LAND USE CONSIDERATIONS RELATED TO THE COMPETITIVENESS OF RURAL AREAS

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I. Introduction, objectives

In spite of the traditionally economic approaches I defined the term of competitiveness from a different point of view. The spatial competitiveness can be understood just together with the interacting and complementary conditions of liveability and environmental sustainability (which form the base of sustainable development). The main objective of the study is the improvement of the competitiveness of the model area by the means of analysis of competitiveness, liveability and environmental sustainability and development of the basic elements of a complex development strategy. The constrains and opportunities established by the set of the above mentioned criteria leave their mark on the land use system of the region. The environmental, economic and social systems are inseparable from each other. In case the development policy ignores this integrity it is leading to unforeseen consequences. In the study I highlight the role of land use related to the competitiveness of rural areas and the better use of landscape potential. I formulated the following goals:

1. To determine the criteria and conditions of the success and competitiveness of rural areas related to the land use system (with the joint interpretation of liveability and environmental sustainability). My goal is to improve the overall position of the model area (especially the competitiveness but parallel with the conditions of liveability and environmental sustainability).

2. My goal is to explore the role of utilization of landscape conditions, landscape management in population development of the model area furthermore to explore the driving forces of the development of economy in certain historic periods.
3. My goal is to develop a method and set of indicators suitable for the complex evaluation of the land use system (competitiveness, liveability and environmental sustainability) as a base for elaboration of rural development strategy.
4. My goal is to find correlations between the land use system of successful and less successful settlements and to explore what kind of constrains emerge from the land use forms for the competitiveness and population development of the region.
5. My goal is to evaluate the regional and rural development institutional system in correlation with the land use system in order to explore what kind of constrains emerge from land use system for spatial development and whether the development strategies are based on landscape conditions.

The competitiveness, liveability and environmental sustainability can be understood on different spatial levels but are closely related concepts. The criteria of **environmental sustainability** are defined by nature. The regulation plan and building code defines the frames of land use system protecting and preserving environment and landscape. The recognition of constraints of environmental sustainability involved the increasing prominence of environmental management. The term of

liveability covers all the factors determining the life quality of the society on local level where the self-organizing, co-operative, adaptable and renewable capacity of the civil society plays a crucial role together with the availability of public services, educational policy, level of civil participation in government, liveabilty of civil organizations, and the civil policy forming democratic management. Competitiveness can be understood on macro-regional level. The regional division of tasks in the study area plays an important role. Determinant factors are the competitiveness and effectiveness of economic sectors, level of income, activities of the society, development policy. Furthermore the adaptive capacity of the local society to the outer circumstances, challenges, capacity, ability for innovations are important factors (in order to simplification this aspect is classified in the subsystem of liveability of social nature). The local societies have to get along the inner constraints formed by nature and challenges of globalization.

The harmony of the three different aspects generates the complex criteria of sustainable development with focal shifts. The different challenges, demands, conditions, values form the inner value-management of the regions, which for me as an landscape architect can be mapped in the land use system assuming diverse, balanced land use system.

II. Materials and methods

The factors determined by competitiveness, liveability and environmental sustainability form a really vast, complex interacting system. Due to the limitations of the study I highlight just the relevant factors of competitiveness related to landscape planning.
In the first part of the study I reviewed the general aspects of spatial competitiveness, most important factors of success of rural areas and I looked for the connections to the land use system.

Most of the conflicts of the present emerge from the past so I reviewed the landscape history of the model area exploring the drivers of development of the society focusing on the role of landscaping on the changes of population development. I highlighted the trends of population development and competitiveness of the region parallel to the landscape changes in Hanság (water regulation and drainage of marshlands). Most important criterion of the competitiveness is the strong appearance of the model area in the regional relationships. Landscape changes improve competitiveness in case it relates to an important/respected role/task in the regional system of relations and the area is able to adapt to the globalization processes by maximizing inner potentials. Next to the land use changes I explored the focal shifts of competitiveness, liveability and environmental sustainability.
In the case study I evaluated how the premises of competitiveness (economic), liveability (social), and environmental sustainability (environment and ecology) prevail in the land use system of the model area. I have elaborated a spatial evaluation system for assessment of landscape functions. I elaborated directives for the landscape functions and analyzed its presence in the model area. I compared the characteristics of the land use system with the state of competitiveness (and liveability and environmental sustainability) of the settlements a micro-regions. I have analyzed the regional interconnections in macro-regional context which defines the competitiveness of the model area. I explored the role and state of regulations of nature protection and agri-environmental compensation related to environmental sustainability and its effects on competitiveness. I have evaluated the effectiveness of the development policy based on the rate of financial support in the study region.

