Monitoring of the risk of farmland abandonment as an efficient tool to assess the environmental and socio-economic impact of the Common Agriculture Policy

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ABSTRACT

Farmland abandonment (FLA) could be defined as the cessation of agricultural activities on a given surface of land (Pointereau et al., 2008). FLA, often associated with social and economic problems in rural areas, has significant environmental consequences. During the 1990s, millions of hectares of farmland in the new EU Member States, from Central and Eastern Europe, were abandoned as a result of the transition process from centralized and planned to market economy. The policy tools adopted gradually within the Common Agricultural Policy of the European Union (EU CAP), as well as the EU environmental and structural policies, aimed to prevent further expansion of this phenomenon and to facilitate the revival of the agriculture land, being abandoned (ComReg 1122/2009). The Agri-Environment (AGRI-ENV) component of the Core Information Service (CIS), developed within the scope of the FP7-funded project "geoland2" were designed to support the agricultural user community at pan-European and national levels by contributing to the improvement of more accurate and timely monitoring of the status of agricultural land use in Europe and its change. The purpose of the product 'Farmland abandonment', as part of the AGRI-ENV package, is to detect potentially abandoned agriculture land, based on multi-annual SPOT data with several acquisitions per year. It provides essential independent information on the status of the agricultural land as recorded in the Land Parcel Identification System (LPIS), which is one of the core instruments of the implementation of CAP. The production line is based on object-based image analysis and benefits from the extensive availability of Biophysical parameters derived from the satellite data (geoland2). The method detects/tracks those land (or so-called reference) parcels in the LPIS, holding significant amount of land agriculture found as potentially abandoned. Reference parcels with such change are flagged and reported, enabling the National Administrations to further analyze the spatial distribution and magnitude of this phenomenon at regional and national levels. Test results have been successfully generated for one test area (the Bulgarian part of the Strymunas-Struma River Basin).

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1. Introduction

1.1. Policy context and drivers

In the most EU Member States, a significant decline of the utilized agricultural area, being the total area taken up by arable land, permanent grassland, permanent crops and kitchen gardens (according to Eurostat), has been shown in the last decades. This loss is mainly due to farmland abandonment, but other land-use changes as afforestation and soil sealing, are strong factors as well. Farmland abandonment has occurred in many regions of Europe and at different periods, particularly affecting the so-called "marginal agriculture land", that relates mostly to areas that are

less favored from economic and agriculture point of view (FAO, 1997), which within the Bulgarian context are often situated in the transitional zones between the intensively farmed land and the urban areas, or the flat and mountainous areas. A typical example for such transitional, semi-mountainous region is the selected study area. FLA has significant environmental consequences and is often associated with social and economic problems in rural areas. For parcels that were previously intensively managed, abandonment has brought environmental benefits, particularly a reduction in agricultural chemicals pollution. For areas that used to be grasslands, and that were valued for their botanical interest or as habitats for breeding and migratory birds (High Nature Value farmland), FLA entails significant loss of biodiversity (Pointereau et al., 2008).

Apart from the environmental concerns, farmland abandonment may be perceived as an economic or social problem, as it may influence the local economy (structural change, farmers leaving grassland or orchard production). This may result in no demand for supporting technologies and labor skills, further negatively affecting the local economy, which in turn can lead to more farmland abandonment (for instance, by not giving opportunity to all family members to make a living). Also, land abandonment may influence some social aspects of countryside life and, in turn, social aspects of the village life may have influence on land abandonment (Moravec and Zemeckis, 2007). There is social-economic concern relevant for the study area as well.

FLA growingly attracts policy-makers attention, both at national and EU level. Since 1992, the Common Agricultural Policy (CAP) has increasingly been adapted to better serve sustainability, by means of a fundamental reform process designed to move away from a policy supporting price and production, to a policy of direct income aid and rural development measures (CouncilReg 73/2009). An important step in the reform process was the Agenda 2000, which established that the CAP should not only improve the competitiveness of EU agriculture, guarantee food safety and quality, and stabilize farm incomes, but also provide environmental benefits, enhance the rural landscape and sustain the competitiveness of rural areas across the EU. Consequently, since the CAP reform of 2003, farmers who apply for single farm payments have to comply (cross-compliance) with Good Agricultural and Environmental Conditions and with the Statutory Management Requirements that define standards for the environment, food safety, animal and plant health, and animal welfare.

