



ANALYSIS OF AGRI-ENVIRONMENTAL INDICATORS IN THE WEST DEVELOPMENT REGION OF ROMANIA

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Abstract: The Western Development Region presents a significant pedoclimatic diversity, which influences the structure and application of agri-environmental measures. In this context, land improvement and soil protection indicators play an essential role in ensuring the sustainability of regional agriculture. In the studied area, the share of land with land improvement works is moderate, and irrigation systems are below potential, due to outdated infrastructure and high maintenance costs. Drainage works have also a major importance for maintaining the quality of agricultural land, reducing the risk of waterlogging and loss of fertility. The analysis of agri-environmental Indicators in the West Region indicates gradual progress in the implementation of agricultural land protection and improvement works, but the need to modernize irrigation infrastructure and strengthen erosion prevention measures persists.

• Introduction

Agri-environmental indicators are analytical tools used to assess the interactions between agriculture and the environment, tracking the impact of agricultural activities on natural resources and biodiversity. They provide a comprehensive picture of the sustainability of agricultural systems and contribute to the formulation and monitoring of public environmental and rural development policies. The Western development region, consisting of Arad, Timiș, Hunedoara and Caraș-Severin counties, presents agro-ecological diversity that influences the values and trends of these indicators.

• Material and method

The research on the analysis of agri-environmental indicators in the West Development Region of Romania was based on a mixed approach, combining qualitative and quantitative methods in order to obtain an integrated perspective on the interaction between agriculture and the environment, as well as on the level of sustainability of agricultural practices in the region.

• Results and discussions

The utilized agricultural area has remained relatively constant, representing approximately 65–68% of the total regional area. A slight expansion of the land designated for organic farming is observed, from 2.8% in 2015 to over 6% in 2024, especially in Arad and Hunedoara counties. This increase reflects the increased interest in sustainable practices and access to agri-environmental support schemes.

We will analyze aspects of land improvement: areas arranged for irrigation, agricultural areas effectively irrigated with at least one watering, the area of land arranged with drainage works, areas on which erosion control and land improvement works have been carried out.