III. Results

III.1. Definition of the competitiveness factors of rural areas

I found that those rural areas can be considered as competitive which are able to maintain their population on long term providing adequate incomes and quality of life while managing their natural and cultural values and goods in a sustainable way. Essential tools for achieving the above mentioned objective are the ability of the local people for co-operation, innovation. A necessary condition for regional competitiveness is the adaptation to the challenges of the external environment based on the local conditions.

Explanation: According to the traditional competitiveness analysis the life quality and income level of the local population determine the competitiveness of the region. In case of rural regions in contrast to the urban areas and conurbations the landscape values and conditions are more pronounced and increase competitiveness as they contribute to economic diversification and improvement the quality of life. On the base of the review of the competitiveness interpretations available in the scientific literature instead of the strongly economic sided interpretations I have analyzed the issue of competitiveness from a different point of view. I interpreted the regional competitiveness together with the interacting and complementary systems of environmental sustainability and liveability. The environmental, social and economic systems are inseparable; together they form the basis of sustainable development. The harmony of the three different aspects forms the criteria of sustainable development with focal

shifts. In my study my priority was to enhance competitiveness, I elaborated theoretical and practical application for rural regions.

III.2. Definition the relationship between competitiveness and the land use system in rural areas

I found, that the competitiveness of rural areas is highly based on land use conditions meeting economic, social and environmental conditions. I defined the interfaces of the factors affecting the competitiveness of rural areas and land use aspects:

- Competitive income level, high level of employment,
  - competitive income level in the land-based sectors of the economy,
  - ensured accessibility to the job opportunities offered by other sectors of the economy,
- clean environment and „healthy" ecologic system,
  - healthy environmental regulation systems,
  - *(quality of urban environment),*
  - ecologic diversity (protection of biotope network),
- other cultural/natural issues affecting life quality,
  - green space system providing opportunity for recreation and rest,
  - attractive, orderly landscape,
  - diverse local cultural and natural heritage.

Explanation: The life quality of rural population is highly determined by the land use forms of the region, whether one-sided, monotonous is the landscape use or a wide range of available functions is prevailing at the appropriate level. Increasingly more research is aimed at the reduction of

negative effects of agricultural production and at increasing environmental, ecological and cultural value of cultivated areas. The greatest challenge is to create a harmony of different land use forms such a balance which does not disturb the ecologic system while it brings the highest economic added value. Essential condition for the success (competitiveness) of rural areas is the harmonious enforcement of ecologic, economic, and other educational, cultural, aesthetic goods/services of landscape, diversity of landscape functions.

In the Hungarian landscape architecture terminology several terms refer to the sustainable, resource preserving use of the landscape as the term of landscape management. Csemez defined the term of landscape management as setting harmony between landscape proclamation, environment-, nature- and landscape protection and sustainable regional development and embedding into the system of landscape elements to be preserved (*Csemez*, 2009). I extended the interpretation of the concept: landscape management means such a system of different land use forms which maintains the appropriate level services of the landscape on the long term meanwhile strives to meet the needs of the society at all time. I consider development harmonious when the economic, social and environmental criteria (pillars of sustainable development) prevail at a similar rate.

III.3. Definition the evolution of the conditions of competitiveness

General statement: I assumed that the social and economic development was mostly determined by the developing agricultural production through landscape changes and

improving availability conditions. From the end of the 19th century industrialization and urbanization has become a key driver of social development.

Statement for the study area: The social and economic situation of the study area improved gradually after a recession because of the abandonment of ponds farming in Tóköz up till the first part of 20th century. From the 20th century the study area lost the competitive advantages of favorable agricultural conditions offered by landscape changes because the key drivers of social and economic development changed and in the study area started a drastic negative demographic process. The study area has lost its competitiveness because it has lost its former role in the regional system of relationships, it has lost its former markets and the agricultural products lost their strategic importance.

Explanation: In Hanság and Tóköz the water conditions hindered the possibilities of farming. After the abandonment of ponds farming the population carrying capacity was limited for centuries in the sub-region. Rábaköz was cultivated since early times because of the outstanding agricultural conditions on a high technological level compared to the country's standard. The region has suffered less in the Turkish conquest, the wars boosted cereal production. The estate records show the importance of animal husbandry in the region in the 18th century. In the 19th century a boom of agricultural production took place, cereal production doubled, and maize production became common, pig farming flourished, the sugar beet as a new product appeared at the end of the

century. The crop yields were higher than the national average (high cadastral net income) Rábaköz belonged to the margins of the supplying area of the imperial capital Vienna, representing a higher development level compared to the national average (Győri, 1999).