The 2003 CAP reform took another step toward integrating environmental concerns into the CAP. It reinforced a number of measures that encourage land use and practices compatible with the protection of environmental resources, both in the first pillar (market and income policy) and in the second pillar (rural development policy). Agri-environmental indicators are developed to monitor the integration of environmental concerns into the CAP. They can serve a variety of policy purposes:

- To provide information on the current state of the farmed environment and the ongoing changes;
- To track the impact of agriculture on the environment;
- To assess the impact of agricultural and environmental policies on the environmental management of farms;
- To inform agricultural and environmental policy decision makers;
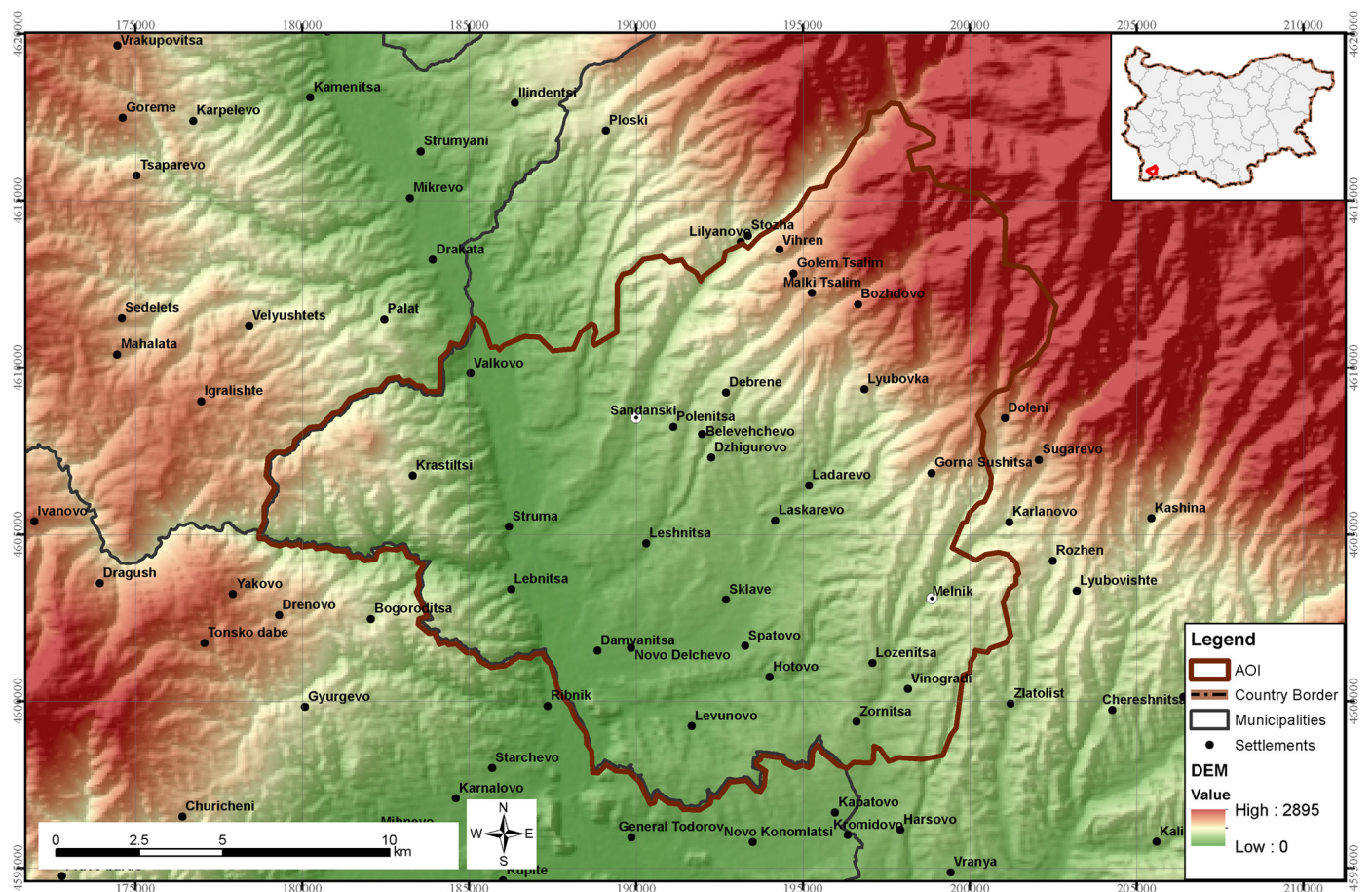- To inform the broader public on agric–environmental relationships.

Fig. 1. Map of the test area.