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**“Key challenges to ensure environmental security and sustainable development in the OSCE area: land degradation, soil contamination and water management”**

**R E P O R T**

**«CENTRAL ASIA: REGIONAL PROBLEMS OF ENVIRONMENTAL SECURITY AND SUSTAINABLE DEVELOPMENT»**

**Prof. Yusufjan Shadimetov, President of the International organization of ecology and health ECOSAN**

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## **R E P O R T**

**President of the International organization of ecology and health “ECOSAN”**

**Professor Yusufjan Shadimetov**

### **“CENTRAL ASIA: REGIONAL PROBLEMS OF ENVIRONMENTAL SECURITY AND SUSTAINABLE DEVELOPMENT”**

Ladies and gentlemen!

First and foremost I,d like to express my gratitude to the OSCE for its unceasing attention to the issues of stabilization of ecological situation and sustainable development in the region of Central Asia.

The issues of ecological security and sustainable development, including the degradation of lands and the soil contamination and the efforts against these processes are most important for the region.

Central Asia is a big territory consisting of deserts, steppes and mountains. In the course of many centuries its inhabitants struggled against the complicated climate which is characterized by a low level of precipitation and its irregularity and the rapid fluctuation of the temperature. During the Soviet Union period the productivity of agriculture was not high and its rise was carries out by the irrational use of land and water resources.

One-sided technocratic policy and the large scale cultivation of monoculture led to the decrease of the soil fertility, while heavy irrigation resulted in the rise of underground waters and caused the problem of salinization of soil.

The consequences of the Aral Sea crises, as well as other anthropogenic factors led to the desertification and henceforth to the degradation of soil and the decrease of the fertility of irrigated lands.

At present time more than half of the territory of Central Asia is subject to the processes of desertification. Thus, the area of degraded lands in Kazakhstan is 179, 9 million hectares or 66%, in Turkmenistan and Uzbekistan – 80%. Desertification is going on not only by the territorial growth but also by the change of the degree of biological productivity.

The area of new deserts in Central Asia increased by nearly 100 thousand square kilometers, while the total area exposed to the desertification is more than 1 million square kilometers and biological productivity in some zones decreased by 50%.

The main reason of desertification is the change of the water regime of territories and water areas, underdeveloped water resources management, poor condition of irrigation and drainage systems, as well as insufficient investment in land improvement.

Besides, the development of lands for irrigation in the desert zone without a proper diversion of ground return waters led to the swamping of lands and their secondary salinization. The use of pastures for cattle husbandry without the calculation of their fodder reserves leads to the digression – the loss of the fodder reserve.

The soil fertility decreased due to the long use of excessive high norms of mineral fertilizers and chemicals. The natural biocoenosis of soil has been violated. The total area exposed to the wind erosion is over 30%. The water erosion in arable lands is scaling up. There are special anti-erosion arrangements but, unfortunately, they are used very rarely in the production cycle.

Thus, the area of irrigated lands in Uzbekistan is 4, 2 million hectares. Although they make only 10 % of all agricultural lands, they yield more than 95% of all gross agricultural production. In recent 15-20 years the area of saline lands increased by 0, 8 million hectares which at present time is more than 2, 0 million hectares, including 0, 85 million of average- and heavy saline lands.

The area of saline lands in Karakalpakstan, Bukhara, Syrdarya and Jizzak regions is 90-93 %, in Kashkadarya and Khorezm – 60-70 %. In a number of zones in Bukhara, Kashkadarya and Navoi regions the productivity dropped by 30 % in comparison with 1992. Such a serious form of the degradation of lands directly influences the welfare of 1, 4 million rural residents.

The content of humus in the soil has decreased by 30-50 %. At the present time the soils with low and very low content of humus occupy about 40 % of the area of irrigated lands, while the total area of low productive arable lands is 0, 5 million hectares.

15 years passed since the countries of Central Asia had proclaimed their independence. But they are still at the stage of transition to the market economy. The economy of the region is mainly based on the agriculture which has a big potential and at the same time experiences a number of problems. For example, it includes the problem of food supply. During the transition period the growth of the population in the countries of the region (excluding Kazakhstan) led to the decrease of the consumption of food per capita by 15-45 %.

It is well known that the problem of land degradation makes a direct influence on the level of life of the population, especially for the rural residents. As a result of the decrease of the productivity of lands and a mass damage to agriculture some 25-40 % of the population nowadays lives under the poverty line. Some 50 % of low income families live the rural area.

