RESEARCH ARTICLE (Open Access)

Addressing Externalities of Agriculture in Agrarian Policy: Insights from a Case Study around Skadar Lake Lowlands

MAJLINDA ÇAKALLI*

[1]Department of Economics and Agrarian Policies, Faculty of Economy and Agribusiness, Agricultural University of Tirana, Tirana, Albania

Author email: mcakalli@ubt.edu.al

Abstract

There are several areas of both environmental and agricultural importance in Albania where the balance of development and conservation is very difficult. No special consideration is given to these areas in policy or strategic documents, like agricultural development strategy. Therefore, common objectives of such strategies like reaching fertilizer target rates, increase of mechanization level have deteriorated the nature of these areas, also with consequences to tourism. We have analyzed the agricultural development of the last twenty years or lowlands around Skadar Lake and assessed the trend in the use of mechanization, fertilizer, pesticides as well as changes in the structure of crops and livestock. The analysis has enabled us to properly evaluate the environmental performance of agriculture in this particular region. Based on this analysis and best experience, especially from the Common Agricultural Policy of the European Union as series of actions are recommended for the agricultural and rural development policies, with particular focus on the application of agri-environment indicators and agricultural systems with fewer impacts on agri-environmental resources. Other recommendations are particularly focused on the re-designed of governmental support, especially subsidies, to agriculture to use it as an instrument for environmental objectives.

Keywords: agri-environment indicators, agricultural policy, nature conservation

1. Introduction

In general, Shkoda Region is distinguished for its diverse and dynamic natural and human resources. It is a border Region and it extends itself along the shores of Shkodra/Skadar Lake with access to the sea and many water resources (Mima et al., 1984). Shkodra/Skadar Lake is the largest natural, shallow (mean depth 5m), freshwater lake of tectonic-karst origin in the Balkan region (Mijović et al. 2006). The lake can be considered at least in part the outcrop of a large transboundary karstic groundwater aquifer which connects Shkodra/Skadar Lake, through the Drin River Basin, to Lake Ohrid, and Lake Prespa, two other karstic "Balkan lakes" (WB, 2007).

Most of the land in this Region is devoted to agricultural activities. Therefore, the following analysis will concentrate mostly on agriculture (including livestock), food processing industry and other industries as a source of pollution for the ecosystems trying to assess the current status and future trends and how the latest could affect these ecosystems.

*Corresponding author: Majlinda Çakalli; E-mail: mcakalli@ubt.edu.al
(Accepted for publication 23.07.2022)
***ISSN**: 2218-2020,* *© Agricultural University of Tirana*

2. Material and Methods

Although there have been a large number of projects on Shkodra/Skadar Lake's ecosystem, during our literature review we did not found any analyses of the impact of agriculture and related industries on the Lake. Phase 1 of the research was used to review all existing data, reports, studies on the Region under study. Moreover, the author has reviewed in detail the international experience in dealing with similar situations, with particular emphasis to EU member states. Phase 2 was designed as a data collection through an institutional survey and
supplemented by in-depth face-to-face interviews with various stakeholders in the Region under study. Due to the multiplicity of questions of interest and the complexity of the topic, it was decided to carry out a survey for local government authorities like Regional Council and communes, regional directorates and agencies of Ministry of Environment and Ministry of Agriculture, and many other pertinent agencies. The survey ran from September to November. The goal of the survey was to gain a deeper insight into the crop structures and changes in the last decade due to competitiveness, levels of intensification, use of good practices, etc. using three comparative periods: 1990, 1998 and 2011.

3. Results and Discussions

The main agronomical problems in this Region are related to land degradation due to uncontrolled deforestation, livestock grazing, and illegal construction and rapid urbanization.

3.1. Agricultural mechanization

Figure 1 shows the changes in the possession of various agricultural machineries between the two comparing periods. Machines for harvesting fruit trees, grapes, corn, pressed silage machinery, etc. are still deficient. Machines that perform many work processes with a shift such as planting and rolling, levelling and planting and machineries of different types that are universal, are missing. Plough of ears-returning, flat disks, equipment for making mole drains are generally of low quality.

