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ANALYSIS OF THE UTILITY FUNCTION OF LANDS IN GAŁKOWICE VILLAGE

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Summary. Transformation of rural areas should be based on sustainable multifunctional development, during which the adaptation of a given area functions (land performance structure) to natural conditions is the main problem. The study dealt with the analysis of functions of land areas in Gałkowice village situated in the Kielce-Sandomierz Upland (according to Bajerowski's methodology). Achieved results were compared with the current status of land utilisation, which could be a trigger to analyse the structural transformations of that area.

Key words: utility functions, eroded lands utilisation

INTRODUCTION

Rural areas in Poland are facing a variety of challenges and aspirations. The economic and social development should lead to an improvement of living conditions of the inhabitants of those areas. The development should be planned and allow to select ecologically proper and socially desired directions of activity. It should also predict and warn against the appearance of any threats of unfavourable changes, hence it has to be sustainable and it cannot favour neither economy, nor ecology, instead it should enforce discussion and agreement [Dzikowska and Janowski 2004].

The image of the Polish village evolves. The countryside is no longer identified only with agricultural production – new functions such as services, industry, rest and recreation are implemented, and multifunctional development is observed. Efficient reconciliation of the co-existence of these functions requires planned strategy that, while recognising the individual interests, would also meet the local society needs and reduce possible spatial conflicts.

Farm production (as any other form of activity in rural areas) is realised on the base of natural environmental resources consisting of waters, soils, air, and landscape. The best results can be achieved when the system of land utilisation is adjusted to natural conditions, while not making any unfavourable changes. This issue gets more important in hilly areas with loess soils, where due to the properties of the soil types the manner of land management is the main factor determining the intensity of water erosion processes [Józefaciuk and Józefaciuk 1995]. Therefore, at the time of the obligatory doctrine of sustainable development, it becomes necessary to work out a suitable system of rural space management (depending on local natural conditions) in such a way that the erosion intensity (as a natural process within the environment) would be reduced to an acceptable degree [Koreleski 1997].

The present study aimed at analysing the functions of rural areas in Gałkowice village according to Tomasz Bajerowski's methodology, and at their comparison with the current situation. This publication may be a trigger to the optimisation of the land utilisation.

MATERIAL AND METHODS

The survey included the Gałkowice village (within the Opatówka river catchment in the Sandomierska Upland) situated in commune Dwikozy, Świętokrzyskie region.

A grid of 200-meter-side squares was plotted on topographic (1 : 10 000) and information maps (1 : 5 000) by means of dividing the area into 101 *basic fields*. Every *basic field* was catalogued according to the spatial features forming a matrix of traits involving the optimum land utilisation [Bajerowski 1996]. The optimum function could be selected after summing up the scores for given spatial traits of each *basic field* in the matrix columns. According to the methodology, the following ways of land utilisation were accepted – given area functions:

– agricultural function – arable lands (R),
– agricultural function – pastures (Ps),
– agricultural function – meadows (Ł),
– forest function – production (LsP),
– forest function – ecology-protection (LsE),
– recreational function – individual recreation (Wi),
– recreational function – group recreation (Wz),
– recreational function – recreation with no development permission (Wn),
– living function – built-up areas (B),
– industrial function – infrastructure (P).

The cataloguing – verification of current status of land utilisation as compared to existing information maps was performed in 2008 [Rybicki 2009].

Numerical computations were made using MS Excel software, while all graphical work was done with the help of CorelDRAW package.

RESULTS AND DISCUSSION

Optimum area utilisation

Analysis of the spatial features within a given basic field allowed to work out the map of optimum area functions.

Seven optimum area functions were distinguished in Gałkowice village: agricultural function – arable lands (69 basic fields), agricultural function – pastures (2 fields), agricultural function – arable lands along with living function – built-up areas (3 fields), forest function – ecology-protection (13 fields), recreation function – individual recreation (2 fields), ecology-protection forest along with individual recreation function (9 fields), ecology-protection forest along with recreation with no development permission function (3 fields).

