

THE CASE OF SERBIA

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Survey on the present situation from the Report on the state of the environment in 2000 (document of the Ministry for protection of natural resources and environment) as the starting point for developing good agricultural practices (GAPs)

General data

Territory of Serbia (88.361 km²) is divided into particularly differentiated landscape complexes : lowland areas situated in Southeast panonian plains (Vojvodina and southwards from Sava and Danube rivers) and regions of Central Balkan - flat-highland-mountainous-valley areas of several mountain systems.

Agriculture land cover about 65% (major arable land beeing in the Danube basin) with non-arable land regarded as semi-natural ecosystems including pastures, swamps and reeds (Fig.1.). Natural and semi-natural ecosystems cover approximately 40% of the territory with additional surface water ecosystems (rivers and lakes).

Presence of harmful and dangerous substances

Level of heavy metal risk in part of central Serbia is presented on Fig.2. The concentration of dangerous substances in the soil points out to the problem on 162.000 ha or 18.6% of the analysed land. Only the concentration of B, F and Hg were within the allowed limits.

The data from the analysis of soil samples on the territory of Vojvodina (in 1991) and cental Serbia (in 1993-1995) shown a low level of pesticides in the examined soil samples and this leads to the conclusion that soila are not polluted with the pesticide residues.

The soil without risk for safe food production, regarding to the content of dangerous substances, are spreading over the area of 651.000 ha (75%). The soils with insignificant or medium risk are spreading over 51.000 ha each, which makes 5.5% of the area or 101.000 ha for both risk categories. The soils with moderately high to high risk are spreading over 69.000 ha or 9% of the analysed area. The soils with very high risk (all acid soils with increased concentrations of several dangerous elements) are spreading over 48.000 ha or 5% of analysed area.

Eutrophication

The problem of eutrophication is related to the over-use of fertilizers, as well as to the uncontrolled discharge of waste water from city sources and livestock farms.

From the diagram presented on Fig. 3A, a declining trend of the utilization of fertilizers in the Danube basin is noticeable, as well as declining trend of the nutrient value, presented with the yield, all indicating that the production on arable lands during the observation period continually declined.

From the survey maps with locations of the big livestock farms (Fig. 3B) and from the eutrophication risk map in the Danube basin (Fig. 4) it is prominent that the accumulation zones around the rivers Tisa, Danube and Velika Morava are the most endangered zones, in regard to potential soil and subterranean water degradation by processes of eutrophication.

Conclusion and future perspectives

The data presented point out that in Serbia, especially in the major agricultural region of the Danube basin we face agricultural pollution from various sources: manure, fertilizer over-use, hazardous substances. On the other hand the lack of environmentally friendly practices as well as the public awareness for their implementation represent the serious environmental threat for, not only our country, but also for the neighbouring countries and the Black Sea.

Implementation of GAPs such as manure and nitrogen management programmes, low pesticide use etc. seem to be of the highest importance. To start this we need the development of agro-environmental policy (national codex of GAPs), and the system of its implementation at the farm level. On the top of all this we need this urgently! So, the mobilisation of all relevant factors within the country (relevant Ministries, faculties, local vocational middle schools, local county officials, farmers community etc.) as well as out of the country (donors, regional networking, consultants etc.) is needed as soon as possible.