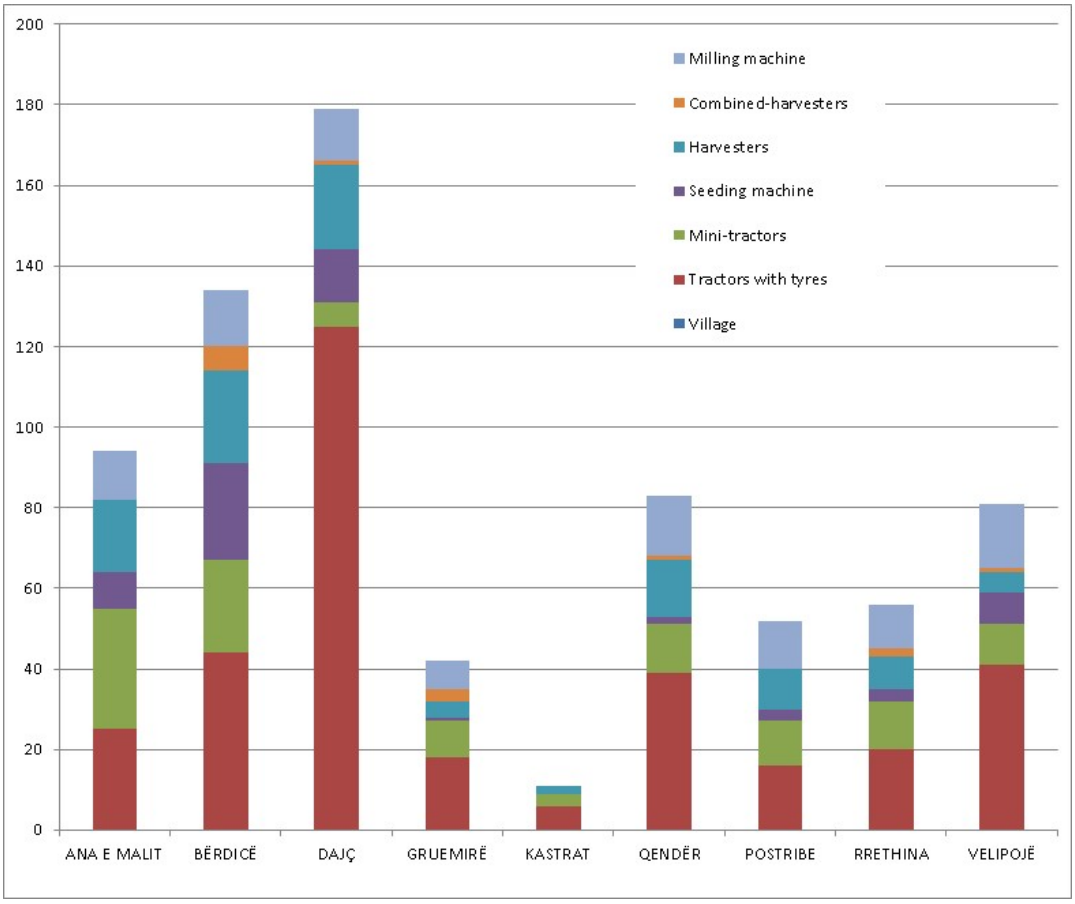

Figure 1. Developments in agricultural mechanization in the Region in 20 years's period

3.2. Irrigation and Drainage

The Region under study is part of the western lowlands, the latest being the main area of the country in terms of irrigation and drainage infrastructure. Much of these investments were damaged during transition but anyway it has benefited from several irrigation and rehabili-tation projects mainly funded through World Bank (impleme-nted in stages from 1993 – 2009). At the current stage, the irrigation potential capability is 75% whilst the actual capability is 35%. Progress in terms of irrigation coverage is shown in Figure 2.

