

Investigation of connections among physical, social and economic factors in case of optimal Land Use System Planning in the Egri-Bükkalja Foothill Area of North Hungary

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Nowadays, detailed knowledge of landscape elements and their capabilities, furthermore the probable tendency of climate change play important role in spatial planning of optimal land use system and solving agricultural and social challenges. During our research work, we have investigated three settlements (Cserépfalu, Egerszólát, Kerecsend) based on different landscape factors in the Egri-Bükkalja Foothill Areas of North Hungary. Our aim was to point out the landscape differences along north – south direction inside this microlandscape unit and their effects on land use system, economic developments, social challenges and their changeable tendency in the future

We have investigated quantitative and qualitative connections among different landscape factors in suitable GIS environment. Based on the identified relationships thematic maps were compiled. The elaborated GIS integrates digitally processed legacy data, properly selected spatial data infrastructure elements and recently collected field data originating from our geomorphological and pedological investigations carried out in last three years. We described soil features in soil profiles using methods according to FAO (2006) and Novák (2013). Soils were featured by soil type, the thickness of A horizon and the rate of soil erosion.

Projected climate changes have also been considered for the region. Besides collection of the available recent OAGCM outputs and outputs by four RCM run in Hungary, an empirical approach has been also included. This is based on empirical regression relationship between relevant grid-point values of

the CarpatClim data base and the temperature of the Northern Hemisphere.

Land use maps were created based on the 1st, 2nd, 3rd, 4th Military Survey Maps and aerial photographs covering a relatively long period from the 18th century till nowadays. Main social and economic factors and processes were characterized using data of the Hungarian Central Statistical Office, population census and empirical methods (analysis of documents, interviews and field works).

We pointed out that landscape factors change intensively in north-south direction in the Egri-Bükkalja Foothill Area. A smaller zonation system can be recognised inside this microlandscape units. Different optimal possibilities are guaranteed for planning of land use systems in the edge of middle-height mountain areas, in pediments and in the boundary between pediment and low plain areas. We have explored connection among landscape factors and socio-economic facilities and their processes of three settlements and we have explained spatial differences as well. We could explain land-use changes during last 230 years inside this microlandscape unit. Our research work effected new scientific results in this microlandscape unit and our results can be built up into different settlement development plans, and the processing of agricultural or landscape protection development processes in pediments in the future.