to large extend or living environment is polluted to such extent that for its remedy long period of time or big costs are required.

International legal standards

Modern concepts of international ecological protection (Ole et al., 2009) of the environment start in the second half of the last century, by passing very important international legal acts (Fitzmaurice, 2009) of which following are to be noted:

1) Declaration of UN on living environment - Stockholm Declaration which was adopted in 1972 in Stockholm. This Declaration contains 26 basic principles which, among other things, proclaim right of a human being to adequate living conditions in the environment the quality of which enables decent life and well-being, i.e. obligation that natural resources, water, air, land, flora and fauna, be protected by careful planning of protection in the aim of well-being of current and future generations.

2) Rio Declaration, prepared in UN conference on living environment and development in Rio de Janeiro, modern concepts of international environmental law Ecological start in the second half of the last century, the adoption of a very important international legal acts, among them in 1992, which contains 27 basic principles which, among other things, proclaim the right to healthy and productive life in keeping with the nature, and that human beings are in the focus of care for sustainable development, and that protection of the environment should be observed as integral part of achieving sustainable development and not separately from it. In addition to Rio declaration, on this conference were adopted other very important documents such as: Agenda 21 as global action plan of sustainable development, which includes four global areas among which is protection and management of natural resources; draft Convention of UN on climate changes (RS Official Gazette - International Agreements, no. 2/1997) which regulates among other things, for member countries in the extent in which it is possible, the establishment of system of protected areas or areas in which special measures should be applied in the aim of preserving biological diversity, enhancement of protection of ecosystem and natural habitats etc. (RS Official Gazette - International Agreements, no. 2/1997) and Convention on biological diversity, which regulates preserving biological diversities, ecosystems and natural habitats, i.e. maintaining and restoring populations and species in their natural environment.

3) Stockholm Convention on long-term organic polluting materials, prepared in Stockholm on 22 May 2001 took effect on 17th May 2004 which Serbia signed in 2002 and ratified in 2009 (RS Official Gazette, no. 36/2009). This Convention protects land from pollution in most specific manner, by recognizing the fact that long-term organic polluting substances have toxic properties, they are not easily degraded, they are bio accumulative and they are transferred through the air, water and migratory species, across international borders and then sediment far away from the place where discharged and then accumulated in land and water ecosystems. This convention promotes, as its *ratio legis* the limitation or prohibition of production, export-import, use and emission of very toxic materials classified in the category of long-lasting organic polluting substances, for protection of health of people and living environment on the whole. In Annexes A, B and C of the convention are cataloged chemicals to be eliminated, then chemicals with limited use and chemicals which were accidentally produced, the production of which should be limited or eliminated.

The convention in Annex D prescribes that member country which gives proposal for placing certain chemical on the list in Annex A, B and/or C, identifies the chemical according to certain parameters and gives information on given chemicals and products of its transformation, and when long-lasting character of chemicals is involved, evidence should be provided that the time of semi-disintegration of the chemical in water is longer than two months, or that the time of its semi-disintegration in land is longer than six months, or that time of its semi-disintegration in sediment is longer than six months, i.e. evidence that said chemical is sufficiently persistent, so that it justifies its consideration within this Convention.

4) Kyoto Protocol with the draft Convention on climate changes, prepared in conference in Kyoto on 11th December 1997(RS Official Gazette – International Agreements, no. EP 2014 (61) 3 (723-738)

88/2007, 38/2009 – other laws) for the purpose of reaching goal of the Convention and all legal instruments related with it, i.e. achieving stabilization of concentration of gases with greenhouse effect in the atmosphere at the level which prevents dangerous anthropogenic influences on climatic system. The Protocol, among other things, prescribes that parties involved in Annex I of the Convention, ensure that net changes in emission of gases with greenhouse effect from sources and quantities eliminated by means of subterranean basin, which are direct consequence of anthropogenous changes in use of land and activities in forestry limited to forestation, revival of forests and deforestation in the period from 1990, measured as verified changes in deposited carbon in every obligatory period, be used as measure of fulfillment of obligations for each party involved in Annex I. In addition to this, it will be decided in sessions on modalities, rules and guidelines regarding how and which additional human activities, in connection with changes in emission of gases with greenhouse effect and elimination by means of subterranean basin in agricultural land and changes of use of land and forest categories, should be added or separated from prescribed sum for Parties involved in Annex I, taking into consideration the unknowns, transparency in reporting, possibility of checking, work on methodologies of Inter-Government panels on climate change, i.e. advice that provide Assisting organ for science and technology.

5) *Arhus Conventopm* (RS Official Gazette – International Agreements, no. 38/2009) prepared on 25th June 1998 in Arhus in 4th conference ‘Living environment for Europe’, the aim of which is to contribute to protection of rights of every individual of current and future generations to life in living environment which is adequate for their health and well-being. Arhus Convention does not contain specific provisions regarding protection of land from pollution, but living environment, including land, protects indirectly by means of its three pillars which include: 1) right to availability of information regarding environment; 2) right to participation in the public in making decisions concerning the environment; and 3) right to legal protection.