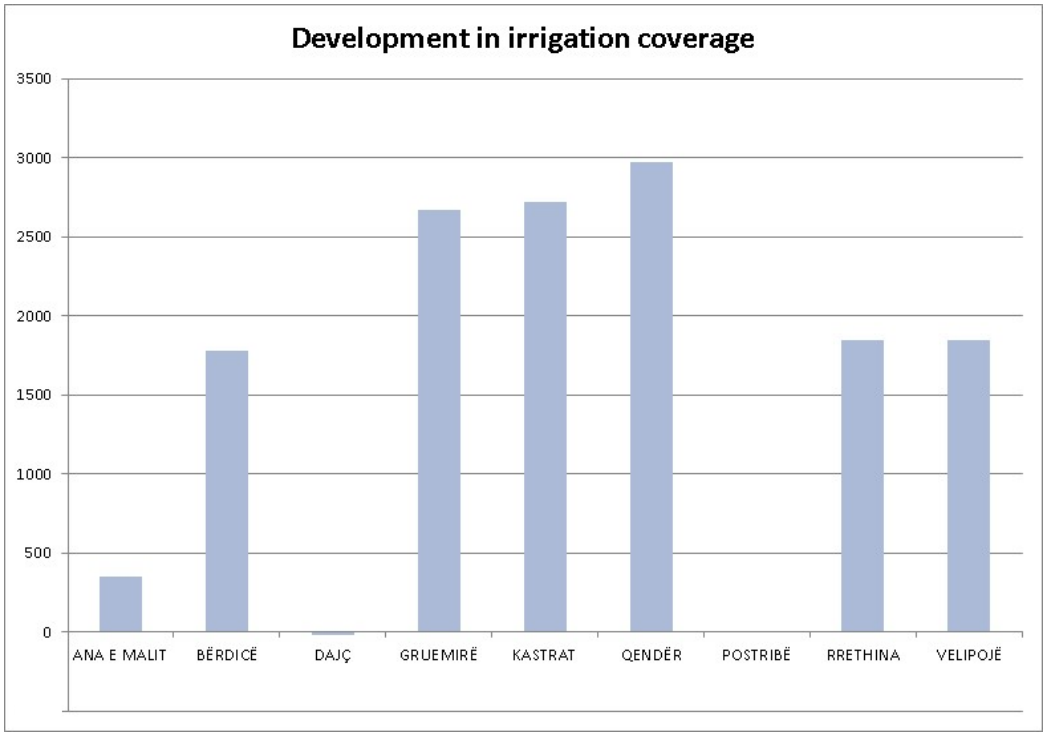

Figure 2. Developments in the use of irrigation in 20 years

3.3. Fertilizers and pesticides

Survey data show that the rate of chemical fertilizers in the Region under study is 0.25 ton/ha totalling 5280 tons of chemical fertilizers. However, as the data shows, this average value hides a wide variation of fertilizer rates between different locations. The variations in rates can be explained by the change of crop structure, abandonment of some arable surfaces, high prices relative to the profitability of crops in a specific location, improper appreciation of their importance for crop yield, etc. It should also be noted that a good part of the arable land is planted with alfalfa which requires fertilization only on the planting year.

3.4. Crop production

Most of the field crops are dominated by cereals with maize and wheat occupying the vast majority of land under cereals, and forage crops, dominated largely by alfalfa. In the last decade, the surface at the Region has not changed. The changes in the structure of field crops is given in Figure 4. Maize cultivation finds suitable conditions in the coastal lowland, including the Region under study. Tobacco is a typical product of the area. Compared to the Central Western Plain, staple crops are substituted by more vegetables, grapes and temperate fruit trees in this Region. The coastal strip west of Shkodra has ideal conditions for vegetable production and there is a long tradition. Shkodra is an important production area for open field vegetables, especially for tomatoes, watermelons and melons and young onions. Although production of open field and green field vegetables (which accounts for 90% of total domestic vegetable output) has been reduced by 8.4% during the period 2009/2000, yields and production

