

# Future of Lands Degraded by Erosion in Romania

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## 1. Abstract

The ratio between the agricultural area of Romania and the number of inhabitants is 0.68 ha per capita, which apparently shows an extremely favorable situation. Nevertheless, in many areas the soil productivity is affected by some disasters such as drought, erosion, floods, and landslides. Consequently, the yields and their stability depend, mostly, on the interventions for disaster prevention. Erosion process is active on 42.6% of the agricultural area, which represents a high value. Therefore, the anti-erosion works are of public interest, their contribution to the food safety being indisputably.

In 1989, Romania changed its economic system and became the country with the highest number of farms in Europe, namely 4.48 million. The future of the lands degraded by erosion depends on certain factors, such as: engineers involved in the management of soil and water resources, specialists in environmental protection, economists deciding in political and financial issues. Population can benefit of the effects of interventions for mitigation of major negative implications generated by erosion. Farmers should accept the projects and adopt and maintain the works. The conclusion is that investigating the landowner's attitude and list of priorities is most important. One of the methods of investigation consists in using of questionnaires as tools for sociologists, which provide information about the farmer's requirements and customs.

In the frame of an interdisciplinary co-operation, the authors of the paper carried out their research activity on social and economic aspects in 5 watersheds. The outcome is that the anti-erosion works hardly occupy the 4th or 5th place in a hierarchy of priorities assumed by farmers who own lands vulnerable to erosion. Our conclusion is that an intense lobby activity is necessary. We have implemented several ways of developing the awareness on erosion damages. Additionally, we have replaced the theory by practice in order to facilitate communication between the groups involved in the field of soil erosion.

On a national level, the legislative, institutional, educational and financial framework has been created. Supported by the EU, authorities started off the reform of farming exploitation and promoting systems of the best agricultural practices.

## 2. Introduction

Romania has an agricultural area of 13.906 millions hectares. Rural areas in Romania cover 87.1% of the territory, and include 45.1% of the population i.e. 9.7 million inhabitants.

Soils are of good quality but phenomena such as soil erosion, drought, negative balance of water in soil or acidification, alkalinity and compaction affect a lot the fertility. Water erosion is one of the most important problems of Romanian soils as it is present in different degrees on 6.3 millions ha. This, together with the landslides affecting about 0.7 millions ha cause up to 41.5 t/ha/annually soil losses.

Since 1991 more than 96% of agricultural farm land owned by state farms has been given back to private owners. In 2005, there were 4,256,152 holdings with an average farm size of 3.37 ha.

The excessive fragmentation due to private ownership in agriculture and the reduced degree of association have led to a dualism, represented on one hand by the great number of subsistence and semi-subsistence farms and on the other hand by the reduced number of commercial holdings fully present on the Romanian market. Out of the agricultural used land, the subsistence farms have 45.24 %, semi-subsistence farms 16.09 % and commercial holdings, 38.67 %. Subsistence holdings are defined as smaller than 2 Economic Size Units.

Rural areas have substantial growth potential but, most importantly, play a vital social role in Romania.

Soil is mainly a private resource, but of common interest. The future of the lands degraded by erosion depends on certain factors, grouped in: farmers, engineers involved in soil and water resources management, specialists in environmental protection, economists deciding upon financial issues, political factors. Population can

benefit from the effects of interventions for mitigation of major negative implications generated by erosion. Farmers should accept the projects and also adopt and maintain the works. It is obviously that the eroded lands management must rely on knowledge about the land -owner's priorities and psychology.

The paper presents how the sociological investigations could facilitate the understanding of farmers' requirements and customs. The tasks are as follows: the identification of farmers' perception and behavior as to the anti-erosion works and also their view of the perspective of their future life level and progress.

### 3. Materials and Methods

In the frame of an interdisciplinary co-operation, the authors of the paper carried out their research activity on social and economic aspects in 5 watersheds. In order to settle the investigative tools, the activity was based on direct observations in each location, on analysis of primary documents found in the town halls, on interviews with decisional factors. For the sociologic investigation we used questionnaires. The sample was approx. 10% of the total amount of farms in 7 locations.

Questionnaires provide 36 questions based on categories of institutional, ecologic, economical and social indices. Twenty-one of the questions have suggested answers; fifteen have open answers. At the social category we were interested in the descriptors showing the social status i.e.: family structure, population density, infrastructural works in the area. Knowing the pressure caused by the working force emigrational trends, intensification of informational rate – we tested the feed-back social indices, such as: demographic behavior, emotional bond to the rural areas and its values, the educational size and instruction motivation, the trends and the requirements for the rural areas.

