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THE FUNCTIONING OF LANDSCAPE ECOLOGY POTENTIALS IN TERRITORIAL COHESION WITH AN OUTLOOK ON THE ROLE OF NATURE CONSERVATION NGO'S

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Abstract: Hungary's economically and socially peripheral regions that are nonetheless rich in natural potential and natural capital, appear as well-defined segments of domestic regional development. In these areas, the extent and quality of the natural environment can be defined as dormant capital, which is currently not used sufficiently to sustain local livelihoods either fully or partially. This natural potential represents a value that we must treat in a respectful, sustainable way and use it in a wise, conscious approach (without exploitation) to help preserve the community of a given settlement. Appropriate attitudes and commitment are often present in local civil societies and local NGO's. These small, motivated communities can, with their untiring perseverance, attract funding sources into the regions, cooperate with local governments, and add their own human capacity so that the natural environment should be regarded valuable at the level of the settlement, and its resources should be used in a careful manner.

Keywords: territorial cohesion, districts, landscape ecology, complex indicators, NGO's

1. INTRODUCTION: ABOUT TERRITORIAL COHESION

One of the main objectives of the European Union is to strengthen economic, social and territorial cohesion. The budget of the EU allocates considerable amounts to reduce the differences between regions as territorial planning and statistical units. Since its beginning, there have been major territorial and demographic differences within the European Community and then within the European Union that have prevented the integration of Member States and their mutual development.

Territorial cohesion aims to ensure harmonious development throughout the EU and to enable people living in these areas to take advantage of these areas in the best ways possible. The concept of territorial cohesion appeared at policy level in 2008. Officially, the Lisbon Treaty identified it as – in addition to economic and social cohesion – the third form of EU cohesion. These three aspects of cohesion policy are supported through the Structural Funds. The concept of territorial cohesion has been included in official Community documents, but it has not been defined so far. In 1999, the European Spatial Development Perspective (ESDP) was adopted in Potsdam, which set out the directions for spatial development in the European Union and launched territorial research. In Rotterdam in 2004, and then in Leipzig in 2007, EU ministers responsible for spatial planning already dealt with the problem of how regions with different territorial conditions and opportunities could be used for economic growth and for higher employment levels in the European Union.

The Territorial Agenda (25 May 2007) addresses this question and seeks to find possible answers. In 2008, the concept of territorial cohesion was further highlighted in the Commission's "Green Paper on Territorial Cohesion", which was to launch common thinking within the Member States on the unified interpretation of territorial cohesion. The uncertainty surrounding the concept of territorial cohesion stems from the fact that it is a multi-dimensional concept that can be systematized along the following characteristics^[1]:

- Quality: the quality of the living environment, working environment and natural environment, which are comparable to other territorial units.
- Efficiency: the management of all resources, including natural resources; economic competitiveness, co-operability with other regions, ability to resist external negative impacts, etc.
- Identity: Identity is based on the knowledge, love, and esteem of the area (settlement). The presence of local knowledge and the ability to act by the people there are important. It can also be characterized by the so-called "social capital".

Hungary was one of the first Member States to raise territorial cohesion^[2] to a practical level and to include it in the 2007–2013 tenders as a horizontal element, assigning the same importance to it as to sustainability and equal opportunities. Within domestic spatial development, the experts at VÁTI (Hungarian non-profit organization responsible for regional and urban development) have developed a version of the interpretation and evaluation methodology of territorial cohesion.

¹ Spatial development glossary European Conference of Ministers responsible for Spatial/Regional Planning (CEMAT), 2007

² Handbook on territorial cohesion, Ministry for National Development and Economy (Republic of Hungary), VÁTI Nonprofit Ltd., 2009

Thus, the four thematic areas of the interpretation of territorial cohesion are:

- » the enforcement of favorable territorial effects,
- » the contribution to territorial synergies,
- » enforcing the principles of land use,
- » supporting the achievement of national territorial goals.

Every thematic area can be further subdivided into sub-units, but we are presently interested in the appearance of natural environment, as we claim that the importance of this segment has not been highlighted yet, and is not in its proper place. The natural environment, as a potential for strengthening territorial cohesion seems to be overwhelmed by economic and social factors.