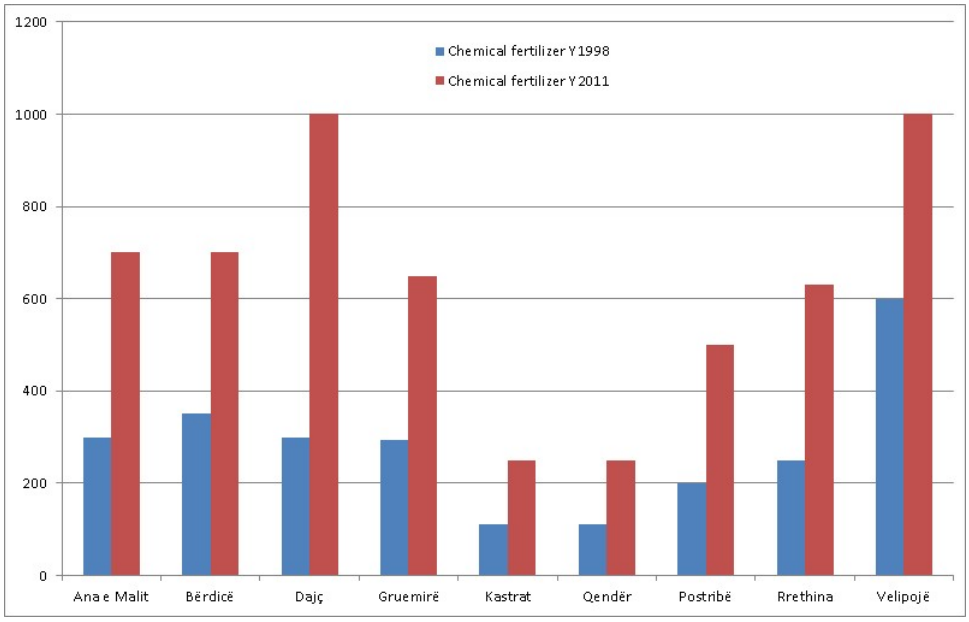

Figure 3. Numbers and types of analyzed samples

have increased by about 26% and 15% respectively mainly due to increased adoption of new production technologies (better use of inputs, water, seedlings).

The Region has a well-known tradition in cultivating fruit trees and grapevine. Proper pedo-climatic conditions have enabled the growth of a large number of fruit trees. After a large reduction in their number during 1990 – 1992, the last decade has witnessed a revitalization of this sector. It is perceived by the farmers that under a small – scale production, fruit trees have a higher profitability compared to arable crops (Çakalli, et al. 2013).

The Region is well known for the trade of aromatic and medicinal plants. Sage, in particular, growing well in calcareous areas in the neighbouring mountains has been collected by many inhabitants of theses area, becoming an important source of income.

.

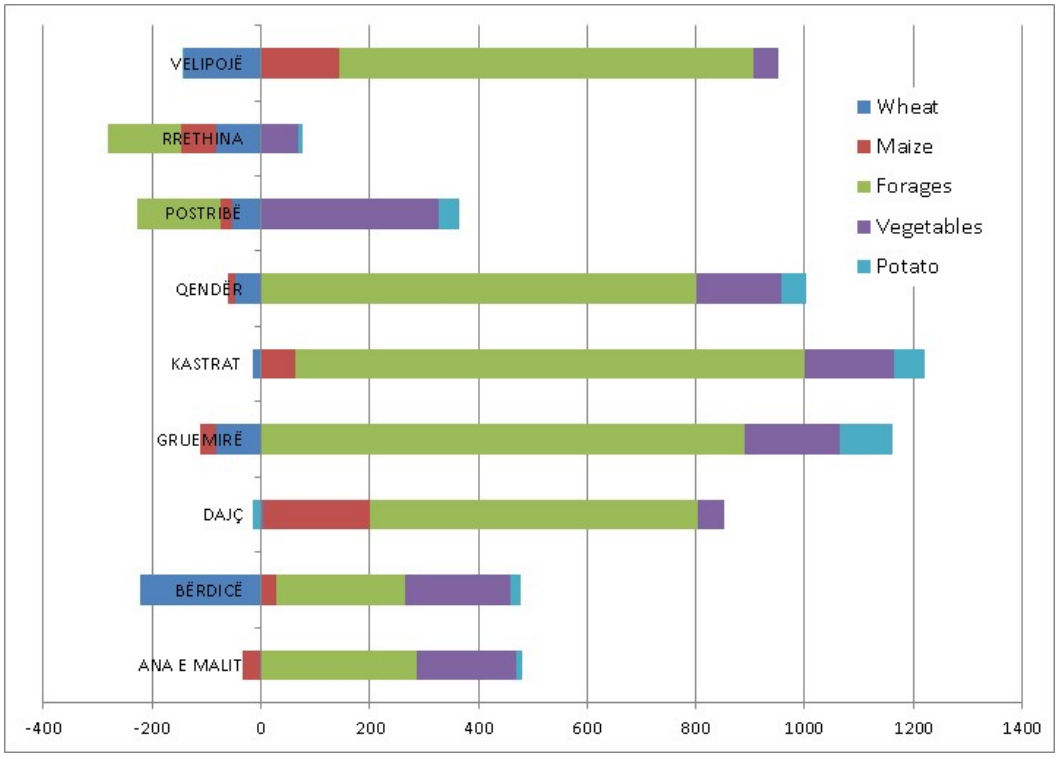

Figure 4. Developments in planting various arable crops in the Region in 20 years period

3.5. Livestock production

In the Region under study and broader at country level, it is mainly based on the household economy with 90 % of the farms developing their activities based solely on the family labour, a typical feature of Albanian farms.

