LAND CONSOLIDATION AS AN USEFUL TOOL FOR RURAL DEVELOPMENT

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ABSTRACT

Most of the land consolidation projects have been regarded as an instrument or entry point for rural development. Early concepts of rural development were virtually the same as agricultural development because of the predominant role of agriculture in rural areas at the time. The cadastral area of Veľké Vozokany was picked as a case study area. Measures proposed and realized in the future in the frame of a landscape consolidation project are highlighted in this contribution. These following aspects can be named among them: consolidation of parcels, enlargement of holdings and additional measures including irrigation and drainage infrastructure to improve water management, construction of field roads, land levelling, soil improvement measures and changes to land use such as converting agriculturally inferior land into forest land or wetlands. Impact of land consolidation on rural development is demonstrated. By designing new field roads the road infrastructure in the cadastral area has been improved. Water erosion control measures and new water facilities aided in better water resource management. Measures for ecological stability increased the land resistance.

Key words: land consolidation, parcels consolidation, cadastral area

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INTRODUCTION

Land consolidations are very similar in Slovakia, Czech Republic, Germany and Austria (Muchová, Petrovič, et al., 2010). Environmental protection and rural development are the main objectives that we took to consider in solving ownership relations. Similar land consolidations are those of the Netherlands, with the difference that they have the possibility of obtaining new land from reclamation of polders (Vitikainen, 2004). In Hungary, land consolidationsare only in the stage of pilot programs that are modelled according to Germany (Kovács, 2001). Land consolidations focused only on resolving property rights can be found in Bulgaria and Spain. Land consolidations solving large spatial distribution of particular plots of small farms are underway in Spain, Italy, Finland (Konttinen, 2007) and Cyprus (Demetriou et al., 2012). Those require an integration of divided and very small plots of individual farmers and building of a new transportation network. Voluntary or mandatory ownership rearrangements are reported in Turkish (Başpýnar, 2006). The main aim of Slovak land consolidationis defined in paragraph 1 of Land consolidation law, namely, a spatial reorganization of land ownership in particular area and other agricultural and forest property connected with the area. Land consolidations are focused on environmental protection and creation of ecological system of stability, agricultural land functions and economical operations of modern agriculture and forest economy and supporting rural development (Muchová, Vanek, et al., 2009). Concepts of rural development have become much broader and have expanded to include increased environmental awareness and a wide range of non-agricultural applications. The emphasis of land consolidation projects has shifted from a focus on restructuring of the agriculture to achieving more efficient multiple use of rural space by balancing the interests of agriculture, landscape, nature conservation, recreation and transportation, especially when land is required for the construction of major roads. Increasing priority is given to environmental conditions. Roads are being constructed to suit the landscape. Water bodies are being restored, often with buffer zones. Land consolidation now encompasses activities of village renewal. In line with other changes in the concept of rural development, land consolidation now places increasing importance on gender inclusion, participatory approaches and the use of mediation and alternative dispute resolution in resolving conflicts (FAO, 2003).

MATERIAL AND METHODS

Comprehensive land consolidation includes the re-allocation of parcels together with a broad range of other measures to promote rural development. Examples of such activities include village renewal, support to community-based agro-processing, construction of field roads, construction and rehabilitation of irrigation and drainage systems, erosion control measures, environmental protection and improvements including the designation of nature reserves, and the creation of social infrastructure including sports grounds and other public facilities (Act No. 330/1991 Coll.). Land consolidation is divided into four main stages. First stage includes the identification of the project perimeter, actualization of soil-ecological units, a land value map creation, current status, current status registration, proposing a local system of ecological stability and general principles for functional land organization. Next stage of land consolidation project is to propose new parcel arrangements in project perimeter, i.e. the location plan of new parcels, plan of new common facilities and measures and public facilities and measures, dividing plan in form of location and distribution plans. Third stage includes determination of border points for new parcels in terrain, actualization of project perimeter, register of real estates and the placement plan. Final stage of land consolidation project is related to the realization of common facilities and measures. Realization of technical facilities (common facilities) in these consolidations means new roads, ponds, green areas in land, flood and erosion control measures (Muchová, Vanek, et al., 2009). This contribution highlights local system of ecological stability and road network in the Veľké Vozokany cadastral area.