APPENDIES

Figure 1

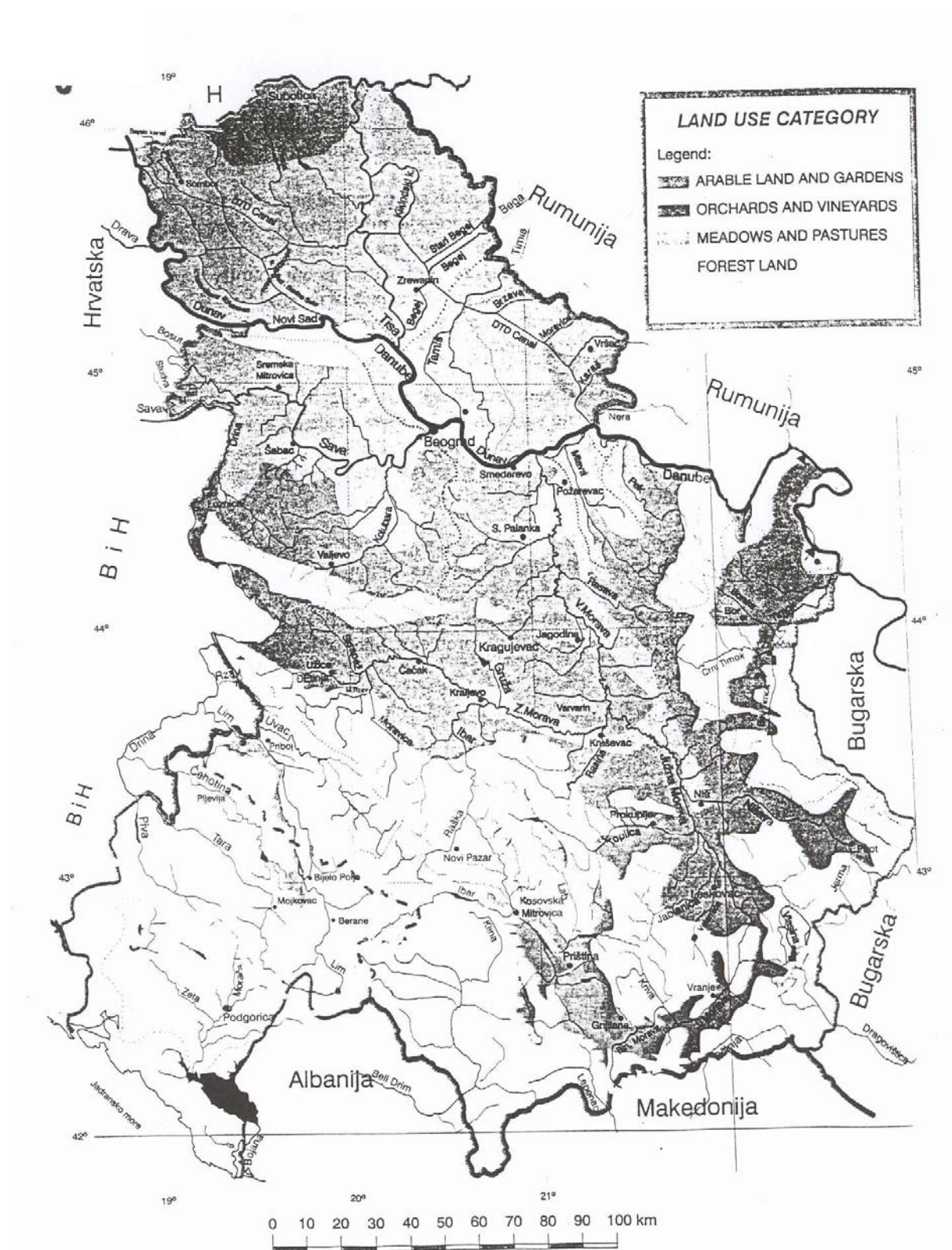


Figure 2

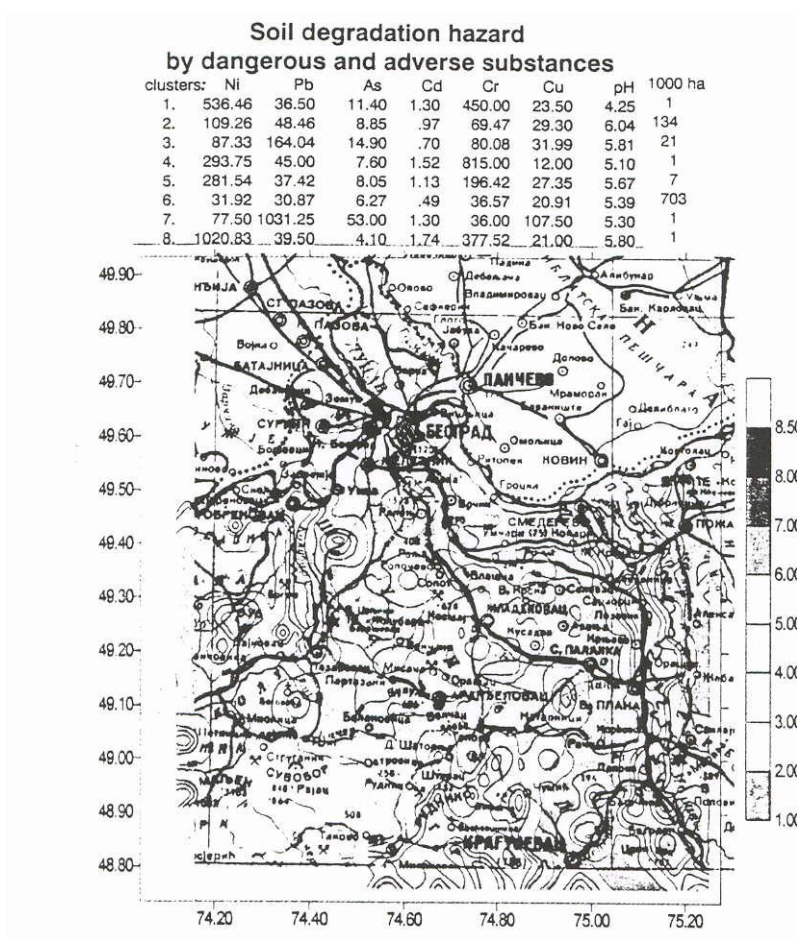
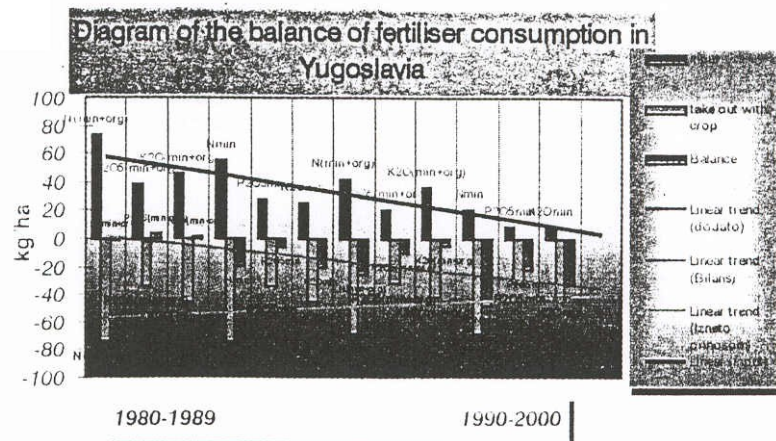


