Land Use Policy 78 (2018) 36–45

Contents lists available at ScienceDirect

Land Use Policy

journal homepage: www.elsevier.com/locate/landusepol

The idea of rational management of problematic agricultural areas in the course of land consolidation

Justyna Wójcik-Leń[a], Katarzyna Sobolewska-Mikulska[b], Natalia Sajnóg[b], Przemysław Leń[a,*]

[a] Department of Environmental Engineering and Geodesy, University of Life Sciences, Lublin, Poland
[b] Department of Spatial Planning and Environmental Sciences, Faculty of Geodesy and Cartography, Warsaw University of Technology, Warsaw, Poland

ARTICLE INFO

Keywords:
Agricultural problem areas
Land consolidation process
Rational land management
EU
Poland

ABSTRACT

One of the main economic tools in Poland supporting the European agricultural policy are activities implemented in the scope of the Rural Development Programme (RDP). Their primary objective is the support of agricultural activity and equalisation of changes for the development of farms in areas with unfavourable environmental conditions, characterised by low soil productivity. The implementation of the RDP is a chance to improve the spatial structure of rural areas. Rational land use is an issue of key importance in the context of the production potential of agriculture.

This paper presents the results of detailed analysis of literature concerning problematic areas. The analysis in this paper covers geodesic-cartographic sources of data on problem areas. The resources from databases of the real estate cadastre and other cartographic thematic studies were considered. One of the technical-legal instruments supporting rural development, namely the land consolidation process, was characterised. For the purposes of the development of the concept of the rational management of problem areas, primary criteria were determined (i.e. location, land relief, soil conditions in terms of quality and usefulness, etc.), as well as detailed criteria. The criteria were ascribed point weights. The effect of the research is the development of the concept of alternative management of agricultural problem areas in the process of the development of a land consolidation project. The obtained results in the form of georeferenced data permitted the development of a methodology of the management of agricultural problem areas during land consolidation works, applicable in any socio-economic condition, independent of the geographic location of the region.

1. Introduction

One of the main priorities of the Common Agricultural Policy of the European Union (EU) is the improvement of the quality of life in rural areas and effective use of their resources.

Socio-economic disparities occurring in EU member states are maintained in spite of many activities being undertaken (e.g. the Rural Development Programme). The variability level is higher at the local and regional than national level. This state was already referred to in the First Report on Economic and Social Cohesion, prepared by the European Commission in 1996 (First Cohesion Report, 1996). To reduce such disproportions, various activities are undertaken in the scope of the EU policy, though they have not brought about the expected results fully, as mentioned by (Bachtler and Turok, 1997; Paraskevopoulos, 2001; Tondl, 2001a,b; Maura, 2002; Moussis, 2002; General Report on the Activities, 2001; Yin et al., 2003). In the Second Report on the Economic and Social Cohesion (Second Report on Economic, 2001), the European Commission states that economic disproportions between current member states are maintained in spite of strong tendencies for convergence.

Due to the above, one of the technical-legal instruments supporting rural development is the geodesic process of land consolidation. Importantly, the consolidation procedure is conducted in agreement with the local community which participates in it actively. Two types of such a procedure are designated. In Europe, Vitikainen identified basic models concerning the responsibility of performance of land consolidation, namely the cadastral surveyor model and committee model.

In the “cadastral surveyor model” (e.g. in Austria, Finland, Germany, and Sweden), a cadastral surveyor appointed by the land consolidation authorities is in charge of implementing the projects. In the “committee model” (e.g. in Belgium, France, the Netherlands, Portugal, and Switzerland), the responsibility is with a panel committee. The committee may be nominated by the ministry, regional administrative authority, or land consolidation authorities. In some of

* Corresponding author.
E-mail addresses: justynaa.wojcik@wp.pl (J. Wójcik-Leń), k.sobolewska@gik.pw.edu.pl (K. Sobolewska-Mikulska), N.Sajnog@gik.pw.edu.pl (N. Sajnóg), przemyslaw.len@up.lublin.pl (P. Leń).

https://doi.org/10.1016/j.landusepol.2018.06.044
Received 20 December 2017; Received in revised form 22 June 2018; Accepted 22 June 2018

the countries, land owners have a representative in the committee, while in others the committee merely consists of the representatives of various organisations and authorities. When necessary, experts may be appointed for assistance in both of the models (Meuser, 1992, p. 92–102; Sky, 2001, p. 44–46.). Land owners in the consolidation area generally form a competent association, which, depending on the country, has a weaker or stronger role in implementing projects. Such an association has a strong statutory position, for example in France, Germany, and the Netherlands where it can participate in valuations, project planning, and implementation (Dorémus, 1992, p. 171; Meuser, 1992, p. 92–102.).

Moreover, example countries showing features of the cadastral surveyor model include Poland, Lithuania, and Norway, where land consolidation is based on legal provisions regulating all aspects of the procedure. In Poland and Lithuania, the leading authority is the administrative authority. Norway is a country where the land consolidation model is based on specially appointed consolidation courts. In Poland and Lithuania, financing occurs from the state budget and resources of the European Union (in each of the countries the contribution is different and depends on other members). In Norway, financing occurs from the state budget. In Poland, the area covered by consolidation consists of one or several villages. In Lithuania and Norway it depends on the location of the consolidation participants (Dudzińska and Kocur-Bera, 2013).

