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Revival of the rice crops in the south of Romania: Pros and cons

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Abstract

In Europe, the rice is presently cultivated on small areas. The south of Romania is one of the regions with tradition in rice agriculture, as the paddies are located at the northern rim of its European belt. The aim of the study is to bring arguments for the benefits of reviving the rice paddies in the Danube and its major tributaries floodplains, which are suitable for such kind of farming. The research methodology was based on direct field survey, map interpretation, diachronic analysis (1950-2014) and survey (semi-structured interview). Results have shown that a decay period in rice farming had occurred during 1990 to 2006 because of the misapplication of the agrarian policies in the rice-based agricultural societies. After 2006, a slight revival of the rice paddies has occurred in the south of Romania, with the help brought by foreign investors on the Romanian of the rice market. At the same time, a conflicting perception of the target groups on both the advantages and disadvantages of this process has been found: 75% pros and 25% cons. Economic and environmental advantages - new jobs, increasing income by collecting additional taxes, protecting biodiversity, and connection with Natura 2000 network - were argued by the local authorities, engineers and partially by farmers. On the other hand, the remaining farmers are against the revival of rice crops, alleging the reduction of grazing land. Among the environmental disadvantages, the high water demand for irrigations, use of herbicides, and methane release in the atmosphere are the most destructive.

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Keywords: rice; field; water; floodplain; economic; environmental; Romania

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1. Introduction

Rice is not commonly a major crop in Europe, but its consumption has constantly been increasing in European countries during the last years. The production costs of rice in Europe are quite high comparing to those in the large Asian rice producing states. In Europe, rice paddy fields are sparse and compared to Asia cover a small area in total (580,000 hectares). Among the traditional rice-producing states there are Italy, Spain, Greece, Romania, France, Portugal, Bulgaria, Hungary, Albany, Ukraine, Russia and Republic of Macedonia [1,2]. The intensive cultivation of rice is typical to northern Italy, in the provinces located long the Po River. The core of Italian rice province (Lombardian-Piemontan) is represented by the town of Vercelli [3]. The most extensive rice fields in the Iberian Peninsula are located in Andalusia, Murcia, and Ebro basin [4], and in Greece in Central Macedonia (Thessaloniki), Imathia şi Pieria [5].

The problem of intensive rice crops is quite sensitive for the 21st century, even for Europe, which is not one of the major rice producing area on the global markets. Therefore, the following question arose: *Is there a scientific consensus on the relationship between agriculture and environmental impact in the intensive rice farms?*

Academic brought both pros and cons, about the impact of these crops on the environment. The following ecosystem services of rice paddy fields were mentioned among the pros: biodiversity (birds, fish, snails, snakes, insects, butterflies, etc.), groundwater recharge, flood buffer, moderating local air temperature [6], preventing soil erosion, cultural aspects related to the preservation of traditional rice landscapes, etc. [7, 1]. The chemicals used in intensive rice crops, pesticides and herbicides respectively, then the methane emissions from rice fields in the atmosphere were discussed among the arguments against, with a negative impact on the environment and biodiversity [8, 9, 10, 11]. However, 2004 was declared the International Year of Rice by FAO [12, 13].

In addition to the environmental problems caused by these crops, economic benefits should be considered, as rice fields provide much of the food needs of humanity. Moreover, given that food resources should meet the demand of the world's current population growth rate, some specialists advanced the idea that increasing rice productivity wherever possible is the least costly mean to achieve this aim [9]. Under these circumstances, a small part of the agricultural land in south-western and southern Romanian is suitable for rice cultivation, and has began to revive in this respect.

The purpose of the study lies in the argumentation for the recovery of rice fields in the meadows of Danube Valley and its tributaries, which lend to such crops. The main objectives are: to identify and inventory both the old (abandoned) and rehabilitated (current) rice fields, and to analyze local communities' perception/consciousness on the recovery of rice facilities in the two study areas (Dăneasa and Stăncuța). This analysis is welcome given that the involvement of local communities in decision making in matters affecting them has increased lately, with the transition to capitalism.

Study area

In order to achieve the main goal of the paper, we made a two-scale analysis. The spatial analysis of the whole rice-cultivated area included the Danube's and its major tributaries' (Jiu, Olt, Ialomița, and Siret) floodplains in the Romanian Plain (Fig. 1). This area is vast, given that the land suitable for rice growing in Romania is considerably sparse.

For the perception analysis, two communes in the specified area were selected: Dăneasa (in Olt County), and Stăncuța (in Brăila County). Dăneasa is located in the Olt river floodplain, in the Olt County, whereas Stăncuța is in the Danube's floodplain, within the largest rice facility in Romania: Călmățui-Gropeni. The selection was based on the following criteria: a) both hold large, well-represented rice-cultivated areas; b) both were rehabilitated after the 2000 by the foreign (Italian) investors; c) they are located in two different lowland areas. The rice fields within these two communes occupy large areas, compared to other poorly rice-cultivated lands in the study area, which have never been rehabilitated and have a rather insignificant role for the local communities.