RESULTS AND DISCUSSION

Local territorial system of ecological stability (MÚSES) is an integrated structure of interconnected ecosystems, their components and elements, ensuring the diversity of life conditions and forms in the landscape (Zákon č. 543/2002 Zb.). Environmental measurements are part of most water management, erosion and transportation measures, with the particular advantage being its multi-functionality.

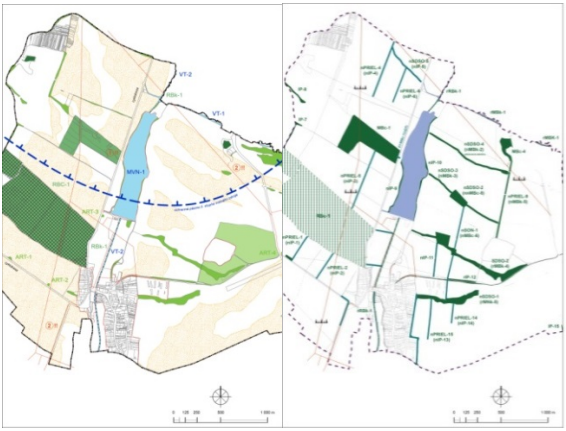

Fig. 1: Local system of ecological stability proposal for land consolidation project in the cadastral area of Veľké Vozokony, prior state (left), new proposal (right)

Within this land consolidation project, significant landscape features have been labelled (forests, groves, wetlands, riparian ecosystems, grass meadow stands, parks, alleys and others). Significant cultural and historical landscape features have also been documented (historical elements of natural resources, historical vegetation elements and archaeological features, traditional forms of land use, historical settlement architecture and landmarks of the country). All of these elements might have become MÚSES elements.It's important to locate those characteristics of the area reflecting the transformations and interactions of natural and human activities. Elements of MÚSES take into consideration the European network of protected sites NATURA 2000, Convention on Wetlands of International Importance especially the Water-flow Habitats known as Ramsar Convention and Man and Biosphere Programme – MaB (Muchová, Vanek, et al., 2009;Muchová, Petrovič, 2010).

The road network, as it is shown on the Fig. 2, is derived from all line facilities and measures prominent in the organization of soil fund. Besides the infrastructure function, it also contributes to the water erosion control (by road ditches) and together with accompanying vegetation influences the landscape character (Varga, et al., 2013). New field road infrastructure connectsneighbourhood cadastral areas providing new opportunities for bicycle trails (thus potentially enhancing tourism in the project's perimeter). Better accessibility of new parcels raises their market value. Usually, new road network makes natural landmarks and artefacts more prone to visit. It also means new job opportunities.

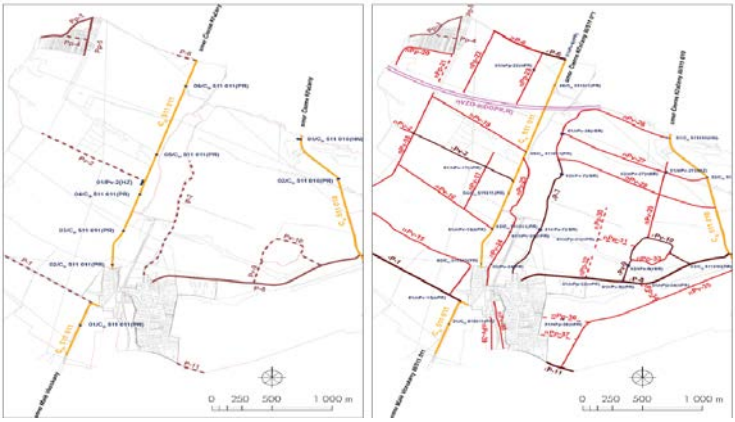

Fig. 2: Reconnaissance of existing field road in project perimeter (left), new design of transportationfacilities and measures in the project's perimeter (right)

Significantvalue of land consolidation lies in is recovery of cadastral maps and creation of the basis for maps recovery with a new mapping. Complex land consolidation is the most important tool for rational rearrangement of ownership of agricultural and forest land with respect to farming and landscape.