The program of wheat self supply was successfully solved in Uzbekistan and the links of scientific institutions with foreign partners were extended. Also, the existing unbalance in solving economic tasks, nature protection and natural resources potential leads to the decrease of the productivity of lands and return on investment.

For the countries of Central Asia the problem of today is the development of resource-saving technologies in agriculture where the unbalanced development of the sectors of economy leads to the use of 90 % of water resources for agriculture combine with the

extensive use of labor of the population who live in rural areas (up to 50-60 %). There is still the domination of monoculture (rice, cotton, wheat crops) leading to the degradation of soils, growth of weeds, increase of the cost of production and operating costs, et cetera.

All these problems and challenges require the adoption of a complex of measures in the region for the struggle against the degradation of land and other natural resources.

The main priority in the area of struggle against desertification must be preventive measures in relation to lands which have not yet degraded or which have degraded to a low degree. The efficient measures against desertification are the introduction of water saving technologies in irrigated farming, rehabilitation and development of drainage systems, utilization of return waters, the comprehensive study of irrigated lands, soils in all countries with the purpose of the restoration of ecological and land reclamation condition, the extension of monitoring study of the status of the land reserves of the republic.

Of great importance for the prevention of the development of the processes of salinization is the implementation of the technical reconstruction of existing collector and drainage systems, as well as thorough leaching of soils.

All this requires the implementation of special projects with the attraction of big financial resources.

To keep the record of polluted soils it is necessary to conduct the relevant study of the soil covering in terms of the content of nitrates, pesticides, heavy metals, radioactive elements in soils, underground and collector-drainage waters and products of plant growing and develop measures to prevent the pollution of soils with these elements.

Of great importance is also the completion of the compilation of maps of soil, the maps of assessment, cartograms of salinization and agrochemical indicators, automation of the processes of mapping and cartogramming of soils by using modern equipment, creation of universal computer data base for the soils of the republic, continuous control of the condition of soil fertility by establishing monitoring ecological and land reclamation stations in all regions.

An important role in the solution of the problems of the degradation of land and water resources for the improvement of the food supply of the population, ensuring of the ecological sustainability and formation of partnership for development is attached to agricultural fundamental and scientific-applied studies.

The Central Asian region possesses great potential for the development of agriculture thanks to the two major conditions: institutional infrastructure and human resources. Also, of great potential for the further development are the traditional agricultural practice, genetic richness (both of crops and livestock) and big arable lands and pastures.

Therefore, it is necessary to do the research works for the production of advanced technologies and technical facilities aimed at saving energy resources, implementation of modern and safe for environment and human health technologies of crop protection,

as well as increase the level of works for personnel training and reinforcement of institutes of agricultural sector with professionals.

The diversification of agriculture by an extensive use of alternative crops, such as leguminous, oil-bearing, fruit, forest and nut-fruit, vegetable and fodder, the development and implementation of high quality early-ripe and drought-resisting varieties of agricultural crops, the creation of new diseases-resisting varieties by using bio-technologies, as well as improvement of the methods of complex protection of crops will help reduce the excessive use chemical pesticides.

The studies to use the desiccated bed of the Aral Sea for the agricultural production will also allow solving a number of socio-ecological problems. To achieve this goal it is necessary to compile the Integrated scheme of the development of the desiccated bed of the Aral Sea. It is necessary for the establishment of the sequence of afforestation activities, the selection of necessary technology, assortment of desert plants, as well as the estimation using the calculation-technological maps of costs in money value.

The international organization “ECOSAN” held the International Ecoforum **“Reorienting Agricultural Research to Meet Millennium Development Goals: International and Regional Experience”** to discuss the ecological aspects for ensuring food security, management of natural resources, as well as attraction of foreign investment and donor support for the development and implementation of projects aimed at the development of the integrated agriculture taking into account natural-climatic changes in Central Asia.

The participants of the forum worked out the scientifically substantiated recommendations for the development of the regional integrated farming by implementing and replicating the efficient production technologies, systems of the management of natural resources, as well as improvement of the productivity of crops, ecologically efficient use of natural resources, the preservation of valuable genetic resources and the organization of socio-economic scientific studies.

These proposals were included in the Tashkent Declaration adopted at the Ecoforum.

Their implementation will require the support of donors, and we think that the OSCE, international financial institutions and other organizations will provide necessary support to achieve this goal. The implementation of these programs will allow solving a number of issues, including the issues of ecological security of the region and preventing the threat to sustainable development related to the degradation of land and water resources.