The changes of the spatial structure was brought by the construction of the railway network, formerly significant settlements lost their former role, However, greatly contributed to the development of Csorna by fostering the settling of milling industry.

Due to the drainage works the landscape structure changed, the marsh receded, arable, grassland occupied increasing ratio of the area. But that did little for competitive advantage in the region as meanwhile the key drivers of the society became (20^{th}) the industrializing cities and high-traffic transportation networks (road, rail). Due to the new Trianon boarders the study area lost its former markets. The forced industrialization characteristic to the socialism preferred the formal industrial centers and pushed the villages into background adversely affected the region and a negative demographic trend started in the small-settlements. Transportation and economic factors became dominant instead of the natural conditions shaping the frames of agricultural production. The small villages far from cities and transportation nodes suffered significant population decline (Soth-Western small villages of Rábaköz and Tóköz), small villages along the transportation arteries became developing settlements (Bősárkány (road No. 86.), Kóny (road No. 86.) and Farád ((road No 85.) on the southern fringe of Hanság. Development of Kóny is affected by the fact that the village belongs to the agglomeration of Győr as well. The agglomeration tendencies have not changed much since the political changes either. While the population of villages of the county mostly increased, the population

loss of Rábaköz continues, although there is a lower rate of population decline.

According to the labor market catchments areas nowadays Rábaköz is located in between the great centers of County Győr-Moson-Sopron, in a shadow situation as an inner periphery (Rechnitzer, 1999).

III.4. Definition the relationship between competitiveness and landscape changes

General statement: I have assumed, that the determinations of the society modified the effects of landscape changes on the population carrying capacity of the region.

Statement for the study area: The landscape changes of great scale have improved the population carrying capacity of the region but it has not brought about the population retention capacity at the same scale. The differences of population density remained up till the 20^{th} century and the urbanization processes initiated the equalization of the differences.

Explanation: Because of the determinations of the tenure regimes of the era the drained marshes became parts of manors where with low labor requirements and of high-tech technology modern agricultural production was conducted. This brought favorable income development but less population increase with. **The landscape changes caused the improvement of competitiveness** (cost-effective, effectively processed agricultural products found easily their market) **in spite of the criteria of liveability**. The favorable agricultural conditions made possible high population density development in the South-Western villages of Rábaköz

influenced by large estates in a lower rate for the 18th century, which region suffered great population loss during the 20th century because of the change of the key drivers of the society.

III.5. Elaboration and application of the methodology of landscape function analysis

The economic, environmental and social evaluation of the land use system is possible by the use of statistic and land use data. The landscape function assessment supplemented by economic evaluation could be a useful tool for rural development because it is suitable for the exploration of landscape resources, potentials and limitations of a region.

The analysis of landscape functions was carried out in several ways:

- essentially based on the characteristics of the land use system, on the base of Corine data basis (schematic analysis enabling the relative simple and easy assessment of greater territorial unit, suitable for the raw assessment of landscape functions from a historic point of view on the base of historic maps),
- by the elaboration of unique evaluation method (suitable for smaller territorial unit, but more accurate fact, and problem finding assessment).

Explanation: Related to the criteria of competitiveness of rural areas I analyzed the production function. Due to the difficulties of the separate assessment of land based sectors on the basis of local business tax, income level of the population I counted cumulative economic value furthermore evaluated the availability. Thanks to the decades long traditions of

landscape and nature protection countless indices are available for the comparison of biotope value of the settlements and regions (I used the data of the National Park, Natura 2000 areas and National Ecologic Network). The aesthetic value of the landscape it is difficult to measure, the aesthetic value of different landscape types and land use forms is different. As evaluation criteria, the diversity (Shannon index) and naturalness (the ratio of extensive areas) were taken into account. Exploring the recreational, cultural and artistic values of the land use system I have taken into account the opportunities of cultural programs (national monuments, landscape values) possibilities for ecotourism, and areas of active recreation on the base of a complex values cadastre. I evaluated the level of landscape functions on a scale of tens according to the amplitude of indices. I assumed that according to the evaluation of the harmonious functioning of landscape services on settlement and micro-regional level, important conclusions can be drawn related to the limitations and potentials of land use system of the region.

