„BABEŞ-BOLYAI" UNIVERSITY, CLUJ-NAPOCA

FACULTY OF GEOGRAPHY

PhD THESIS

- Summary -

ORGANISING GEOGRAPHICAL SPACE AND SPACE MANAGEMENT IN BISTRIȚA ARDELEANĂ CATCHMENT AREA

Scientific coordinator,
Prof. Dr. Vasile Surd

Ph D Candidate,
Silviu-Florin Fonogea

Cluj-Napoca,
July, 2013

CONTENT

Key words: management, organising, territorial system, Bârgău, Colibița, Bistrița, sustainable development, settlements system, territorial infrastructures, cluster, planning strategy, chorema.

1. INTRODUCTION-ARGUMENTATION

When the research theme was established for this doctor's degree paper, the main motivation was that there is no unitary approach of Bârgău valley, not even in a proponent descriptive study. There have been few sequential preoccupations, especially monographic, but there have also been numerous studies issued by passionate Bârgău researchers, published and advertised on the occasion of various scientific manifestations of the Cultural Symposium of Bârgău Valley. Later on, things have started to develop and several different studies appeared, including the partial materialization of an older initiative, the issuing of a complex monograph of Bârgău Valley.

The reasons which justify the existence of such material that launches an integrating approach of this territory can be manifold:

- this area has an obvious "identity card", inside the collective memory of the county inhabitants;
- although, with time, there have been a lot of contradictions, nuances and specificities, there are filiations and a common territorial behaviour for the population and the settlements here;
- the apparition of Bârgău settlements and their historical evolution are in a close mutual relationship;
- the assumption of development cannot be thought outside association (the access to different financing resources is eased by the consolidations of partnerships);

The need of issuing this study in order to highlight the real development chances in Bistrița catchment area has been motivated by subjective reasons, topophilia playing an important part in the efforts to finalise this project.

Bistrița catchment area, alongside the town of Bistrița, comprises five village-type administrative units. Their disposition is linear, along the road axis which connects Transylvania and Bucovina. At a plain view, sustained by empirical cognitive patterns, the idea of a transit area springs out, with no special intrinsic value, apart from the local charm. In order to identify the supporting elements in articulating a sustainable development pattern, an exercise of gradation of this area's specificity has been applied. There are a few characteristic features: the presence of the German population, the medieval borough of Bistrița, customs in Bârgău valley, Colibița and Tihuța. A prior configuration of the conclusions highlights tourism as the most important tool of sustaining development. The offer of the natural and anthropic patrimony must be supported by a package of services, by hostels and accommodation infrastructure which should motivate the tourist. I have considered it useful to extend the investigation in the whole catchment area of Bistrița, since Bârgău valley is not an autarchic territory and it is subordinated to the town of Bistrița.

This paper tries to illustrate a territorial reality inside Bistrița catchment area, from the point of view of organising geographical space and of land management and to underline the optimal evolution conditions according to a sustainable development. An assessment of the actual situation and an analysis of the main dysfunctions, supported by objectives and measures towards development, constitute the marrow of this very paper. A utopia vision on development is not the point here, since the effort has been towards the concrete perspectives of projecting this territory inside a natural evolution. Moreover, the geographical investigation has been a real challenge, integrated within the paradigmatic context that did govern and does govern land research.

In our view, the integrity and cohesion of a territorial system can be assessed on three interdependent levels of manifestations of the forces that guide its evolution: *the environmental component*, *the socio-cultural component* (including the capacity of generating local leaders, of activating the cooperation between different institutions, sectors of activity and territories) and *the economic and infrastructure component* (the development of a diverse, open, competitive economy, based on partnerships and alliances). They are most certainly individually analysed, but also in direct mutual relationship, in view of a correct diagnosis of the investigated territorial system. The paper was structured according to the content of the documentation on land management, so that it became a useful instrument for the actors of the public administration or those that plan to implicate themselves economically in the mentioned catchment area.

For a better understanding of the actual situation of the investigated territory, most of the chapters appealed to the historical context wherein the territory appeared and developed. Thus, I can mention the documentation referring to demographic component and the settlement system, but also to the technical infrastructure of public transportation.

One of the main challenges was the elaboration of a coherent, constructive theoretical and methodological framework, in order to efficiently connect to the subtlety of space organising and land management problems. Thus, a critical inventory appeared for all the theories, ideas, concepts and methods used by authors who have designed an adequate epistemological framework. Attention was given both to theory men, and to the ones that succeeded in practically applying the theory.

The natural organisation of the geographical space in the described area was analysed functionally as a relation between offer (resources) and offer exploitation in view of a sustainable development; the support of the population and of its activities plays an important role in the process of land management. The relationship between resources (the natural endowment of this territory) and their exploitation constitutes the starting point for each management project. The accent has fallen on those resources that sustain a complex tourism, which is the future solution for an economical revival of areas with great perspectives, from this very point of view.