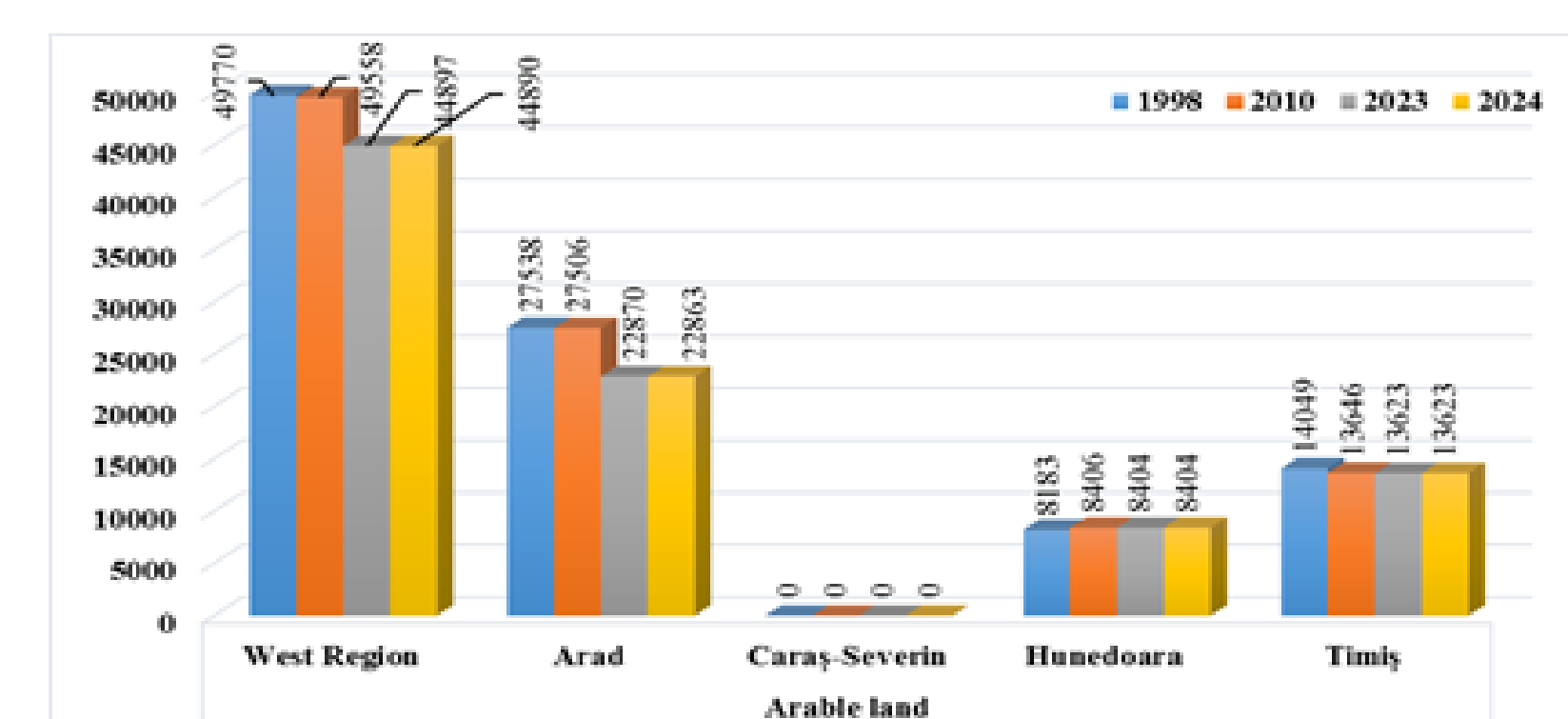


Figure 1. Area of arable land with irrigation (ha)

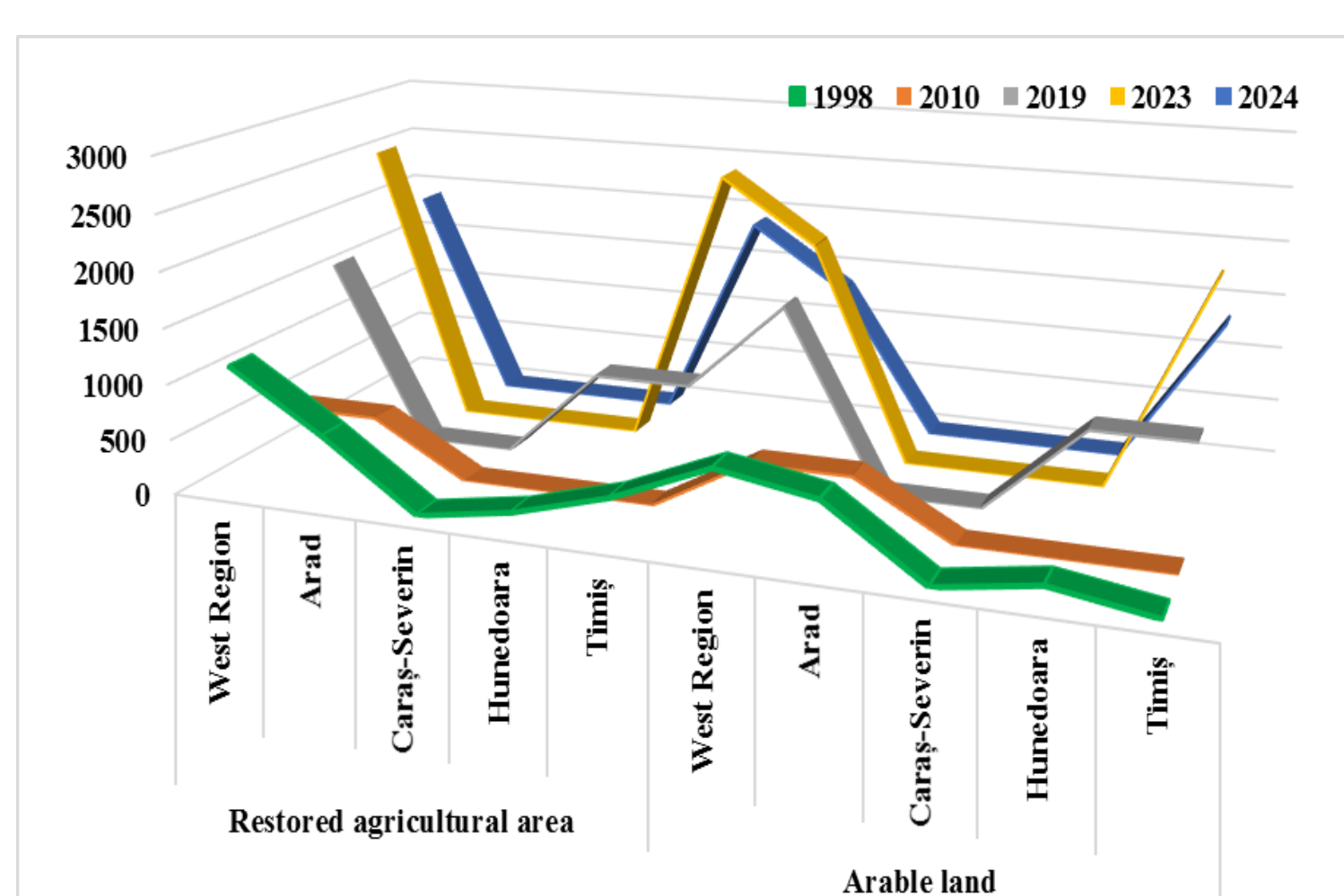


Figure 2. Agricultural area irrigated with at least one watering (ha)