The positive effects of the natural environment on the quality of life can be discussed, for example, when enforcing favorable territorial impacts. Concerning the contribution to territorial synergies, the existence of a natural environment strengthens the potential of tourism, especially gentle or ecotourism, as part of the local economy. When applying the principles of land use, it is necessary to address the protection of green surfaces and natural values. Supporting the achievement of national territorial goals is linked to the specific goal of the National Development and Regional Development Concept which serves the conservation and sustainable use of strategic resources and the protection of our environment, while at the same time targeting a specific region or region type as a territorial goal in a way that has an impact on the development of the whole country.

2. COMPLEX INDICATOR

In Hungary, districts (*járások*) are official administrative territorial units, which are ranked by Government Decree 290/2014 (XI. 26.)^[3] on the basis of their level of development. Classification of districts according to their territorial development is based on a so-called complex indicator of social, demographic, housing and living conditions, the state of local economy and the labor market, as well as infrastructural and environmental indicators. The environmental indicators show merely the proportion of households connected to the public sewage collection network, and the proportion of households involved in regular waste collection. Establishing the order of development of settlements with a complex indicator^[4] does not involve any index number representing the natural environment among basic data.

The district development order based on the complex indicator differentiates between beneficiary districts, districts to be developed, and districts to be developed through a complex program. These statuses play a role in the allocation of EU and domestic development resources, benefiting the economically and socially less developed regions. At the same time, it should be noted that the natural environment and the potential it may provide for the particular district or settlement where it is located or operates does not play a role in measuring the level of development.

The problem is that natural values are not “priced”, their value – unlike economic and social factors – is difficult to estimate. Failure to observe natural factors in the assessment of development may distort a picture of a region unless it is emphasized that the complex indicator works solely on economic and social conditions. The complex indicator of development plays a role in the way regional and thematic development resources may be allocated to different regions. The complex index values rank the districts by their order of development and prioritize the beneficiaries when assessing the subsidies. How can a region be judged if naturalness indicators are taken into account? (and what are our options today?)

3. MATERIALS AND METHODS

In order to determine the natural factors of particular regions – in this case: districts – the only existing national database should be used, which is the CORINE land cover database, the latest version of which is from 2012. In addition, it is worth mentioning the MÉTA^[5] database, one indicator of which was used as a kind of control in our investigations.

One of the advantages of using CORINE maps in landscape ecology is that the surface coverage categories can be relatively well identified in the system of naturalness and disturbance guides (Szabó, Szilassi and Csorba 2012, Szabó and Csorba 2012), but CORINE maps can also be used to create other complex landscape indicators (Barczy et al., 2008). This is why we have the opportunity to use the continuously updated map and database to evaluate the naturalness of a landscape, even though we are aware that CORINE mapping does not take such a test directly. For the characterization of the naturalness state of Hungarian districts, we used the surface coverage indices of the CORINE database that represent a permanent natural surface, such as agricultural land and artificial surfaces (excluding water surfaces). The land cover indicators used are:

³ Government decree on the classification of beneficiary districts

⁴ Government Decree 105/2015. (IV. 23.) on the classification of beneficiary settlements and the criteria for classification

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- » 2.3 Pastures
- » 3.1 Forests
- » 3.2 Shrub and/or herbaceous vegetation association
- » 3.3 Open spaces with little or no vegetation
- » 4.1 Inland wetlands
- » 5.1 Continental waters

The territorial data of the above categories were summed up at district level and then, based on the proportions relative to the area of the given territorial units, we formed a sequence among the districts. Juxtaposing the natural sequence thus obtained with the economic and social order of development determined by the complex indicator, we have not found any systematic regularities. Then we ranked districts and the ratios of their corresponding natural surfaces in the order set by the complex indicator. Thus, we could finally classify districts into four categories according to their naturalness and economic and social development. The four categories are as follows:

- A. The proportion of natural surfaces is low (below the 37% average) and the complex indicator is also low (beneficiary districts)
- B. The proportion of natural surfaces is high (above the 37% average), but the complex indicator is low (beneficiary districts)
- C. The proportion of natural surfaces is high, and the complex indicator is also high (non-beneficiary districts)
- D. The proportion of natural surfaces is low but the complex indicator is high (non-beneficiary districts).

