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ENVIRONMENTAL PROTECTION AS A TRANSNATIONAL PROBLEM*

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Abstract. *The economic development has been acquiring a new quality, simultaneously with the protection of the environment, i.e. preservation of the non-decreasing natural capital. Production systems of the Balkan countries should function in a permanent strive to preserve the ecological stability as the basis of development, in order to secure not only economic, but ecological efficiency and stability as well. Alongside with transport and power supply, the agriculture exerts great influence upon the status of environment.*
The Balkan countries would have to coordinate their environmental protection standards in order to reduce its degradation, considering respective characteristics of particular countries, like Yugoslavia, for instance. In this respect, we should react on time, which means immediately. The need of joint reaction in accidental situations will be more frequent in the course of time.

INTRODUCTION

Insufficient control of the exploitation of natural resources leads to their volume and quality decrease. People therefore have to modify nature only to the extent to which they would not endanger the living environment quality.

The relationship of people and nature is the closest in performing agricultural activities. In the conditions of climate alterations, which are happening today and which will aggravate the regeneration of vegetation in future, farmers as the actors of the environment policy should not additionally endanger the biodiversity. Yugoslavia is one of over 150 signatory countries of the Convention on Climate Change, aimed at the stabilization of greenhouse gas concentrations in the atmosphere. The usage of mechanical and chemical technology aimed at the agricultural productivity increase and at achieving self-sufficiency leads to the degradation of soil, water body and agricultural products themselves.

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Such conditions limit successful satisfaction of human needs for high-quality food, as farmers have transformed into polluters. The next stage of agricultural development in the Balkan countries requires a transformation of the farmers' behavior, so that they can become the element of the integral environmental protection.

I

The environment fulfills three major functions (ES, p. 77): to provide raw materials and energy inputs to the economy, to absorb losses, and to provide a number of services and ecological functions. The World Commission on Environment and Development (WCED) and the International Union for the Conservation of Nature (IUCN) support the protection of natural resources and preservation of genetic diversity. Over 200 regulations in the European Union deal with the problems of air, water and soil pollution, waste disposal, conservation of species and genetic resources, product standardization, assessment of impacts on the living environment, and protection of nature. The European Environment Agency (EEA) was established in 1993 in the European Union. In Serbia, the Law on Environmental Protection was enacted in 1991. Unified standards in the Balkan countries may, for example, refer to the permissible presence of pathogens in bathing water, or nitrates in swimming pool and drinking water (measured in milligrams per liter). In order to achieve the desired results in practice, the environmental policy requires the assistance and cooperative action of ecology, biology, economics and other, particularly engineering sciences.

The efficiency in reducing the consumption of natural resources is usually estimated with regard to the number of population in a specific region or state and generated GDP. Thus, the consumption of water, wood and energy is recorded per capita, while waste generation and energy usage are calculated per capita and per GDP unit. It is also necessary to comprehend population density, the share of reproducible energy resources (substitutes) in the total energy consumption, the share of chemically active substances that are recycled, the part of new non-conventional forms of non-reproducible resources, and similar. The databases that should be used here are related to the population, growth trends of main economic sectors, the condition of the environment and natural resources, and so on. A problem may occur therein, regarding the actual degradation estimate of the natural capital, which, although having a real value, cannot have a fixed price. The elements of nature are not products, and the consequences of diminishing their quantity and quality cannot be foreseen with certainty, particularly in case of exhaustible resources. For this reason, the market is not able to determine the rate of replacement of the natural capital by a human-made capital. It is necessary to establish which of the environment qualities in the Balkan countries should be preserved for future generations. The ecosystem monitoring by the method of tele-detection enables identification, control and quantification of the factors affecting the environment, evaluation of the actual status of the environment and prediction of its future situation[1].

The principles set by the Rio Declaration on Environment and Development (adopted at the United Nations Conference on Environment and Development in 1992) have to be

[1] Ecologica, Belgrade, 2000, Vol. 1, p. 4.

followed. According to these principles, for example, states are liable to adverse transboundary environmental effects (destruction of the animal and plant life in the interstate waters, pollution of air and soil due to nuclear disasters, and similar), but they also have the obligation of protecting the environment as an integral part of their development, because of the interactive relations of the economy and environment. The Balkan countries should enter adequate agreements aimed at the improvement of environmental protection, applying the experiences of the most developed European countries.