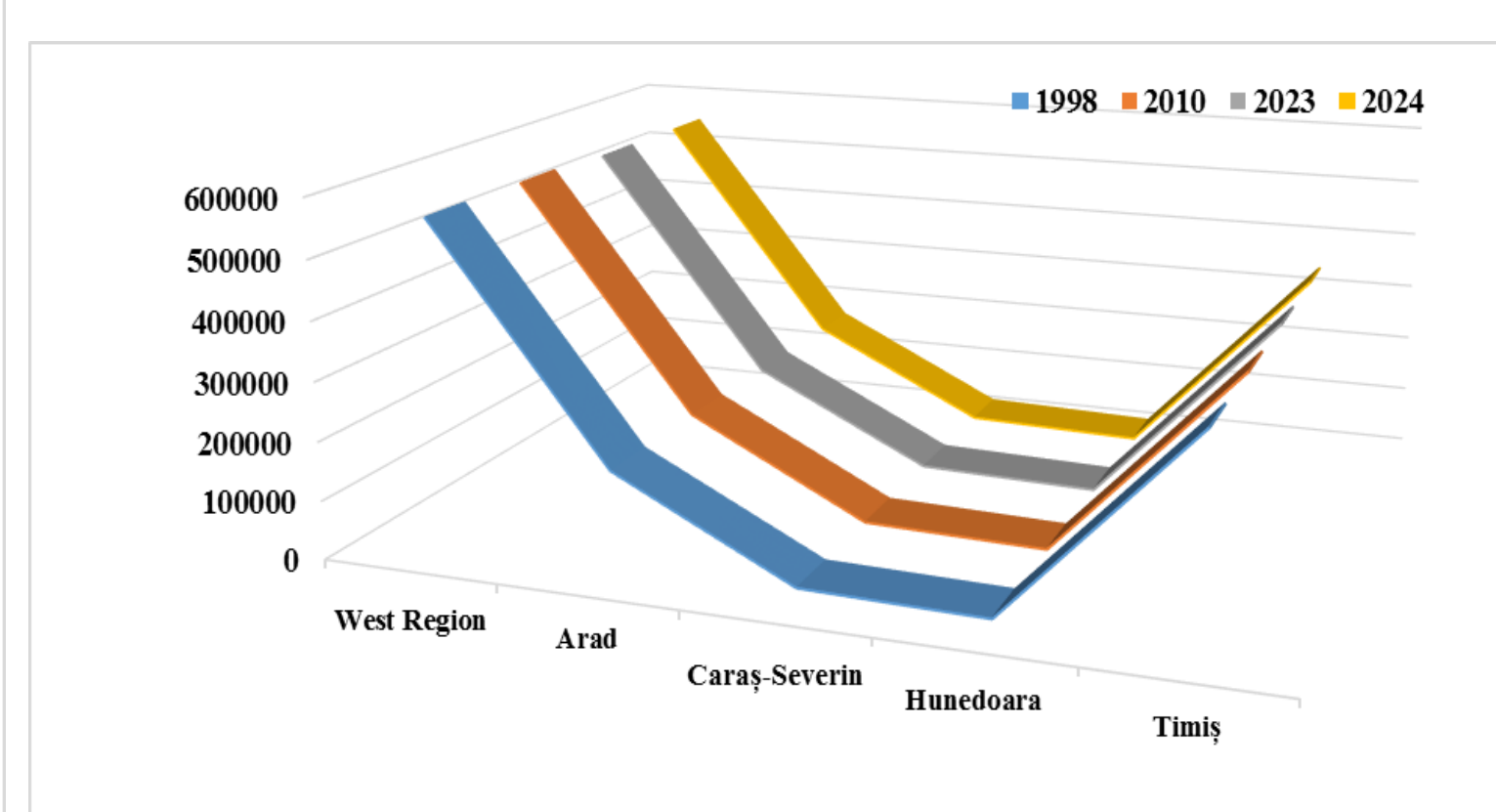


Figure 3. Area of arable land with drainage works (ha)