Current situation of land utilisation

The results achieved by means of the Bajerowski method indicate what is the optimum land function on a studied area. In order to find out what real functions are played by them, the analysis of land utilisation was carried out basing on

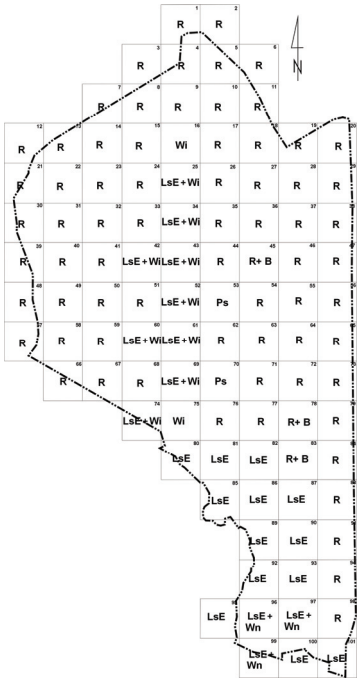

Fig. 1. Map of land functions according to Bajerowski's method: R – agricultural function – arable lands; Ps – agricultural function – pastures; R + B – agricultural function – arable lands along with living function – built-up areas; LsE – forest function – ecology-protection; Wi – recreational function – individual recreation; LsE + Wi – ecology-protection forest along with individual recreation function; LsE + Wn – ecology-protection forest along with recreation with no development permission function

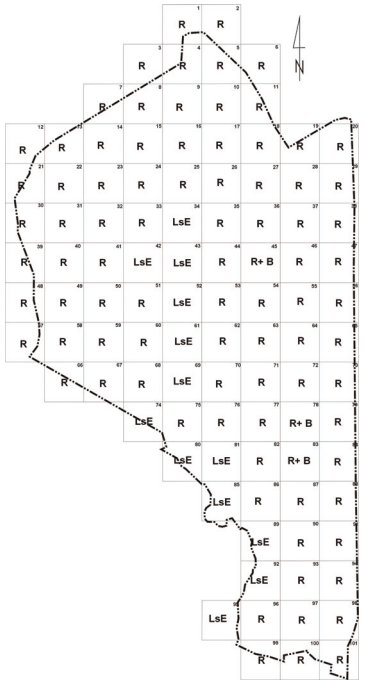

Fig. 2. Map of current situation of land utilisation: R – agricultural function – arable lands; R + B – agricultural function – arable lands along with living function – built-up areas; LsE – forest function – ecology-protection

data achieved *in situ* in 2008. The predominance of a given type of utilisation within a particular basic field was accepted as a qualifying criterion. The situation was the following: arable lands – 85 basic fields, forests – ecology-protection function – 13 basic fields, arable lands along with living function – 3 basic fields.

When comparing the results achieved by means of above two methods, it can be seen that within 23 basic fields, the studied object indicated the need of transforming the current area function into the optimum one. The transformation directions should be as follows:

– agricultural function – arable lands into agricultural function – pastures (2 basic fields),

– agricultural function – arable lands into forest function – ecology-protection (7 basic fields),

– agricultural function – arable lands into recreation function – individual recreation (2 basic fields),

– agricultural function – arable lands into forest function – ecology-protection along with individual recreation (2 basic fields),

– agricultural function – arable lands into forest function – ecology-protection along with recreation with no development permission (3 basic fields),

– forest function – ecology-protection into forest function – ecology-protection along with individual recreation (7 basic fields).

CONCLUSIONS

The bio-production zone including the sub-zone of arable lands (namely 1st, 2nd, and 3rd class soils) prevails within the studied structure of land management, which is quite great production potential for that area. However, another sub-zone – forests – should not be forgotten when planning the zone. Except for the protection (mainly within existing valley ravine and surrounding steep slopes) and production functions, it is an important element of the landscape that influences the rest and recreational values of the country.

The optimum status of land management that has been worked out indicates the necessity to make some changes in relation to the current situation. The most urgent needs are seen within the agricultural function – arable lands – from 16 to 23 basic fields. Required changes result mainly from the need to protect lands against erosion degradation and possibilities of utilising the area for recreational purposes. The achieved results also indicate opportunities to use some areas currently playing the forest-ecology-protection functions for individual recreation and for recreation with no development permission.

The agricultural-forest-recreation direction of development can be suggested for Gałkowice village on the basis of the presented studies on the land utilisation status. It is associated with the following values of the village: very good quality of the soils (namely those situated on relatively flat lands) as well as high landscape qualities resulting mainly from the branched valley-type ravine situated along the village.

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ANALIZA FUNKCJI UŻYTKOWEJ GRUNTÓW WE WSI GAŁKOWICE

Streszczenie. Przekształcanie obszarów wiejskich powinno opierać się na zasadzie zrównoważonego rozwoju wielofunkcyjnego, a jego podstawowym zadaniem jest dostosowanie funkcji danego obszaru (struktury użytkowania gruntów) do uwarunkowań naturalnych. W pracy dokonano analizy funkcji obszarów we wsi Gałkowice na Wyżynie Kielecko-Sandomierskiej według metodyki Bajerowskiego. Otrzymane wyniki porównano z faktycznym stanem użytkowania terenu. Porównanie to stanowić może przyczynek do analiz przemian strukturalnych tego obszaru.

Słowa kluczowe: funkcje użytkowe, użytkowanie gruntów erodowanych