The structure of the relief, the under layer and the bio-pedo-hydro-climatic features were treated in detail, in order to suggest the fingerprint of the natural ordering of the elements that sustain human activity. At the end of each chapter, there is a set of preliminary conclusions, as a result of the diagnosis and as an explanation for this paper: the sustainable land management inside Bistrița catchment area.

Further on, I have presented an integral picture of the population and of the human settlements inside the catchment area, in an attempt of rendering the viability of the demographical component and the coherence of the relationships instituted in here in time. This analysis, added to the economical diagnosis (agriculture, industrial activities, services) and to the infrastructure makes up a wholesome image of the socio-economical vector responsible for the manifestation and multiplication of the territorial evolution parameters.

The aspects referring to population and settlements are detailed inside two independent chapters. Any attempt of assessing the sustainability of a territorial fragment comprises the demographic component, as one of the supporting pillars of land management. Alongside resources, the quality of the technical infrastructure and

the state of the environment, the viability of the demographic component represent an essential indicator in the conceptual build-up of an articulated study. The number of the population, the age structure, the territorial allocation and last, but not least, the ethnic and religious distribution are susceptible of allowing a development scenario. There is no development in the absence of population, involved in this process and direct beneficiary of its progress.

Besides population, the settlement system, as a territorial expression of offer, vocation and manner of exploitation represents the key of any attempt of space organisation and land management. The subordinating relations between the coordinating centre and the inferior administrative entities have been studied, and also the ones that proposed a hierarchy among equal village centres. Moreover, I tried to pinpoint certain incongruities between the administrative side and the rural settlements themselves. The facilities in the villages were analysed, as a useful tool for the setting of a dependency relationships inside and outside the villages.

The economical and infrastructure component was analysed starting from the assertion that the specificity of the economic activities is impossible to avoid in case of a land management study. Apart from the economical side, I tried to underline the importance of a tertiary activity – tourism, as part of a strategic sustainable development of this area. The territorial infrastructure was analysed historically and functionally, pinpointing the miss-outs and the needs as compared to the natural demands.

The state and quality of the environmental factors represent an essential coordinate for a good activity performance. There is no development in the absence of basic environmental standards. There is an inventory of the main categories of polluting factors, categorised according to environmental factors. The final part includes the management of waists inside the catchment area and the dysfunctions in the approach of the environment quality improvement.

These previously presented main chapters have the aim of offering an analysis background for the actual situation. Pinpointing dysfunctions and setting up partial conclusions allowed for the search of the best solutions of improving the deficit in the sustainability of the components that characterise this territorial fragment. The land management strategies complete the effort of rendering an ideal image of optimal development. As mentioned before, the tertiary tourist activities are the ones that lift up this territory on a new level of evolution. Shaping a tourist cluster inside the area of

Colibița-Tihuța-Vatra Dornei is indispensable for the strategic land management of Bistrița catchment area.

2. AN EPISTEMOLOGY OF THE RESEARCH IN ORGANISING GEOGRAPHICAL SPACE AND IN LAND MANAGEMENT

This chapter aims at presenting an epistemological approach of organising geographical space and of land management, viewed geographically. Perceiving space in geography and underlining scientific attitudes (both theoretical and practical) can be analysed in the context of the historical evolution. A synthesis of the different visions raises the possibility of a critical approach, which can trigger a personal vision on the issue.

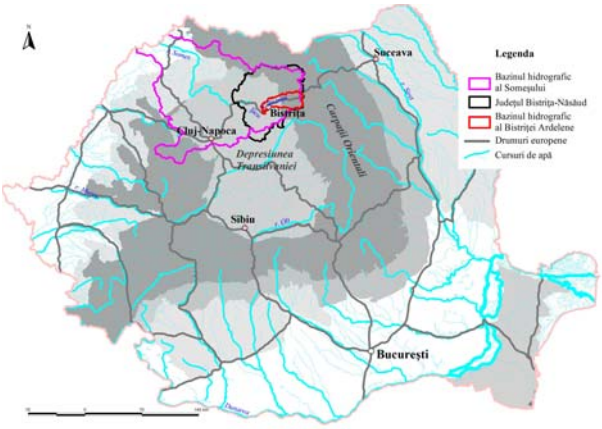
I believe this endeavour must start from *the concept of territory.* Trying to draw a conclusion, in the whole effort of articulating an epistemological framework for organising geographical space, the following issues come to our attention:

- geographical space is a highly abstract notion, which acts by its being reduced to a palpable dimension – territory, region;
- the geographical vision on space is dynamic, tributary to classic approaches and to new theoretical and methodological contexts in social and economical sciences;
- land management represents the main framework for organising geographical space;
- organising is subordinated to certain needs of optimal and sustainable territory exploitation;
- in developing a theoretical approach and illustrating the practical aspects, the legislative component (by its limitations and liberties) has a coercive status.