From the total of 31,520 km field roads in the land consolidation project for Veľké Vozokany, existing roads represent 1,155 km, 8,197 km of roads have been redesigned for reconstruction and 22,168 km are new field roads. Ecological stability coefficients have been determined. Areas as agricultural land, build-up areas, special cultures, permanent grassland, forest and water surfaces have been mapped. Land areas of 52,177 ha having no positive ecological impact have been reduced by 122 ha due to incorporation of positive elements that are improving the ecological stability.

CONCLUSIONS

Comprehensive land consolidation has been instrumental in promoting rural development in Western Europe. They have the potential to make similar significant contributions towards improving the quality of rural life in Central and Eastern Europe. Transition countries will be able to benefit considerably from concepts and techniques developed in Western Europe but they will have to devise new approaches and solutions to address the particular conditions of fragmentation they have; the social, cultural, economic, legal, administrative and political environment in which they operate; and the financial and other resources that they are able to mobilize. In our case study area of Veľké Vozokany the main goal was to consolidate ownership of the land. Number of ownership relations before Land Consolidation project was 15,762, after the project, we managed to decrease this number to 3,131 ownership relations (reduction by 503 %). Average area of a parcel before project was 0.22 ha, now it is 0.38 ha. Original 3.8 ownership relations were cut down to mere 1.4 per parcel. Seven years after the landscape consolidation project's finalization, we can conclude that its impact has been significant. Business with parcels increased rapidly, land-lease agreements have been revived and resolved. Ownership of plots for ecological and transportation measures have been cleaned, thus making the realization of the measure possible (Muchová et al., 2007).

REFERENCES

BAŞPÝNAR, V. 2006.*Die Flurbereinigung und deren Rechtsfragen in der Türkei.*<http://archiv.jura.uni-saarland.de/turkish/VBaspinar.html>.

DEMETRIOU, D. et al. 2012. Land consolidation in Cyprus: Why is an Integrated Planning and Decision Support System required?*Land use policy*, vol. 29, pp. 131-142. <http://dx.doi.org/10.1016/j.landusepol.2011.05.012>.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. 2003. *The design of land consolidation pilot projects in Central and Eastern Europe*. Rome : FAO. 55 p. <ftp://ftp.fao.org/docrep/fao/006/Y4954E/Y4954E00.pdf>.ISBN 92-5-105001-5.

KONTTINEN, K. 2007. *Land Consolidation in Finland – a farmer driven project with many goals.* In: *Unece WPLA*, Munich.

KOVÁCS, E. 2001.*Výsledky a skúsenosti s TAMA, projektom pozemkových úprav v Maďarsku.*<http://www.geos.cz/>.

MUCHOVÁ, Z., VANEK, J. et al. 2009. *Metodické štandardy projektovania pozemkových úprav.*Prvé vydanie.Nitra :Slovenská poľnohospodárska univerzita v Nitre. 397 s., ISBN 978-8-552-0267-9.

MUCHOVÁ, Z., PETROVIČ, F. 2010. Changes in the landscape due to land consolidations.*Ecology*. Vol. 29, No. 2, pp. 140-157. ISSN 1335-342X.

MUCHOVÁ, Z. a kol. 2007. *Všeobecné zásady funkčného usporiadania územia v obvode projektu pozemkových úprav v katastrálnom území Veľké Vozokany.*Nitra : GOK, 148 s.

VARGA, V. et al.2013.Comparison of volumetric and deflametric method with wind erosion equation (WEQ) to determinate soil erosion by wind events on selected soil unit. *Acta horticulturae et regiotecturae*, vol. 16, No. 1, pp. 18-23.ISSN 1335-2563.

VITIKAINEN, A. 2004.An Overview of Land Consolidation in Europe.*Nordic Journal of Surveying and Real Estate Research*, Vol. 1, pp. 25-44. <http://ojs.tsv.fi/index.php/njs/article/view/1691>.

Zákon č. 543/2002 Z. z. o ochrane prírody a krajiny.

Zákon č. 330/1991 Zb. O pozemkových úpravách, usporiadaní pozemkového vlastníctva, pozemkových úradoch, pozemkovom fonde a o pozemkových spoločenstvách.