Considering the economical point of view, the questions aimed to the farm size, the income resources of the farmers, the products marketing, the profit, and the trade's forms in the area. Feed-back economic indices were obtained from questions about acknowledgement of ways of income and production increasing.

Answers were processed, analyzed and aggregated. Nedelcu (1996) and Nedelcu et al (2005)

### 4. Results

The family structure is: husband, wife, 2 – 4 children. Age: 53.3 per cent are over 50 years old and 80 per cent still live together with children. Although youth is more receptive to progress, it remains in the old pattern because the young members must take into account customs and traditions and, at the same time, the offer for alternative activities is reduced in rural areas. Under given circumstances, the farms are still characterized by income from selling products and self consume. Farming continues to be the most important activity in rural areas, and an essential source of income for rural households.

Most of farms are mix – that is farmers deal both with fruit cultivation as well as with animal breeding. The interview revealed that 85.7 per cent of farmers acquired the know-how in fruit growing in their own families or from their neighbours and only 14.3 per cent had specialists' assistance. The animal breeders declared (96 per cent) that the know-how was acquired in their own families/ neighbours and only 4 per cent asked for specialized assistance.

People declare that the benefit is good, but lower than the possibilities.

Anti-erosion works can be found only on 4th – 5th place on the scale of importance of solutions for the income increasing, as declared by farmers who own lands vulnerable to erosion. The situation is better in areas in which there are gully erosion/ landslides and in areas of tourist interest. In such cases the population is more aware of danger; they solicit help but consider that government should bear all expenses. Their willingness to contributing financially is very low, although the land price in such areas increased 15 – 18 times in comparison with the situation 7-8 years ago. Nedelcu et al (2005). The persistence of being used to be helped by the government is obvious.

The future of the Romanian eroded lands is being built on an existing foundation. It is closely connected to the rural development plan and to the human capital education and training. The diversification of rural economic activities also depends on education, knowledge and skills. The evolution and specialization in agriculture require an adequate level of technical, economical and juridical training, including expertise in new informational technologies, to correspond to the Community requests in phyto-sanitary, animal welfare and quality standards fields.

Subsistence holdings lack capital and knowledge, which results in very low returns on their activity. Accordingly, subsistence farmers have practically no incentives or capacity to observe European standards, including those on environmental quality, animal hygiene and food safety.

The semi-subsistence farm segment suggests the need for targeted interventions. Due to the fact that in Romania there is an important number of small sized farms (of subsistence and semi subsistence) for which no real restructuring possibilities exists, the number of farms taken into account for assistance in order to transform them into commercial holdings shall include only the semi subsistence farms between 2 and 8 ESU (approximately 350 thousands of holdings).

The acceptance of the new elements, the process of innovative diffusion in rural areas depends on individual social and psychological features, on motivation and also on a favourable climate. The management of lands degraded by erosion requires the knowledge of these correlations and actions by means of persuasion and coercion. Nedelcu (2005)

Major development opportunities can arise from restructuring the agriculture and from revitalizing the rural economy. The restructuring of the activities at farms' level and the capital intensification for commercial farms will definitively lead to using fewer work forces for improving the competitiveness.

For countries, rich or poor, to build and maintain their productive sectors in the face of global competition, local enterprises must be able to continuously improve their products and services-that is, to innovate. In all modern business activities from farming to manufacturing to product distribution, this ability to innovate is inevitable dependent on the successful application of technology, whether that means improved farm machinery or new business software. Governments must therefore promote the skilled human capital, competitive environment, and supporting institutions-universities, technical and vocational schools, research labs, standard bodies, and information and communication infrastructure to name just a few-that make this innovation possible. Watkins (2007)

On a country level – there is a National Rural Development Programme, in Romania, in accordance with the EU regulations. This plan has four axes: axis 1 has in view to improve the competitiveness of agricultural and forestry sector; axis 2 aims to improve the environment and the countryside. The main objective of the axis 3 is to enhance the quality of life in rural areas and the diversification of the rural economy. The support granted through axis 4 has as purpose the improvement of the local governance and promotion of the endogenous potential of the rural area. National Rural Development Programme (2007-2013). European Agricultural Fund for Rural Development will support up to 80% from investments. Funds may be accessed by projects.

Our conclusion is that an intense lobby activity is necessary for the development of the awareness on erosion damages. Additionally, the theory must be replaced by practice in order to facilitate communication between groups involved in the field of soil erosion.

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