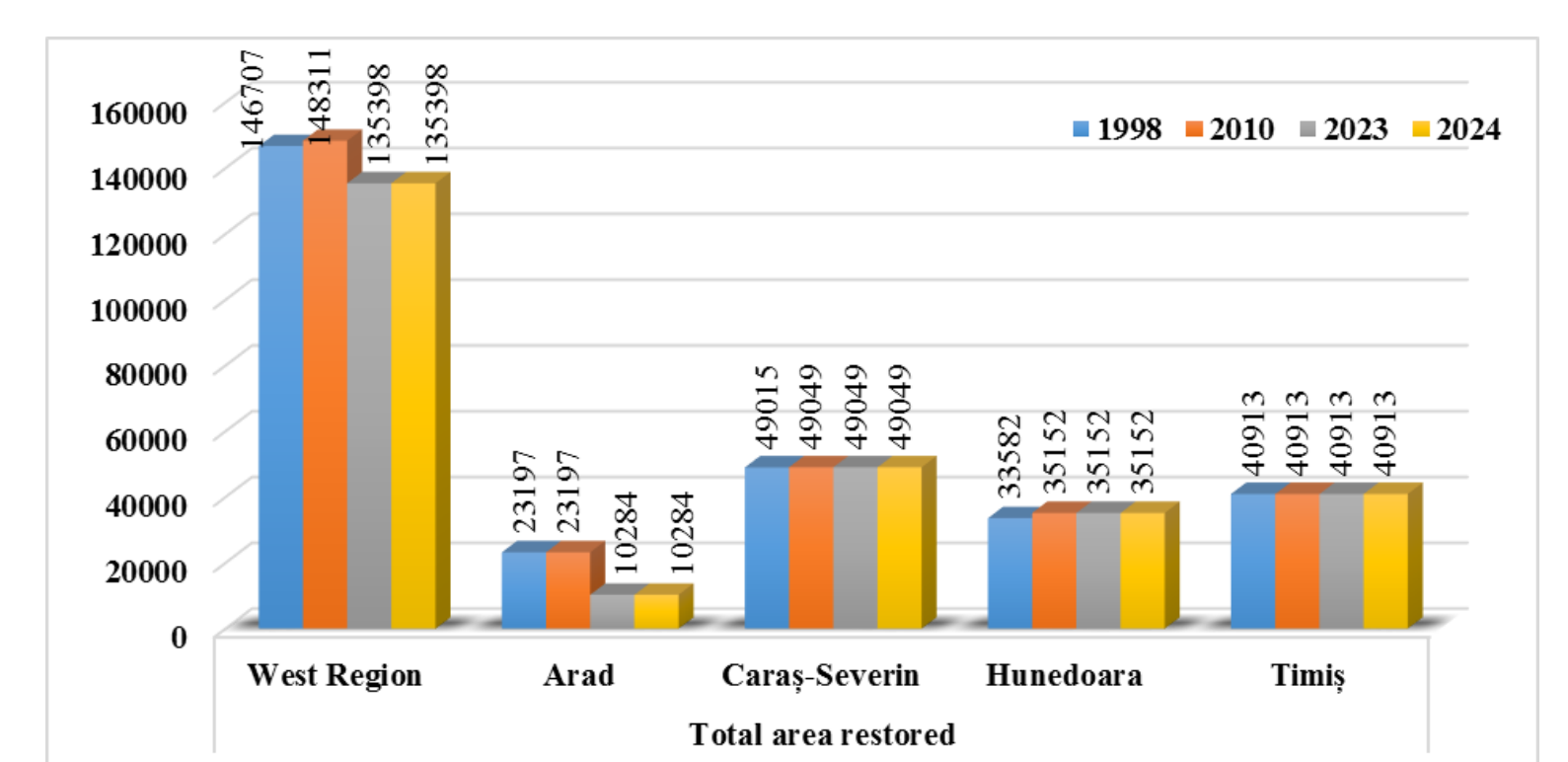


Figure 8. Total area of land with improvement works and soil erosion control

Conclusions:

Agri-environmental indicators provide an integrated picture of the balance between agricultural productivity and environmental protection in the Western Region of Romania. By analyzing these indicators, vulnerable areas, trends in pressure on natural resources and opportunities for intervention for the transition to a sustainable and resilient agriculture can be identified.

Overall, the dynamics of the analyzed indicators reveal a slow transition towards a more sustainable agricultural model, but dependent on the adaptation capacity of the agricultural infrastructure and the coherent implementation of public policies in the agri-environmental field. Consolidating investments in land improvement works, irrigation and erosion control, correlated with the promotion of organic agriculture, constitute priority directions for ensuring the sustainability of agro-ecosystems in the Western Region.