II

The protection of soil as "the skin of the planet" from erosion may include compensations to farmers for accepting not to use the land endangered by erosion. Compared to other continents, Europe has the biggest participation of degraded areas in its total arable land, with about 23%. It is followed by Africa, which has 22% of such areas. The South European countries face immense problems of soil erosion. More than 80% of the land in Serbia is affected by erosion, too. However, the medium-erosion processes are prevailing, as about 50% of the land is affected by light erosion, and some 22% by medium erosion. The average erosion coefficient (Zsr) is 0.44. All ecologically vulnerable areas should get financial support for the agricultural production system reorientation, in order to foster interest of farmers in the environmental protection. The stability of agricultural production can be maintained together with the soil and water conservation. The European Union allocates ca 3% of the agriculture budget for the purpose of transferring from the conventional to the organic agriculture. Alongside with the protection of the land from erosion, the already damaged areas should also be recultivated. The soil erosion problem is solved by lifting the land level and shaping it, as well as by planting quickset hedges and trees around the sown surfaces. The reduction of cattle-breeding intensity decelerates the process of soil degradation. In France, for instance, the preservation program of extensive cattle-breeding system encompassed about 5.5 million hectares. In addition, the degradation reduction is stimulated by the reduction of the scope of mechanical work per the unit of arable land, as the technical capital often consumes the natural capital. Modern farming methods should be economically capable, socially acceptable and biophysically sustainable[2].

Taking into account the significant impact of water on ecosystems, the fact that must not be neglected is that the world quantities of water have been reduced by 35 times during the last three centuries, thus thwarting the possibilities of satisfying the needs of all the consumers of water. The increase of irrigation efficiency (which has been disregarded for a long period in Yugoslavia) may be achieved by the implementation of new irrigation methods, such as the drop-by-drop method of irrigation. The combat against the pollution of surface waters and groundwater has to start urgently, as the climate changes are announcing reduction in precipitation. On the other side, torrent control is required for diminishing the effects of water erosion. Construction of micro-reservoirs (which protect the crops from floods, among their other functions) is much more present as the activity in Bulgaria, for instance, than in Yugoslavia. The agricultural land in river basins should be

[2] Dragun A. (ed.), Sustainable Agriculture and Environment, Northampton, 1999, p. 51.

fully encompassed by the hydrologic land reclamation projects. Adequate waste water purification should also be implemented. Apart from this, the urban waste water and urban organic refuse treatment may be directed towards acquiring organic fertilizers needed in agriculture. Moreover, continuous activities in searching for new water streams is also one of the priority tasks related to a better usage of water resources.

In the case of Yugoslavia, economic conditions have not allowed for appropriate investments into the environmental protection and improvement. For instance, there is a significant sulfur-dioxide pollution of the air, caused by the insufficient protection level, although industrial plants are not employed with full capacities. The factor of a forestation induces generation of milder climate in certain areas, while forest fires exert multiple negative effects. Another negative trend is the decrease in meadow surfaces by 12% and pasture surfaces by 15% per capita during the period from 1990 to 2000[3]. The Balkan countries should develop a joint strategy of mitigating the "greenhouse" effects. In the period from 1990 to 2010, the greenhouse gas emission shall increase by 25% in Greece and by 27% in Portugal. The biggest decrease of this emission in the EU shall be achieved in Denmark and Germany (for 21%), while Finland and France shall retain the same level of the gas emission as in 1990[4].

Trying to reduce his dependence on the nature, by polluting the land, man has violated the biological balance that should exist in the nature. Degradation of natural habitats of plant and animal species influences the changes within the species and population. However, about 27% of the genetic material that should maintain and increase the agricultural productivity is kept in the USA, while European gene banks contain some 35% of the global genetic diversity of feed crops and animal feeds[5]. The environment can be protected by the application of bio-stimulators and crop rotation (aimed at the prevention of plant diseases, pest control and weed control) instead of mineral fertilizers and pesticides. The consumption of pesticides per hectare is double lesser, and the consumption of mineral fertilizers several times lesser in Yugoslavia than in the European Union countries. Biotechnology plays a substantial role in the changing of biodiversity. The FAO applies the term "agro-ecological diversity". In Yugoslavia, the conservation of genetic resources for agriculture has been insufficient. The implementation of biotechnology enables getting of yields even on marginal soil and in unfavorable climatic conditions.

The transportation of hazardous substances bears risks and represents additional threat to the environmental quality preservation, especially in case of damages. Laws regulating these problems have to be enacted and their strict obedience is required in order to avoid ecological catastrophes. We should also mention the specific attack on the environment in Yugoslavia during the 1999 bombardment.