3. THE PHYSICO-GEOGRAPHICAL COMPONENT - SUPPORT OF THE LAND MANAGEMENT

The self-organising assessment of the natural component of geographical space in Bistrița Ardeleană catchment area represents the starting point for any managerial initiative. The morphology and the bio-pedo-hydro-climatic conditions define a *datum* which is restrictive and also favourable for the exploitation and integration of strategic management projects.

Inside the county, the studied territory is placed to the East, at the border with Suceava County (E) and Mureş County (SE). While the communication with Mureş County is done on mountain tracks, the connection to Suceava is accomplished easily, by Tihuța pass, on E 576 national road.



Geographical framing
of Bistrița Ardeleană catchment area

Bistrița catchment area develops over two major geographical units:

- the Western Carpathians;
- Transylvania Depression.

As part of the Western Carpathians, Bistrița basin plays the role of limit between the northern and the central parts of the mountains (through Bârgău valley), while the inferior part of the basin falls on the hills of Bistrița.

The climate of this area is obviously influenced by its geographical placement and the relief. Due to its geographical placement, the climate is moderate temperate-continental, under the influence of two major categories of air masses:

- one coming from the western baric, oceanic system, that determines relatively warm and humid winters and chilly and wet summers;
- one coming from the east, from the continent, determining cold winters and warm and dry summers.

Due to the intensely abrupt relief, there are several topo-climatic features.

Bistrița has a catchment area with a surface of 662 km² and a total length of 65.4 km, up to the mouth in Şieu River. It is the main branch of Şieu River, which is the branch of Someşul Mare River. It springs form the N-V Călimani Mountains, under Bistriciorul peak (1,990 m), having different names as it flows.

The category of surface water includes the lakes too. The barrier lake of Colibița is placed on the upper course of Bistrița Transilvană River, at aprox. 40 km upstream of the town of Bistrița, second type branch of Someş River and aprox. 400 m from the confluence of Repedele rivulet, between Bistrița Bârgăului and Mița, in Bistrița Năsăud County.

In the mofette area around the volcanic mountains of Bârgău-Călimani, there area mineral chalybeate water springs with a variable CO2 content, on Şendroaia and Izvorul Lung rivulets (Terha, Buba, Dălbidan), usually alkaline, with anti-anaemic and digestive stimulating effect.

The morphological and structural-compositional analysis of the soil classes, types and sub-types from the studied area was done according to the requests of the Romanian System of Soil Taxonomy (SRTS-2003) (the parentheses comprise the names of the soil classes in SRCS-1980).

The natural vegetation disappeared on large areas, especially in the depression and couloir, present as forests, pastures and meadows. It mostly reflects the particularities of the relief levelling, which includes particularities of the whole Carpathian chain and also specific local features. The topo-climate in the described area encourages mixed forests – beech and coniferous trees, pastures and meadows favourable to agriculture and orchards.

The described area comprises also a rich fauna, but in the latest 100 years many species have disappeared or are about to disappear, species that now became protected by law (because of poaching and pollution). The most important is the large fauna, represented by species of high hunting importance.

Dysfunctions:

- the increased morpho-dynamics of the mountain slopes, due to the deforestation phenomenon (especially in the eastern and south-eastern area);
- the presence of the phenomenon of over-lifting of the river beds (in the case of valleys, especially in Bistrița depression) and swamping, as a consequence of the alluvial and colluvio-proluvial deposits;
- the coast streams of permanent flow are not directed into a slope drainage system (inside the administrative territory of the town of Bistrița and the village of Livezile);
- an excess of humidity in certain areas (Unirea, Viişoara, Cuşma, Sărata);
- present thermal inversions (inside the depression basins – Bistrița, Cuşma);
- an increased frequency of fog and breeze along the couloir (Livezile-Bârgău);
- the glaze and blizzard associated to the solid or mixed precipitations induce problems for the road traffic along DN 17 road, especially in Tihuța pass;

4. HUMAN COMPONENT – CREATOR OF A MEMORY OF THE GEOGRAPHICAL SPACE

In any endeavour that aims at assessing the sustainability of a territorial fragment, the demographic component represents one of the supporting pillars for the land management. Besides resources, the quality of the technical infrastructure, the state and the quality of the environment, the viability of the demographic component and beneficiary of the land management projects represent an essential indicator for the conceptual construction of an articulated coherent study. The number of the population, the age structure, territorial distribution and the ethnic and religious structures are coordinates directly involved into a development scenario. There is no development in the absence of the population involved in sustaining this process and direct beneficiary of this endeavour.