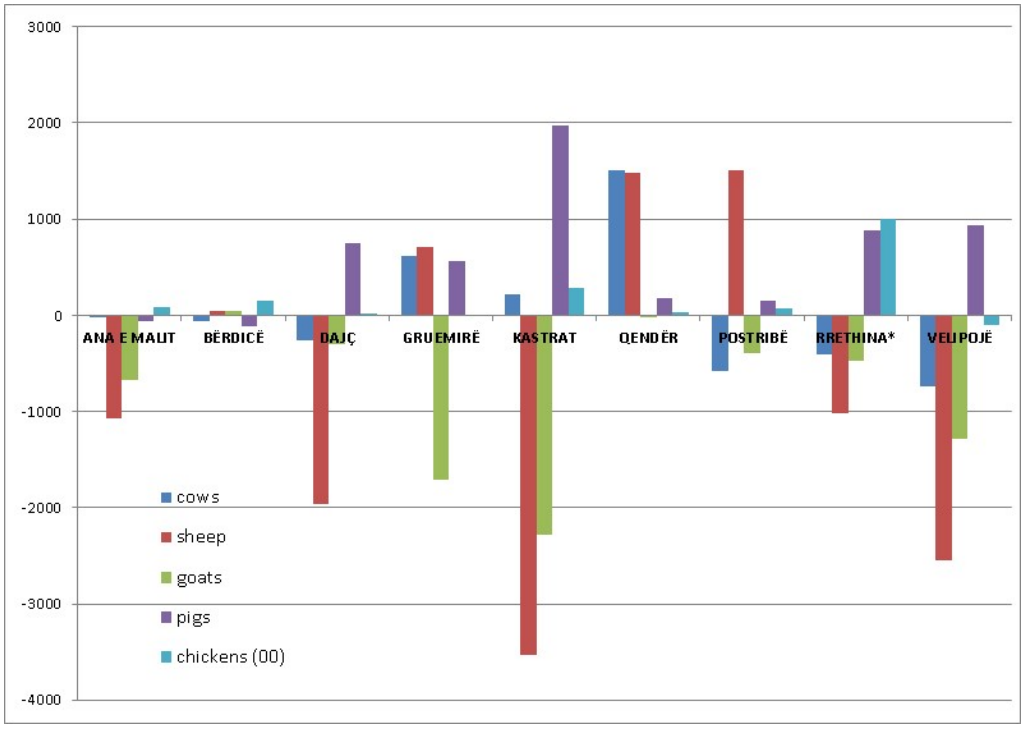

Figure 6. Changes in the number of livestock

4. Conclusions

The Region under study is an important agricultural area of Albania. Trends and projections show an increasing growth in farm production. Traditional methods (flooding) should be replaced by irrigation techniques like sprinkler or use of pressurized tubes, despite the investment and maintenance costs. Governmental subsidies should be in place in order to save on environmental costs.

To protect the biodiversity of the Shkodra Lake, subsidies or other incentives should be in place to substitute chemical fertilizers with biological fertilizer. N should be credited from all other sources such as manure and previous legume crops. Use of soil tests should be enforced by law in order that N rates are based on these tests and reasonable yield potential. Variable rates should be applied also depending on each zone and specific technology.

Although the area has been oriented toward the field vegetable production, intensification by installation of greenhouses will happen. This should not be stimulated because of the high levels of intensification in terms of the use of agricultural inputs. As for arable crops, the same goes for improvements in the technology. Arable crops need to be diversified to include deep rooted annual crops as well as consider legumes.

Government policies should be in place to change the livestock composition (numbers, proportion of different breeds and species in their total population) depending on the restrictions on access to feed/fodder resources and, quantitative and qualitative change in the types and availability of fodder. These policies should strongly strengthen the crop – livestock integrated mixed farming system, with a positive impact on the environment.

5. References

1. Çakalli, M. and Pazaj, E. (2013) **Assessing the competitiveness of specialized and mixed fruit tree family farms in Albania.** 23rd International Scientific - Experts Congress on Agriculture and Food Industry, 27 - 29 September, Izmir, Turkey.

2. Mima, M., Fitoka, N., and Bego, F. (2003) **Inventari i Ligatinave të Shqipërisë**.
3. Mijović, S.R., Vuković, Ž. and A. Mažgalj (2006). **A Pan-European classification of the Skadar Lake according to environmental standards.** *Facta Universitatis, Series: Physics, Chemistry and Technology.* Vol. 4, N.1, pp. 35 – 43
4. World Bank (2006). **Lake Shkoder Transboundary Diagnostic Analysis – Albanian and Montenegro**. Final Report