

PLANNING OF CONSTRUCTION AREAS IN THE MUNICIPALITY OF KLINA

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SUMMARY

This paper will treat planning of construction sites on municipal level, within the municipality of Klina. Thus, our main focus is rural areas as main center for agricultural production, whereas planning construction sites does not aim to ban construction, but its purpose is to make an area where construction can be attained, oriented and defined, thus minimizing its effects to the environment and agricultural land. On the other hand existing infrastructure use should be for a reasonable cost. So, planning construction sites may be seen as a coordinated effort of public authorities to orient or control constructions in order to protect agricultural land which is the common interest and welfare of public and economic efficiency.

Key words: GIS, municipality, construction, zoning, infrastructure.

1. INTRODUCTION

As a main factor for the expansion of settlements is the need for new construction areas that, mainly depend on the population growth within the municipality, but also population migration towards some certain settlements. This occurrence is followed by increased demand of numerous households for new construction and extra space which reflects in settlement expansion at the expense of agricultural land. This increase or potential expansion, should be calculated according to settlements within the municipality territory. Planning construction zoning in municipal level should be part of municipal development plan, which should be drafted upon general information and development purposes compiled and drafted in municipal development plan. The modern technology of GIS, can contribute for an integrated availability of planning construction zoning, since the data given in different map scale can be converted easily to a wanted scale.

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2. METODOLOGY

Working methodology is based on the following project “Further support of land use EULUP” (EULUP 2011). The methodology of planning construction areas is based on the structure of spatial data-GIS and for its objective it has to show recommendations in order to improve the situation regarding constructions especially in the rural areas. The database contains various layers with necessary information for land estimation and municipal territory planning. In such case, two models of construction planning and zoning have been created: “Construction of planning zoning with all restrictions” and “Construction planning zoning with all classified restriction” (EULUP, 2011).

3. DISSCUSION AND RESULTS

Model 1 “Construction of planning zoning with all restrictions”

In this model, restrictions and banning are shown, which are important to build urban development strategies in the municipality. Data offer a text which has integrating character, which combines restrictions which derive from legal protection of quality agricultural land and important areas with environmental values. (EULUP, 2011).

A single layer presents combined information of different aspects of land and environment. They may be grouped into three main categories”

1. Environmental restrictions according to land estimation data
2. Risk areas
3. Other banned areas

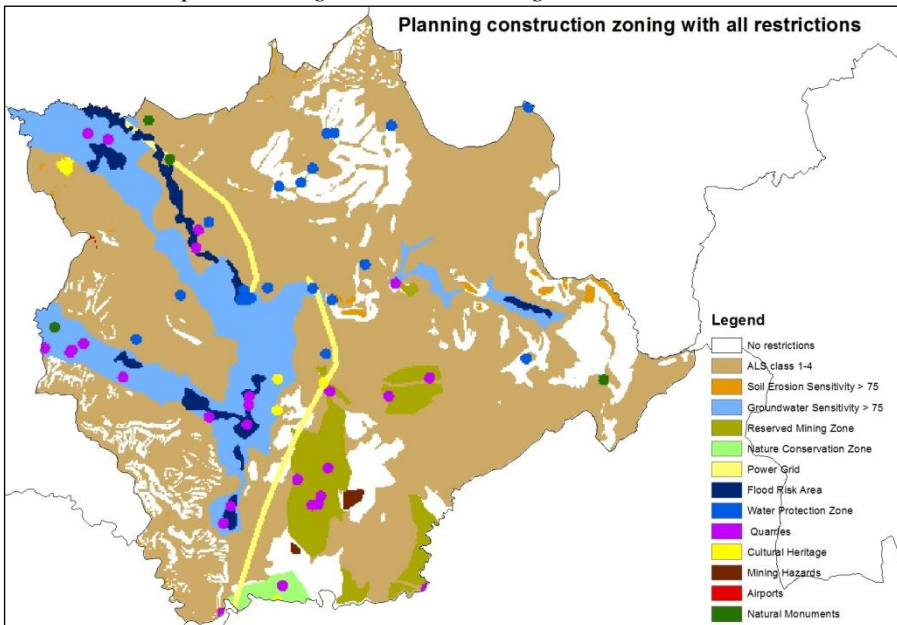
Environmental restrictions include: Land class I-IV (ALS), areas of groundwater vulnerability (SES), biodiversity areas (EBV).

These environmental restrictions, present implications not only for agriculture but also for urbanization. Legaly, only ALS 1-4 classes should be protected from constructions. However, even more vulnerable areas in environmental aspect have some restrictions for urban expansion of areas.

