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CONSIDERATIONS REGARDING RURAL LANDSCAPE AND BIODIVERSITY PRESERVATION

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Abstract: The landscape represents a defined zone in a specific area, formed during time by the interaction between physic environment, biotic environment and human activity, which state reflects the society organization and development.

1. Landscape and its characteristics

The Landscape European Convention, that took place in Florenta in 20th of October 2000, defined the landscape as apart of the territory as it is perceived by the population, which characteristics results from the action of the natural and/or antropic factors and from their interaction. The landscape represents a part of the local culture and is a fundamental compound of the cultural patrimony and natural environment, thus contributing to human being evolution and to regional and national identity.

Romanian Government, by the Emergency Ordinance no. 236/2000 regarding the protected natural areas regime, defines the natural environment as an ensemble of the physical and geographical, biological, and natural biocenotic components, structures and processes, terrestrial and aquatic, having the intrinsic quality to preserve life and to generate the necessary resources for it. The natural patrimony is defined as the ensemble of the physical and geographical, floral, faunal and biocenotic components and structures of the natural environment, which importance and ecological, economic, scientific, biogenic, health, landscaping, relaxing, historical and cultural value have a significant relevance with respect to biological, floral, faunal diversity preservation, to ecosystems functional integrity, to genetic, vegetal and animal patrimony preservation and to life, well-being, culture and civilization requirements fulfillment of the present and future generations.

As an element of the natural environment and patrimony, the landscape can be defined as being the image of a specific territory as it is perceived by the observer who watches from the site. It is ascertained that the same landscape is not perceived in the same way by different persons due to the general and particular personal degree of education.

2. Natural landscape degradation by antropic activities

The physical parts of the natural landscape represent indispensable resources for society
development: land and water are the main agricultural production means, forests are wood source for different uses, meadows are a very valuable fodder source, underground minerals are the base of the industrial activity etc.

The explosive economic and social development, characterizing the past century, determined often an abusive exploitation of the natural resources, which result was intense

degradations, sometimes irreversible, of the natural landscape. The increase of the released noxa volume in the big cities and industrial centers, which overcome the de-pollution natural capacity of the atmosphere, is added and thus stress the environment degradation.

Inter-governmental Jury Report with respect to climate changes (IPCC) appreciates that Earth temperature will grow with 1.4-5.8°C till the end of 21st century, due to greenhouse effect.

However, some specialists consider that global warming will result in the decrease of the water vapors quantity in the atmosphere, fact that will lead to the reduction of the greenhouse effect and thus, the global temperature will decrease. We mention that the water vapors in the atmosphere take part to the greenhouse effect increase.

From the beginning of the industrial era, it has been ascertained that some gases grown their weight in the atmosphere composition: carbon-dioxide (CO2), methane (CH4), nitrogen oxide (NO2), ozone (O3), chloride -fluoride hydrocarbons (CFC). It is estimated that CO2 contributes in a proportion of 60% to the global warming phenomenon and that CO2 emissions have to decrease under 60%-80% of the level in 1990. In this purpose, Kyoto Protocol proposes to developed countries to reduce CO2 emissions with 5.2% of the level in 1990, until 2012. CO2 emissions resulted from oil and natural gas use, which produce about 82% of CO2 antropic emission, methane (resulted from mining, drilling for oil and natural gas, agricultural activities) represents 9% of the greenhouse gas emissions and NO2 (produced by fossil fuel burning, production and use of chemical fertilizers, some industrial processes) represents about 5%.

The other gases responsible of greenhouse effect (CH4, N2O, O3, CFC) have lower concentration in the air than CO2 but they absorb more intense the infrared radiations and some accumulate themselves faster than CO2 in the air. It is estimated that the effect of these gases in the global warming process is equivalent with half of the effect owing to CO2.

The researchers consider that the present CO2 emissions should be reduced with 50% minimum, in the following 50 years, by the application of a complex of 12 measures, grouped in four categories: the increase of the fuel consumption efficiency, coal and electrical power, caption and storage of the carbon, extension of carbon low content fuels use, increase of the renewable energy resources use (wind energy, solar energy, geothermal energy etc.) and bio-conservation.

Among the consequences of the greenhouse gases concentration increase, we mention the atmosphere heating and climate changes induced by it (evaporation intensity increase, which can lead to rains volume growth with 7-11%, thus limiting the greenhouse effect, snow thawing and seas and oceans level raising).

2.1 Landscape preservation and protection

At the end of the last century, the community was sensitized as a result of the serious disequilibrium of the natural environment, caused by its overexploitation. As a result, in the 8th decade of the last century, the United Nations Organization placed among its concerns to find solutions for making possible the continuous development of the society and maintaining environment quality and its resources, by the conciliation of the economic development with the environment. The solution formulated by UNO and assumed by the heads of the states and governments who took part to the high level Rio Conference (1992) for this issue, was the application of the concept of sustainable development as a fundamental strategic element in social and economy field.