III

Several research institutions in Serbia are engaged in measuring the presence of harmful substances in the air, soil, drinking water, milk and other human foodstuffs and animal

[3] Statistički godišnjak Jugoslavije, Belgrade, 2001.
[4] El-Agraa A. M., The European Union, Economics and Policies, Edinburgh, 2001, p. 454.
[5] Economies et societes, Paris, 1997, No. 4, p. 101.

feeds. External radiation is investigated in the institutes in Subotica, Zaječar, Niš, Vranje, Kruševac, Kraljevo and Užice, while aerosoles and air are checked in Subotica, Belgrade, Zaječar, Niš and Priština. Daily and monthly precipitation are monitored in Belgrade and Priština, only daily in Subotica and Niš, and only monthly precipitation in Prizren, Novi Sad, Kragujevac and Zlatibor. Drinking water is monitored in Subotica, Belgrade, Priština, Novi Sad, Kruševac, Kragujevac and Kraljevo. The institutes in Subotica, Belgrade, Zaječar, Niš, Priština and Novi Sad check milk and other human foodstuffs for harmful substances, and checking of animal feeds is performed in all these institutes except in Zaječar[6].

The reduction in the effects of key polluters may be achieved through the implementation of concrete programs that will mobilize great numbers of people. In the European Union, the number of farmers who have concluded territorial environmental-protection-program-based contracts with their respective states is growing. In France in 1995, only 3% of the total support allocated to the farmers were related to the environmental protection measures, but it covered 20% of the agricultural land. Premium rates are about 300 francs per hectare for the agricultural estates measuring up to 100 ha. Today, the protection of agricultural environment participates with less than 1% in the expenditures related to the support of European agriculture. The participation of agricultural environment protection credits was 8% of the total environment protection credits in 1996.

Although certain collision of interests may appear among the Balkan countries, their common interest is undoubtedly the avoidance of ecological risks. Tax levying on the environment pollution would enable reductions in some other taxation burdens in the Balkan countries. The taxes in the form of lump sums may also be introduced, for example, in the consumption of non-reproducible sources of energy. The efficiency of the ecological taxation system will depend on the tax rates. Agreement on the methods of compensation for pollution-caused damages is of substantial importance. In case of interstate water resources (the rivers Danube, Sava, Tisza, Tamish, Drina, the Adriatic Sea), the upstream states compensate the damages to the downstream states. Special incentive earnings may be determined to protect the farmers with low income or living in mountain areas, if they voluntarily join the projects of environmental protection.

CONCLUSION

As the possibilities of replacing the natural capital with the human-made capital are limited, the Balkan countries should strengthen their orientation to the usage of self-reproducible resources. The environment is affected by demographic, technological, economic, legal, cultural and other factors. A timely detection of the factors that endanger the environment is necessary in order to provide a successful reaction. Better equipment of the laboratories measuring the pollution would also contribute to this goal. A uniform information system providing reliable data on the living environment status in the region of Balkan countries would be in function of rational joint environmental policy realization.

[6] Životna sredina i razvoj, Belgrade, 1997, p. 53.

The growth rate of GDP per capita in the Balkan countries, although much lower than in the European Union, shall provide a slow increase in environmental protection investments. Also, the funds of the European Bank for Reconstruction and Development may be taken into account regarding the costs of the environment protection and quality restoration. In some parts, significance should be given to joint (bilateral or regional) investments into the environmental protection related to inseparable problems. The amount of assets needed for repairing the consequences of pollution depends on the level of pollution. It is necessary to establish cooperation in the sphere of eco-technology application (followed by the embargo laid on the "dirty technology" imports and by customs alleviation for the imports of eco-technologies) and the implementation of quality standards, alongside with the integration of regional interests.

The measures that should contribute to the stability of the environment may be legal, economic, technological, educational, etc. It is of substantial interest for Yugoslavia to take an active part in the regional - Balkan strategy of environmental protection.

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UKLJUČIVANJE JUGOSLAVIJE U OSTVARIVANJE POLITIKE STABILNOSTI OKRUZENJA NA BALKANU

Snežana Djekić

Ekonomski razvoj dobija novi kvalitet uz istovremenu zaštitu okruzenja, odnosno očvanja neopadajućeg prirodnog kapitala. Proizvodni sistemi u balkanskim zemljama treba da funkcionišu uz permanentnu težnju da očuvaju ekološku stabilnost kao osnovu razvoja, radi obezbedjenja ne samo ekonomske već i ekološke efikasnosti i stabilnosti. Poljoprivreda, pored saobraćaja i energetike, ima veliki uticaj na stanje okruženja.

Balkanske zemlje treba da usklade standarde zaštite okruženja radi reduciranja njegove degradacije, uvažavajući specifičnosti pojedinih zemalja, na primer Jugoslavije. U tom smislu treba reagovati na vreme, što znači odmah. Potreba zajedničkog reagovanja u akcidentalnim situacijama biće sve češća.