The naturalness rate of the local districts based on the CORINE land cover classification is 37% on the district level of the 174 districts (excluding districts in Budapest). This value was considered to be the dividing line between high and low ratio of natural surfaces. In the case of the complex indicator, the boundary level set by the Hungarian Central Statistical Office between beneficiary and non-beneficiary districts was considered to be the dividing line between high and low values.

In our surveys we included the Landscape Ecological Vegetation Database & Map of Hungary (MÉTA), specifically the indicator that shows all the estimated areas of semi-natural habitats at settlement level. By this, we narrowed the category of natural surfaces created from CORINE. Comparing the above indicator with the ranking of the complex indicator, we found out which districts have a high proportion of semi-natural habitats.

4. RESULTS AND DISCUSSION

By the method described above, there are 62 districts in category A, 47 in category B, 32 in category C, and 33 in category D. For the purposes of the investigation, those districts are of interest to us where the natural potential is high but the complex indicator is low, since in these cases we found a lag in economic and social terms, while the region is rich in natural potential. A more specific issue than the starting point is the question of whether the benefits of underdevelopment do not endanger the existing natural values during development, i.e. are the developments consistent with the conservation of natural resources?

To answer these questions, in the districts included in category B, we should investigate the content of the development programs guiding developments, as well as the types of projects that have already been implemented. To narrow down the investigations, we selected those category “B” districts that have the worst data within the beneficiary districts, and fall under the so-called complex program districts. This narrows the 47 districts to 17. Using the indicator of the MÉTA database of all estimated areas of semi-natural habitats, we have found that 10 of the 17 category “B” districts overlap, i.e. in these 10 districts the proportion of natural surfaces is high and the proportion of near-natural habitats identified in the MÉTA program is also high, still these districts fall into the category of districts to be developed with the complex program (i.e. are classified as the most undeveloped districts), based on the complex indicator of economic, social and infrastructural indicators. With further investigations, we shall analyze the development programs at the level of settlements and larger territorial units in the 17 districts, as well as the development projects implemented in the districts between 2007 and 2013. The study will cover how the B-category situation prevails in the design and implementation of development.

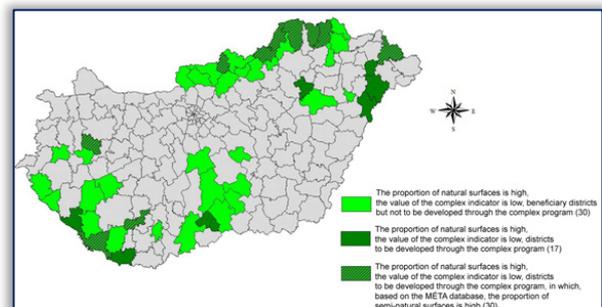


Figure 11: Districts, where the proportion of natural surfaces is high, and the value of the complex indicator is low. Source: CORINE, MÉTA, Government decree 290/2014, own editing

5. NON-GOVERNMENTAL ORGANIZATIONS

In our research, we included local NGO's dealing with nature conservation and environmental protection that carry out important tasks in the conservation of natural environment. So far, we have been investigating whether there exists a recognition of the importance of protection in the society of settlements with higher natural potential, and if so, is it more likely to occur at local communities than in other parts of the country.

Our starting hypothesis was that civil society should be at the forefront of awareness-building, and thus the implementations of related projects are associated with them. The purpose of awareness raising is to make the essence of things understood and to develop a commitment to the matter (Várdai 2003). One of the most important functions of non-governmental organizations dealing with nature conservation and environmental protection is to consciously shape the awareness of local people towards the recognition and protection of values at local level in order to protect the natural environment. NGO's provide an exceptionally important link between regional development and communities, and they have a significant role in building, consolidating and maintaining a local identity that can hold communities together. These organizations are interested in attracting subsidies and implementing target-optimized, result-oriented solutions. Besides local governments, they perform valuable functions at local and sub-regional levels. For example, in the districts we studied, projects promoting waste composting, carried out by local NGO's and eventually leading to their implementation in everyday use, would have been impossible for the local governments to accomplish by themselves, due to lack of idea, any devoted professionals, and financial resources.

In a reverse situation, where the project comes from a higher governmental level of design and implementation, it is more difficult for a civil organization to find its role in it. This idea can be aptly illustrated by one of the regions in our research area, the Ormánság, along with the related Ós-Dráva Program. In its design phase, the Program included extensive development and intervention ideas in which local NGO's were also able to find their areas of activity. However, by the implementation phase, the scope of assignments had narrowed down to landscape management and tourism, in which NGO's were less able to participate effectively (Zsigmond, Tésits 2015).