For European countries, signatory of the European convention on Landscape, landscape protection, basic part of the environment, is settled through the definition: "landscape protection consists in the preservation and significant or specific aspects maintaining actions of a landscape, actions justified by the patrimonial value given by natural and/or human intervention". In the meaning of European Convention, landscape development contents specific actions with prospective character which have in view to bring out the value, to reconstruct or to create landscapes. Landscape natural ecology maintenance assumes the study of landscape organization, its value bringing out and its evolution, together with human activities analysis in the area and their effects.

In this frame, agricultural and rural landscapes are not only production places with specific ecological functions, but also areas with strong historical and cultural dimensions, the contribution of archeology, history and anthropology being essential to define them completely.

3. Biodiversity importance for keeping natural landscape value

The future of our planet depends on the existence of genes variation and variability, species, populations and ecosystems. Food and clothes biological resources besides living places assurance, medical and spiritual needs are found in the natural ecosystems in forests and savannas, meadows, deserts, tundra, lakes, rivers and in agricultural farms, gardens, gene banks, botanic and zoological gardens, too.

The losses from world biological diversity have a continuous character, due especially to habitats destruction, overexploitation, pollution and plants and animals important uncontrolled interposition. The human activity, by its specific degradation forms of the environment, is added to all these losses.

Biological diversity means living organisms variability in the frame of all ecosystems: terrestrial, aquatic, in air or other specific environment. It consists the planet biological resources, represented both by whole organisms or part of them and populations or any other ecosystem behavior with present or future use or value.

3.1. Global and regional vegetal diversity preservation

The Convention on biological diversity, adopted in 1992, represents the global legislative frame for genetic diversity preservation, intra-specific, of species diversity and of ecological systems diversity. The vegetal diversity with all its approaching levels is also included here.

Because the plants have a fundamental position in the global ecosystem, on which depends the rest of the biodiversity, the need of a global strategy elaboration for plants preservation has appeared. This global strategy was adopted in 2002 in Haga, as a part element of the Convention on biological diversity. The global strategy for plants preservation has 5 major objectives:

- scientific valuation and evidence gathering regarding the biological diversity, by existent species stock-taking, preservation stage appreciation of the known species and working-out recommendations with respect to plants preservation and their sustainable use;
- plants diversity preservation which have to assure that at least 10% of each ecological region type to be preserved, 50% of the most important plants preservation areas to be protect, the vegetal diversity preservation to be provided

on minimum of 30% of the cultivated lands, 60% of the disappearing threatened species to be preserved “in situ” (within the ecosystems and natural habitats they live);

- 70% of the cultivated plants genetic reserve to be preserved in the same time with its local capitalization;
- sustainable use of the biological diversity by such an operation management which should put in no danger any of the spontaneous species;
- promotion and dissemination of the biological diversity role;
- development of the necessary infrastructure for biological diversity preservation processes, by the increase of the number of specialists involved in the development and application of the policy regarding biodiversity preservation and making-up of a national and regional network having this objective.

The European strategy for plants preservation includes a complex of derived measures from the global strategy, among which we mention:

- drawing up of an European Red List of the vascular plants, bringing up to date of the bryophytes list and making a preliminary list for lichens and macro-mycetes;
- promotion of the national programs for the identification and monitoring of the species on the fast wane;
- stocking in the genes banks of 80% of the genetic diversity reserve, minimum;
- “ex situ” preservation of at least 12 bryophytes species;;
- monitoring of the relation between sustainable agriculture implementation and European level preservation of the plants;
- promotion of the Water Quality Directive implementation;
- bringing up to date of the data regarding the invasive species;
- development of some efficient, sustainable practices for the use of the medicinal herbs or any other important plants for human society.

The Convention on biodiversity, debated at the high level Conference in Rio de Janeiro (1992), ratified by more than 170 countries, foresee the need of the sustainable biological resources use, by permanent restoration of the biological potential and the limitation of these resources exploitation at the natural regeneration capacity limit, by implying the local human population in the biodiversity preservation, by applying some specific measures in research and education field, by the valuation of the impact on the environment caused by the antropic activities, by international cooperation, NGO involvement and adequate financing.

The rural area preservation supposes to set up protected areas, which represent a land and/or sea section, specially acknowledged both for biological diversity protection and keeping and for associated natural and cultural resources and managed by efficient means. In such an area, the main objectives of the management are scientific research, wild species protection, species and genetic diversity protection, ecological functions conservation, tourism and relaxing, education, natural ecosystems resources sustainable use, cultural features and local tradition protection.

Protected areas are sorted in 4 categories, depending on their specific management:

- Integrated Natural Reservation/ natural wild area – protected area managed mainly in scientific purposes or to protect wild resources;
- National Park – protected area managed mainly to preserve the ecosystems and with entertaining purposes, is defined as a terrestrial and/or marine natural area;
- Natural Monument – protected area managed mainly to preserve the specific natural forms;

- Habitat or species management area.