In principle, if all the houses/ buildings are provided to have sewage system and stability of soil slope greater than 22 degrees, than construction can be possible theoretically. In reality, in the ”best case” if the sewage system is installed, sewage water is sent to the nearest rivers not where sewage water is treated. So, what should be avoided, is that urban settlements should not be expanded towards areas estimated to have high vulnerability of

underground water. Risk areas include: flooding areas, risk prone to mines and dangerous landfills. Other restricted areas include: resource areas and water protection, natural heritage and special protected areas, cultural heritage, and the electric grid (high voltage tension). All areas restricted for construction are identified with different colours on the map of “planning construction zoning with all restrictions” (Map 1). The map is very informative if planners want to know what the limitations are. The disadvantage of the map is that, if there are two limitations in an area, for example ALS and ELS classes, only one of them will appear in color on the map, the one overhead. Surfaces without restrictions are presented in white color. They show areas where urban development at the municipal level are not in conflict with environmental factors and soil quality. Locally, white surfaces represent the directions in which settlements can be expanded .

Map 1. Planning construction zoning with all restrictions



Model 2 “planning construction areas with classified restrictions

On this model we can see where two or more restrictions are faced. Environmental constraints (or factors : ALS , ELS , SES and EBV) are grouped into classes according to their importance and points to limit

construction . For example , ALS classes I - II were given 100 points , grades III - IV with 70 points and classes V - VIII with 0 , while those which have 100 points pose strict limitations . Those that have 0 points , have no restrictions (Palmer , RC , and Nordin , N , (2011) .

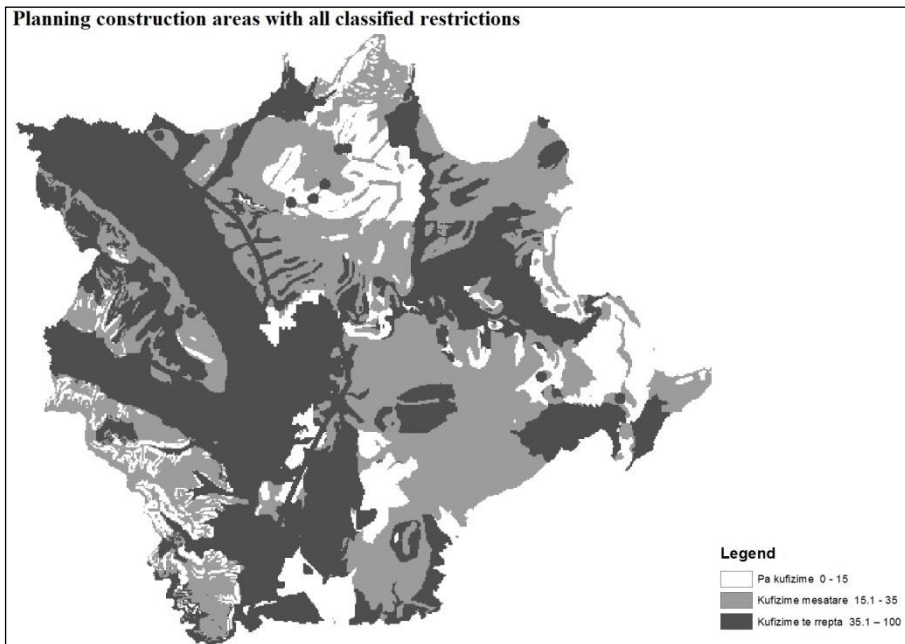
Chart1. Evaluation coefficient for environmental constraints

Environmental constraints	Evaluation coefficient
Agricultural land suitability (ALS)	0.4
Environmental Land Sensitivity (ELS)	0.2
Soil erosion sensitivity (SES)	0.3
Estimated Biodiversity Value (EBV)	0.1

Risk areas and other restrictions, are given points to a range of 0 to 100 points. By means of GIS tools, the results have been divided into three classes (Kuka, M. dhe Krasniqi, E, 2011):

1. Allowed construction (0-15 points)
2. Partially limited construction (15.1 - 35.0 points)
3. Strictly prohibited construction (35.1 – 100 points)

Map 2. Planning construction areas with all classified restrictions



Map of “construction area with classified restrictions” contains only three colours, where the dark colour represents more stringent restriction, and white zones without any restriction map 2.

If a municipality decides to give priority to the protection of groundwater , the GIS expert can give you more points to ELS coficient. This model of planning construction areas was created using GIS toolkit "Model Builder " .

4. CONCLUSION

This paper contributes to the protection of valuable agricultural land , water resources and the protection of environmental values . After evaluating the characteristics of the territory of the municipality and settlement expansion , about the possibilities of increasing the population by natality and migration of population , in the second phase the situation on the physical properties of soil and environmental constraints is assessed . In this way , it is easier for the municipality to decide about zoning strategies for new construction .

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