Having gone through every NGO in the 380 settlements of the 17 districts, we have filtered the organizations dealing with nature conservation and environmental protection. The data required for the analyses were requested from the Central Statistical Office and collected from www.helyicivil.hu.

In the 17 districts surveyed, a total of 53 "green" civil organizations operate on the basis of data from 2016, the main activity of which is nature conservation and / or protection of the environment. This is 3% of the "green" civil organizations (1894 in total) currently active in the country. Note here, however, that nearly 300 non-governmental organizations are registered in the 17 districts surveyed whose activities also include nature conservation but it is not their main activity. This includes some public foundations of the settlements, which have almost all the typical activities listed in their field of activity, as well as many folk dance groups, public security groups or sports organizations that also operate as NGO's and list natural protection as one of their activities. We believe that in these cases we may only talk about the administrative appearance of nature conservation.

It is also important to highlight hunting and fishing organizations, who also carry out nature conservation activities. In the 17 districts there are 96 hunting associations and 46 anglers clubs. They are treated separately because they realize a kind of economic benefit in addition to their conservation and maintenance tasks, thus they use the economic factors of ecosystem services. This is important because it is a segment that sustains the existing natural potential and achieves economic benefits from it, i.e. it maintains a source of livelihood. In areas that are rich in natural potential, but "underdeveloped" economically – as in the 17 districts surveyed – it is essential for area development to find the activities that can sustain and even strengthen the natural landscape environment and milieu, while securing livelihoods from these sources for the people living there.

The proportion of "green" NGO's operating locally is 3.3% compared to all civil organizations nationwide. In the 17 districts surveyed, this value was 2.8%. These data therefore reveal that, compared to the national average, the number of organizations performing nature conservation activities is lower in areas with higher natural potential. However, if the number of hunting and fishing associations is taken into account, then we get a higher value than the national average. The relationship between the underdevelopment of the economic environment and the reduction of civil activity has already been examined at case study level (Kákai et al., 2015), but research has shown that there is no demonstrable direct link between the economic situation and civil activity, because the latter is mostly influenced by empirically intangible indicators that are very hard to grasp. Of course, the number of organizations is only one aspect in judging how we relate to the situation between the economic state and the natural potential. In the area of the districts surveyed, nearly 3300 applications were

implemented in the previous implementation cycle (2007–13). We have thematically filtered those that have any direct connection to nature conservation, which yielded a list of 137 elements. Narrowing this list to NGO's, we found that a total of 10 projects related to nature conservation and environmental protection were implemented in the area, submitted and implemented by a total of 8 NGO's. The total value of the projects was HUF 253 million. The projects covered two topics: composting; awareness-raising events.

In addition to EU funds, NGO's that are active in the area of nature conservation and environmental protection can also benefit from Hungarian funding for their projects. The Zöld Forrás (Green Source) support fund has been managed by the Ministry of Agriculture and Rural Development since 2011, announcing its call for tenders every year. Using the data of the winning tenders, we also made an analysis of the projects involved in the area of the 17 districts we studied.

Between 2012 and 2017, a total of 33 nature conservation projects were implemented in these districts from the support fund mentioned above. This represents 8% of a total of 408 projects carried out at national level. During the 6 years under review, a total of 186 NGO'S implemented their program or project from domestic sources. Of these, 23 organizations worked on conservation projects in or in connection with the area of the 17 districts we have studied.

With regard to the 17 districts we studied, nearly half of the projects fit into the topic of "building an environment-conscious way of thinking". Within this, however, a number of tools were used in the implementation: lectures, interactive sessions, interactive exhibitions, counseling, training, education, quizzes, thematic days, various media surfaces, publications, field studies, study groups, wildlife photography, wildlife filming.

If we look at the coverage and extent of the projects, we see that most projects have been implemented at sub-regional and regional levels. There was no project affecting only one settlement or one location within it. Even the smallest projects cover the territory of at least 2 settlements. Strategic thinking in the regional perspective is in any case an advantage for the efficiency of green NGO's.