III.6. Identification the relationship between competitiveness and landscape functions

General statement: I assumed according to my researches in the study area that in order to maintain the population carrying capacity of rural areas the harmonious functioning of landscape services is essential. The insufficiency of landscape functions cause problems especially in case if it is expressed on regional level.

Statement for the study area: **The functioning of several landscape services is insufficient in Rábaköz: the level of economic, biotope, cultural and aesthetic functions are below the optimum, which contribute to the overall deterioration of the competitive position of the region. The insufficient functioning of landscape functions is caused by the agricultural sector's structural failures (preferred position of specific sectors, support system anomalies) and shortcomings of social and cooperation systems hinder the development of land use system matching the landscape conditions and improving employment and income conditions.**

Explanation: In the micro-region the significance of agriculture in the economy, employment and land use is above the national average. Agriculture, however, as in the case of most of the settlements of low commuting and other economic activities (which are best allocated to agriculture) is clearly demonstrated does not provide competitive salaries to the public. The low rates of intensive horticulture (However the abilities of local population made it possible previously) furthermore agricultural products of low level of processing in the region and a limited scale of complementary activities and income reduce the profitability of agriculture.

In the region of high rate of arable land (high above the national average) the proportion of extensive areas such as forests, grass fields is extremely low. The biotope and cultural, aesthetic landscape functions are insufficient and need to be developed in Rábaköz. The opportunities offered by Rába are unexploited. In case these landscape conditions do not

change in the future this contributes to the further decrease of population of the region and meanwhile hinders the realization of the local development strategies.

The national problems which feature Rábaköz as well undermine the competitiveness of the agriculture, such as the fragmented holding structure and f as a response to that the high rental rates. In the last decades drastic concentration took place in the land use. The high rental rates due to the land property relations do not encourage investments and development. The current trends predicts further decline of agriculture in rural employment and income relations.

The animal husbandry is unprofitable which hinders the maintenance of pastures; the ecologically most favorable land use form (even though the high rate of inland water on arable land cultivation even under these conditions is more profitable for farmers). For development of sectors with high added value and high employment are required next to the favorable landscape conditions significant investment mobilizing financial resources, trained professionals and advanced horizontal and vertical co-operation schemes. In case the co-operation structure of the society and economy are weak (buying, selling, processing cooperatives in agriculture) with a high fragmentation of farms and land agricultural production won't be competitive, and produce high added value on the long run.

Unfortunately organic farming declined in recent years even though it is affects for employment (it has about two and a half times more labor demand) and nature is more favorable than conventional farming. Organic farming is especially important in light of the land concentration process

III.7. Definition of the role of natural values in competitiveness

General statement: The high rate of protected areas and areas of high natural value come up as a general advantage in villages of good availability for local population It comes up as disadvantage in the absence of a central city offering jobs and unfavorable availability and due to the significant limitations for economy and because of the lack other income opportunities (e.g. tourism).

Statement for the study area: High portion of Tóköz is protected offering environment of high quality for local people. In spite of the lack of jobs due to the good availability of the county center these settlements remained attractive for the society. Settlements of unfavorable availability in Tóköz in the vicinity of Csorna became deprived communities in spite of the richness of natural values.

Explanation: Because of the high rate of protected areas (Natura 2000 areas which mean limitations for farming) I evaluated the rate of agri-environmental compensations. With the exception of a few settlements the analysis shows that unfortunately the agri-environmental program does not offer real compensations: there is no real correlation between the rate of protected areas and agri-environmental payments. In spite of the high rate of Natura 2000 areas in a few settlements the level of agri-environmental payments is low. The level of environmental payments is high in a few settlements in Rábaköz because of animal husbandry. The priorities and shortness of financial resources of the agri-environmental program many farmers lost the opportunity of compensation.

In spite of the high rate of areas of high natural value, the landscape values do not appear as attractions, there are limited opportunities for ecotourism because of the lack of study trails, exhibitions, and look out towers reducing the additional income from tourism for local people. The goal of the program of "*Areas of High Natural Value*" was the coordination of agricultural use and nature protection (the *Sensitive Natural Areas* program launched in 2002). The areas were assigned in such landscapes where the survival of natural values is possible just maintaining agricultural use. Hanság was assigned AHNV area in 2009 but the participation of farmers in the program is extremely low.