6) Basel Convention of control of trans-border movements of hazardous waste and their disposal (RS Official Gazette – International Agreements, no. 2/1999) the aim of which is establishing full control of movement and disposal of hazardous waste because such type of waste is dangerous to health of people and living environment, and especially for pollution of land, because it is according to its characteristics, toxic and Eco toxic, explosive, flammable, corrosive, infective. From point of view of land protection from pollution with hazardous waste, of special importance is the operation of its disposal which does not allow regeneration, recycling, processing, direct reuse or alternative use of source, especially because this method of disposal includes by Convention some of the following operations: 1) disposal in/on land (burying in land); 2) preparation of land (biodegradation of liquid waste or sludge discharged into soil); 3) deep injection (injection of waste which can be pumped into wells, salt domes or natural depositories); 4) superficial basins (placing liquid or sludgy waste into pits, ponds or lagoons); 5) specially built spaces under surface of the earth (placing in concrete cells which are covered or isolated from each other and from environment); 6) discharge in a water mass; 7) incineration on soil; 8) permanent storage (placing of containers in mine); 9) mixing before subjecting it to some of the said operations; 10) repacking before subjecting it to some of

the said operation; 11) storage, observing any of afore-said operation. In keeping with these international legal standards, the Environment protection Act forbids import of hazardous waste i.e. permit for its import, export or transit is issued by competent ministry, which prescribes conditions which must be fulfilled by professional organizations for examining waste. Waste management Act (RS Official Gazette, no. 36/2009 and 88/2010) stipulates that managing waste is conducted in the manner which ensures less risk of endangering life and health of people and living environment, among other things, by control and measures of reducing pollution of water, air and land (Čavoški, 2011).

European legislature does not contain unique criteria for defining quality of land, although importance of monitoring condition of land is stressed by implementing the 6th action programme of EU for the environment, entitled: 'Living environment 2010 our future, our choice' by which the importance of protection of land is equaled with protection of water and air. Legal standards of European Union in the field of protection of living environment are connected, by the rule, with secondary sources of law, i.e. with directives as most frequent legal sources in the field of environmental law, while in the Agreement on functioning of EU (Bjelajac et al., 2011) as primary source of law, living environment is treated within environmental action programmes as one of the four priority areas.

Conclusion

When talking about the environmental-legal protection of land or living environment in general, special attention is paid to administrative-legal and criminal protection. Administrative-legal protection is defined by systemic laws which, as form of incrimination by rule prescribe, commercial offence, protection measures and/or tort and in special cases the criminal offence too, while criminal-legal protection is stipulated by provisions of Penal Code within 18 criminal offences ranked in unique 24th Chapter of law. It seems that in the sphere of application of systemic laws, biggest problem is irregular and inadequate control and supervision in enforcing law, which is a topic for detailed analysis and research, while in application of criminal-legal provisions, apparent problem is incompetence, lack of proficiency and incompleteness of certain expertise on which by the rule is founded the court decision on specific criminal matter, as well as vague legal framework of subject of legal protection, which poses special problem in proving qualified forms of criminal offences. In fact, proving large number of criminal offences against the living environment is founded on the finding and opinion of court experts or authorized institutions. Providing material evidence which is available in the form of trace and/or object of criminal offence is indisputable by the rule, however in the procedure of proving guilt which is founded on the minutes of expertise, the outcome of the proceedings is uncertain by the rule or most often is ended in terminating the criminal proceedings, as attested by certain statistical analyses. In the aim of overcoming possible problems, it is necessary to provide broader education of representatives of legislative authorities and organs of preliminary investigation in the field of environmental law, as well as adequate selection of experts and accredited expert institutions to conduct expertise in certain criminal matters.

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PРАВНА ЗАШТИТА ZEMLJIŠTA OD ZAGAĐENJA

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Rezime

Nalazi u istraživanju koje je izvedeno u ovom radu primenom metoda analize sardžaja, indukcije i dedukcije, istorijskom i dogmatko pravnom ukazali su da ekologija za svoj predmet pravne zaštite ima tri globalne prirodne vrednosti: vazduh, vodu i zemljište, odnosno atmosferu, hidrosferu i litosferu kao sastavne elemente biosfere. Zemljište kao posebna prirodna tvorevina obuhvata čvrsti površinski sloj Zemlje koji je specifičan za biosferu. Značaj zemljišta iz aspekta održivog razvoja jeste višestruki, naročito ako se sagledava preko njegove ekološke, industrijske, proizvodne, socijalno-ekonomske, vaspitno-obrazovne, naučno-istraživačke, kulturno-istorijske i svake druge opštekorisne funkcije. Njegova najvažnija funkcija jeste plodnost, odnosno sposobnost da floru snabdeva vodom, kiseonikom i mineralnim supstancama. Prirodni procesi koji su doveli do nastanka zemljišta argumentuju stanovište koje ga svrstava u takozvane obnovljive resurse ali samo pod uslovom da ga čovek racionalno koristi i podstiče njegovu prirodnu reprodukciju. U skladu sa važećom zakonskom regulativom i kategorizacijom zemljišta, ovo istraživanje obuhvata poljoprivredno zemljište. U ovom radu opredelili smo se za ekološkopravnu zaštitu zemljišta kao jedne od najvažnijih prirodnih vrednosti čiji kvalitet i stepen zaštite veoma značajno utiče na stanje životne sredine u celini. Uvodni deo rada obuhvatio je terminološka razgraničenja i specifičnost predmeta izučavanja ekološkog prava, kao i moguće oblike zagađivanja zemljišta. Metodološkim okvirom istraživanja, primenom metoda analize sadržaja postojeće domaće i inostrane pravne legislative, metodom komparacije i sinteze istraženi su pravni akti kojima se štiti zemljište od zagadjenja.

Ključne reči: ekološko pravo, životna sredina, zemljište, pravna zaštita, nacionalni i nadnacionalni propisi.

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