

MODELS OF SPATIAL STRUCTURE AS DECISION TOOLS FOR SUSTAINABLE DEVELOPMENT IN RURAL AREAS

GALANT K.

Institute of Geodesy and Geoinformatics, WROCLAW, POLAND

In general, sustainable development requires combination of ecological and socio-economic aims. The conception of sustainable development of rural areas assumes support for diverse economic activity and improvement of living conditions by development of infrastructure. The UE funding should conduce to improvement in rural planning, reduction of unemployment, making rural areas more attractive for living and leading economic activity.

The foundation for any activity in frame of sustainable development, is recognition of state of environmental and demographic conditions. For this purpose, the models of spatial structure of chosen elements may be used. In the paper, the factors are selected among the ones that refer to environment in terms of farming, as well as the ones connected with demography (e.g. the number of people related to farming). The environmental conditions are strictly related to soil, which constitutes specific connection between lithosphere, hydrosphere, atmosphere and biosphere. The information on e.g. soil productivity, soil reaction, its degradation with heavy metals and degree of erosion hazard are taken into consideration.

Sources of data are maps (databases) stored in regional spatial information systems (DSIP – Spatial Information System of Dolnośląskie Voivodship), as well as specific – for a given field of human activity (e.g. in forestry) – spatial information systems. Variety of reference units of selected data requires transformation to uniform reference area. In the paper, geometric units of different dimensions are proposed. The dimension is adjusted to the research conduct on various level of generalization.

Models of spatial structure are, on the one hand – the models presenting indicators that express spatial distribution, complexity of shape, diversity etc., and on the other – the models in form of map of regions. The regions may be delineated based on various conditions and with use of variable methods. Authors' suggestion is delimitation of region in taxonomical procedures, as well using a chosen ranking method. The additional criterion in classification is an index that expresses diversity of a chosen investigated element. The characteristic as Shannon index delivers more specific information on features taken into consideration.

The maps of regions' types present the areas of similar conditions (environmental and demographic) in terms of aim of the analysis. Moreover, different weights for the analyzed factors may be assumed. In the result, various models, emphasizing impact of chosen conditions, are created. Additional approach is division on subareas with use of ranking method. The outcome as a map directly indicates on better and worse regions due to the goal of the performed analysis.

Summing up, whether to make decisions related to space or make an assessment on natural environment and demographic conditions, it is requisite to create models, which in their nature simplify reality as well as constitute comprehensive conception of research phenomena.