III.8. Definition of characteristic regional units

General statement: I have defined special types of regions according to the long-term ability to retain population by the comparison of economic, production (competitiveness) and habitat (ecological / environmental sustainability) value, the ability to retain long-term population.

Explanation: For rural development it is an extremely import question whether we are capable to maintain sustainable development on long term namely ensure a specific harmony between livability, environmental sustainability and competitiveness. According to the economic, production and ecologic values I have distinguished 7 base cases:

— Areas of high natural quality, with less intensive agricultural production, of good economic position: *Suburban landscape with high environmental quality:* strong ability to retain long-term population.

— Areas of high natural quality, with less intensive agricultural production, of unfavorable economic situation: *Landscape of traditional, environmental friendly, agricultural production of low intensity.*

— Landscape of intensive agricultural production of low or medium ecologic value in unfavorable economic production:: *intensive (industrial) agricultural landscape*

— Areas of high natural quality, with less intensive agricultural production, of medium or good economic position, where the source of income is provided by agricultural subsidies, tourism: *Natur park*

— Landscape of low ecologic and aesthetic quality with high economic value: *Suburban landscape consuming its natural values*. Surrounding of major urban area, where the expansion of built up areas is uncontrolled. Strong ability of population retention in case ecological loss in value can be stopped.

— Low value of ecologic, aesthetic and economic value, landscape rehabilitation needed: *Degraded landscape.*

I have defined characteristic regions in the study area and estimated the long-term population retaining ability. To reverse the negative tendencies I formulated development objectives.

III.9. <u>Analysis of the means of regional and rural development</u>

General statement: **For mobilizing the landscape resources of rural regions the instruments and institutional framework of territorial planning is considered to be incomplete. On micro-regional level it would be useful to expand the present institutional framework or the elaboration of new types of plan:**

— Such development organization would be needed which could manage all the development requirements important in rural regions and is able to apply community development techniques.

— The elaboration of landscape management plans exploring the landscape resources and conflicts with a complex analysis of landscape functions would assist to gain regional and local development funds, recognize the endogenous resources of settlements.

Explanation: The lack of harmonization and fragmentation of resource allocation of the regional and rural development institutional system does not favor the harmonious development of rural areas. In competition for resources of development funds of local and regional development the rural areas are disadvantaged. Among different forms of development programs the Leader fosters the mobilization of endogenous resources of rural areas but positive shift/ development on regional level highly depend on the activity of the local society, forms of cooperation. Lack of application of community development models hinders the effective use of rural development funds.

On the base of the results of the 2007–2013 programming period (according to the result of operative programs) in county Győr–Moson–Sopron the study area is considered as the less effective, least successful region (amount of subsidy per capita).

Local development strategies lack the landscape approach which would explore the possibilities and constraints born from local conditions. The exploration of landscape potential and carrying capacity would be the task of land use framework plans but because of the dominance of regulation

character, these focus on elaboration of constrains. The approach of land use framework plans and development plans are very different, development and planning activities of different economic sectors do not relate to each other which hinder the realization of the complex regional development including the land use planning and landscape development and community development.

The intention of the European Union to expend the application of Leader type development programs for the whole regional policy (CLLD, Community Led Local Development) can be considered as a forward looking initiative.

IV. Application of results in practice

In my study I proved that the sustainable, effective development of rural areas all the economic, social and environmental aspects should be considered and a **more detailed evaluation of landscape conditions would be needed**. As a basis of rural development plans which favor the mobilization of endogenous landscape potential it would be useful to elaborate landscape function analysis.

The positioning of the region and comparison with the specific types of regions according to the categories set by the comparison of economic, production (competitiveness) and habitat (ecological / environmental sustainability) value can be very useful at the preparation of rural development strategies for the estimation of the long-term population retaining capacity and can pave the way for the elaboration of the necessary programs.

The rural development models highlight the role of the local society. The low effectiveness of the rural and regional development institutional system of the study region draws attention for the failure of rural development practice lacking community development. The active involvement of local community, strengthening identity can make the practice of rural development more efficient.

The three pillars of sustainable development (competitiveness, liveability and environmental sustainability) need to be complementary criteria, the **criteria can not predominate over the other (**see small villages of Tóköz where the environmental and conservation restrictions endanger the sustainable development and competitiveness). It is important to ensure the enforcement of these conditions at the elaboration of settlement and

regional land use framework plans, furthermore in the institutional system of nature protection the need of farmers should be taken into account.

To ensure sustainable development of the regions assumes a more conscious than the present endogenous resource management, for which assists the application of the principles of landscape architecture

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