Figure 3

a)

Diagram of fertilizer utilization balance in Yugoslavia



b)

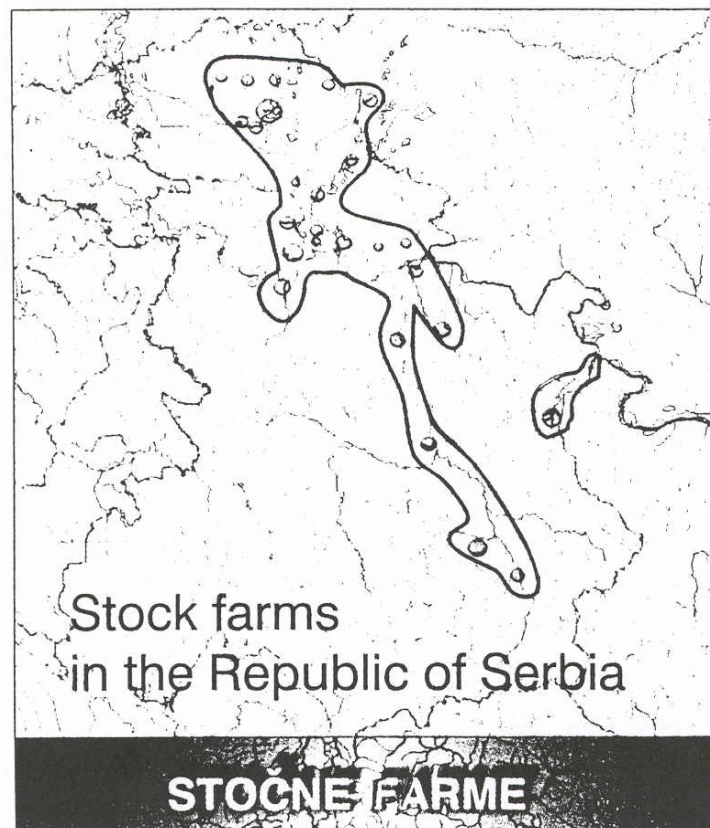


Figure 4