By studying the tendering activity, the scope of the applicants, and their field of operation, we can conclude that funding sources are most frequently awarded to organizations which do not work locally, but represent a region or sub-region above the level of settlements, or which, with a horizontal approach, help strengthen the practical role of a subfield of nature conservation and environmental protection within the defined regional boundaries depending on the given resources.

Statistical studies do not reveal a clear link or any regularities between the tendering activity of non-profit organizations and the development indicators of the given area (Boros et al., 2014). We focused on the activity of environmental protection and environmental groups within civil organizations. Based on the data of 17 districts, a relatively low activity is outlined for us. However, this applies only to projects based on EU funds; we cannot see local developments, projects and programs from other sources or from voluntary work that have nature conservation purposes. These could be best mapped through interviews with specific civil organizations, but this has not been part of our work so far.

If we look at the projects of these NGO's, it is clear that most of them aims at maintaining the current state of the natural environment. Such initiatives include, among others, awareness raising programs, research and birding activities, or projects about composting and cleaning illegal landfills. A smaller number of projects aim at the sustainable use of various types of potentials at different levels of the natural environment and the landscape. These include ecotourism and landscape management projects.

Table 1: Types and number of nature conservation projects implemented with the support of the Zöld Forrás Alap (Green Source Fund) in the area of the 17 districts studied

Topic	Number of projects
Raising and cultivating environmental awareness	15
Activities related to birding	3
Landscape management	3
Promoting local products	2
Research work on conservation	2
Efficient energy use	1
Bird protection	1
Ecotourism	1
Straw-bale construction	1
Protection of endogenous fruit species	1
Soil protection, practical education	1
Collecting waste in natural areas	1
Scientific programs	1



Figure 2: The basic pattern for studying realized projects in terms of the aim of interventions



Table 2: Types and scope of nature conservation projects implemented with the support of the Zöld Forrás Alap (Green Source Fund) in the area of the 17 districts studied

Topic	Scope
Raising and cultivating environmental awareness	Settlements, subregion, region, county
Efficient energy use	Subregion, region
Promoting local products	Settlements, subregion, region
Activities related to birding	Subregion, region
Bird protection	Several counties
Ecotourism	Subregion, region
Straw–bale construction	Several counties
Protection of endogenous fruit species	Subregion, region
Landscape management	Subregion, region, county, several counties
Soil protection, practical education	County
Collecting waste in natural areas	Settlements
Scientific programs	Settlements
Research work on conservation	Subregion, region

Table 3: Data of NGO's for the 17 districts in 2016.

Source: Hungarian Central Statistical Office

Name of district	Number of NGO's	NGO's dealing with nature conservation and environmental protection	Number of hunting associations	Number of anglers' clubs
Baktalórántháza district	76	1	3	1
Barcs district	119	6	7	5
Csurgó district	113	2	5	6
Devecser district	89	3	5	0
Edelény district	170	5	6	1
Encs district	105	3	6	0
Gönc district	130	5	6	1
Hegyháti district	82	1	3	1
Jánoshalma district	70	1	6	2
Mezőcsát district	44	1	2	3
Nyíradony district	97	2	6	0
Nyírbátor district	203	4	12	2
Ózd district	174	2	4	3
Putnok district	94	4	2	0
Sellye district	83	2	13	7
Szécsény district	121	7	2	4
Vásárosnamény district	126	4	8	10
Total	1896	53	96	46
Hungary	56636	1894	1355	1237

6. CONCLUSIONS

In our research, we assumed at the beginning that the 17 districts we studied are unique in that they have high natural potential, while the economic and social indicators are the worst in terms of the national average. If we look at whether material and immaterial (emotional, intellectual) resources in the natural environment are used in any way in these areas, there are two ways to approach this question. It is the actual status of the natural environment that contains and provides resources. The careful investigation of the projects revealed that protective measures and procedures – as implied by their name – seek to maintain and improve the current state of affairs. The other approach, however, considers this status as the starting point and concentrates on the (sustainable) benefits arising from it.

These data also reveal that 32 of the 33 projects implemented in the area of the districts we studied were directed to areas in Northern Hungary, out of which projects one third were realized in the area of the Putnok district. Only one tender – the ecotourism project – was implemented in the Hegyháti district, located in the southern part of the country. The local affiliation of the applicants has been identified by their registered office. The vast majority of the organizations we studied are based in Northern Hungary, with strong attachment to the given natural and landscape environment.

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