In general, the procedure of consolidation works for EU countries is similar. The situation results from the determination of rules of land consolidation followed by the member states by the UN Food and Agriculture Organisation (FAO) (What is land… 2013).

According to the rules of land consolidation developed by FAO (FAO, 2003), consolidation is a sequence of activities aimed at the reorganisation of plots in a given area of a farm through their regrouping, but also the provision of their more favourable shape and access. Pursuant to the above regulation, the following consolidation approaches exist: full consolidation, simplified consolidation, consolidation for a group of volunteers, and individual consolidation. A process known as "full land consolidation" is considered the most effective for rural development. This geodesic process is perceived as an important part of rural development projects through the rational distribution of land and improvement of effectiveness in agriculture.

Due to this, an important objective of the policy in Poland, implemented in the scope of the Rural Development Programme (RDP), concerning the land consolidation process is the equalisation of chances of development and maintenance of the agricultural character of areas located in unfavourable environmental-landscape conditions. In the majority of cases, such areas are prone to depopulation and processes of environment degradation. It should be emphasised that each rural area is unique. Due to this, the adjustment of solutions to environmental and landscape conditions individually for each area is particularly important.

Abiotic factors are therefore of high importance for agriculture, including land relief, type of soil, atmospheric precipitation – water, air temperature, and wind. Rural development also includes demographic, economic, environmental-landscape, and public interest aspects. Sources of data on rural areas are included in the real estate cadastre, i.e. an information system ensuring the collection, update, and disclosure of information on land, buildings and facilities, their owners, and other entities in possession of or administering such land, buildings, or facilities (Act geodesic and cartographic law 1989). Data included in cadastral bases also constitute the basis of analyses related to the geometry of plots and their state of ownership, including land fragmentation parameters. The scale of the land fragmentation phenomenon is considered as one of the most important parameters of spatial structure in rural areas (King, 1982).

In connection with the aforementioned, this paper aims to outline the concept of rational management of agricultural problem areas in the course of geodetic land consolidation works. For the purposes of this concept, general criteria (location, terrain relief, soil conditions such as its quality and usefulness) and specific criteria were identified and then they were assigned weights expressed as scores. The effect of the studies is a proposal of an alternative management of agricultural problem areas in the course of developing a land consolidation project.

2. Literature review

Development of agriculture as well as its production capacities considered at the global scale show high spatial variability. Such a situation is caused by the process of long-term transformations of the agricultural economy in areas with differing socio-economic situations. Currently, in European countries, agricultural areas can compete with each other in many ways (economic, social, cultural, etc.). Moreover, areas also exist in which private individual farms conduct agricultural production at or below the profitability threshold. Such areas are the most affected by changes and systemic transformations and are often described as so-called "problem areas".

The scientific literature proposes many definitions of problem areas. Approaches to the issue depend on the research discipline of the authors. Scientific discussions on the subject involve the use of terms such as agricultural problem areas, conflict areas, distress areas, depression areas, difficult areas, production reserve areas, handicapped areas, areas of threats, pathological areas, weaker developed areas, backward areas, marginal areas, etc. (Bański, 1999). They are usually synonyms to the term "problem areas". It seems, however, that the arbitrary character of use of such terms can cause misunderstandings and even mistakes.

Zagożdżon describing the above issue, determines that problem areas constituting a part of a geographic space are characterised by the occurrence of negative phenomena: "(…) from the social, economic, and technical sphere that cause specific internal anomalies (in the spatial structure) and abnormality of the area" (Zagożdżon, 1988). The problem area is also a unit of geographic space showing: "(…) certain development anomalies (…)" (Więckiewicz, 1989), but the problem area is also characterised by the abundant accumulation of disputable functions in the same areas and the occurrence of divergences in development. They are manifested among others in low level of life, emigration, and degradation of the natural environment (Jakobsche, 1985).

It is assumed that the presence of problem areas causes serious barriers for the socio-economic policy of a country. Ciok points out that the term problem area covers: "(…) an area with low effectiveness of socio-economic and spatial structures, therefore requiring special measures needed for solving the occurring problems in the scope of planning and regional policy" (Ciok, 1991). It is important to note that rural problem areas are also those with relatively small development potential and their economic development requires considerable support of internal resources.

Problem areas are also called depression areas. They are often characterised by a collapsing economy and intensive emigration (Friedmann, Alonso 1964). Another description of problem areas was presented by Zagożdżon who points out that: "The peripheral system in the spatial-functional structure of a specific whole will be the part of the area with features of a periphery, located outside the zone of the highest economic activity" (Zagożdżon, 1980). Peripheral areas are also called marginal areas (Bański, 1999). The location of the area is also an important factor of a problem area.

According to the definition by Falkowski agricultural problem areas are characterised by low agricultural effectiveness in relation to environmental, historical-economic conditions, and investment in fixed and current assets in agriculture (Falkowski, 1990). Moreover, they are areas where agricultural production is largely ineffective and cumbersome: "(…) agricultural production in particular areas depends on the environmental conditions that almost 'automatically' cause underdevelopment of the entire infrastructure and agricultural culture,