3.2. Wetlands importance to the biodiversity conservation

In this frame, the matter of wetlands capitalization, as base for various specific ecosystems existence, acquires a special importance.

Natural or artificial, permanent or temporary water bog surfaces, moors, peat bogs, where the water is stagnant or flowing, fresh, briny or salted, including the sea water areas which depth not exceeded 6 meters at back flow, are considered wetlands.

In Romania an area of 1107080 hectares has been identified as wetlands, of which 269080 hectares refer to interior wetlands.

The conception regarding the relation between man and wetlands has evolved radically. If, no long time ago, it has been considered that these areas have no economic value and they have to be developed for fishery, agriculture or forestry, today this problem approach must be done having in view the concept of the natural biodiversity preservation, as a chance to maintain the natural biological patrimony taking into consideration the sustainable development of the human society.

Wetlands represent refuges for numerous plant species which find, only in such places, optimal conditions for surviving and growing. The classical example is that of the peat bogs (oligotrophic bogs) in mountains area. Here, there are plants adapted to cold and wet climate or endemic plants (with very restrictive spreading area) etc. Such sites represent centers of the spreading of these species in case of climatic factors changes. Wetlands are places for reproduction, feeding, wintering etc. for numerous aquatic and semi-aquatic animal species.

The vegetal resources of the wetlands are exploited by different methods, depending on plants type. The grass vegetation in wetlands is rich even in dry seasons, so the grazing last almost all year. The submerse and immerse plants is capitalized through the commercial network based on aquaristics.

The fish stock exploitation in the natural waters is achieved by traditional or industrial methods.

4. Biodiversity in field crops farms

The biodiversity problem on agricultural lands is subjected to contradictory approaches.

Thus, some ecological concepts consider that in a crop, except cultivated plants also spontaneous, flora plants have to exist in order to keep the biodiversity in the natural state, as close as possible, giving up to the ecological notion of mono-crop, which defines an ecosystem where a specific plant is dominant, that plant which is cultivated.

The modern performing agriculture is based on the existence of the crops without weeds, destroyed by agricultural techniques or specific treatments, thus removing the unproductive water and nutritive substances in the soil consumption. In this frame, biodiversity refers to the sort of the plasticized crops. It is estimated that a reduces sort of crops result in the input increase, necessary to support a high level production and their vulnerability to less favorable environment conditions and to diseases and pests attack.

Today, in Romanian agriculture a small number of crops are used, wheat, corn and sunflower being dominant. At some crops – sugar beet, vegetables for food and fodder beans, textile plants – the areas they are cultivated are under the internal consumption need.

An optimal structure of the crops in a farm results from the observance of the following proportions among crops: 25% stow grains, 25% corn and sorghum, 255 vegetables and industrial plants and 25% fodder crops. This culture structure needs the organization of some stable cropping-systems, where crop-rotation has to be consistently survey, the use of chemical fertilizers and pesticides has to be reduced. The quality and health of the products must be guaranteed by the crop technique used and the land preservation and environment protection must be assured in the sustainable agriculture meaning.

The biodiversity ascertaining in agriculture must take into consideration the use of the genetic modified organisms. An alive organism, genetic modified, is defined, by the Cartagena Protocol regarding biodiversity, as being any organism which possesses a new combination of the genetic material, obtained by the use of the modern biotechnology. Under this name, crop plants can be find, which have been genetically modified in order to improve the their productivity or their resistance to diseases and pests. Among plants genetically modified we mention: tomatoes, corn, cotton and soy.

There are worries regarding the use of the genetically modified plants which could have adverse effects on sustainable use and preservation of the biological diversity, some potential risks to human health and some associated risks. In accordance with Principle no.15 of the Rio Declaration regarding the environment and development, this matter should be cautiously approached. For this reason, the Cartagena Protocol regarding biodiversity has been drawn up (29th of January 2000), having in view to provide an adequate protection level for safety transfer, handling and use of the genetically modified organisms, resulted from modern biotechnology.

Of great importance for providing a high and efficient level of crops production and quality and for the observance of the European regulations regarding health products and environmental protection, is the application of an integrated management system for field crops protection, with variants under the form of the following strategies:

- the practicing of the traditional agriculture which uses pesticides and other measures for diseases and pests control and fighting, admitting the use of genetically modified sorts/hybrids;
- the practicing of a rational agriculture which consists in the use, in a low quantity, of the pesticides which role is completed by alternative technologies, non-chemical, using both genetically modified and non modified organisms;
- the practicing of an ecological (biological) agriculture, which does not use pesticides and genetically modified organisms use is completely forbidden.

The agricultural biodiversity, in the frame of European integration and globalization raises special problems to the Romanian agriculture, problems known by the specialists and decision factors who can and have to solve them favorable, implying the farmers on a large scale.