This chapter aims at underlining the viability degree of the demographic component, the following indicators being directly analysed:

- *The evolution of the number of inhabitants (between 1850 and 2010),* in the whole basin and also with a differentiation given by the inhabiting areas. The differentiation of important stages was in view, and special situations were analysed in as far as demographic downfall in the rural area is concerned.
- *The territorial distribution of the population,* by absolute density;
- *The quality (structures) of the population*. The last indicator was analysed and expressed by the following structure categories: *main age groups* (0-19 years; 20-59 years; 60 years and over), *gender, activity domains, ethic groups, religion.* In this case too, the accent fell on the demographic particularities of the analysed territory (i.e. changes in the ethnic structure after the migration of the German population);

The demographic dynamics in Bistrița Ardeleană catchment area mainly follows the patterns of the national context.

The settlement system inside Bistrița Ardeleană catchment area can be divided from the very beginning according to the criterion of territorial-administrative organisation; thus, there is an urban system (town) of Bistrița, and a rural system, divided on different criteria. Bistrița, as a residential town for the county, has a strong polarising function, all the communal centres and the villages being subordinated. At the communal level, there are differences as for polarisation, one of the main criteria being the distance away from the residential town. Thus, Livezile village is occasionally polarised by Prundu Bârgăului, although it is an important over-communal centre

among all Bârgău villages (historically, Livezile and the surrounding villages, belonged to the German area of Bistrița).

For Bârgău settlements, the inclusion of this area in the second border regiment of Năsăud was a vital factor for any geographical assessment on villages and rural settlements.

The settlement system in Bistrița Ardeleană catchment area comprises, from an administrative point of view, a residential town (Bistrița) and five communal entities. Their division, according to PATN, underlines the following situation:

- Bistrița - 2nd rank urban settlement;
- 4th rank communal residences (5);
- 5th rank villages belonging to communal settlements and villages belonging to municipalities and towns (13 at communal level, 6 villages belonging in the urban area).

Dysfunctions:

- an obvious phenomenon of aging of the population in the rural settlements: Valea Poienii, Dorolea, Cuşma, Sigmir, Sărata;
- lack of association – legal or other, of the settlements that have a common destiny and a historical-ethnographic identity;
- poor representation of amenities in education and health in the rural area;
- poor concentration of Bârgău settlements around Prundu Bârgăului centre.

5. ACTIVE COMPONENT OF MODELLING GEOGRAPHICAL SPACE

Bistrița catchment area has a complex economical potential, supported by the industrial activities and by the services offered especially in the town of Bistrița.

At present, the economy of the investigated area is dominated by the following industrial sectors: woodworking, engineering, food processing, glass industry and hardware, textiles, electrotechical, hosiery and clothing factories, metal working and plastic factories. An important place is occupied by transportation activities, services, farming, design, computer science, health-related activities and banks and finances.

Agriculture benefits from medium relief and bio-climatic conditions and can be assessed according to certain parameters:

- the issue of the right of property;

- the size of properties;
- the ratio between property and effective agriculture work applied (self-management or rent);
- manner of using land;
- agricultural systems and animal farming;

Over 95 % of the farming land represents individual property organised as small or medium size peasant farms, while the working hand in agriculture represents 85% of the active rural population.

The actual industrial profile appeared mainly in the 20th century. The most important was woodworking, as well as construction material exploitation. At the beginning of the 70's, appeared the main industrial objectives, which would ensure many jobs, especially in the town of Bistrița. The first high-productivity industrial branches were constructions, woodworking and exploitation, paper factories and food industry.

There is a huge discrepancy between the placements of the industrial plants inside the basin, on the two environment categories. So, most of the industrial activity is carried in the town, although the rural area along the upper and middle course of Bistrița River has a long tradition too.

There are industrial activities that turned Bistrița into one of the most important industrial producers in the country: car-battery production, car radiator production, electrical wires, PVC pipes and tubes, composite material with glass fibres, glass work, car wiring.

This PhD thesis aims at creating a symptomatic picture of the tourism in Bistrița Ardeleană catchment area. Paradoxically, the investigated area does not represent a tourist destination per se, only the emigrated German population may feel the nostalgic return to the native places. Not even Colibița is considered a tourist resort. Bistrița Ardeleană catchment area represents a transit territory for the tourists going to and coming from Bucovina.

The complex issue of sustainable development of tourism inside the investigated area has two main directions:

- resuscitating the offer of Colibița-Piatra Fântânele area;

- promoting tourism in Bistrița and the settlements that have a "historical" coating, including the exploitation of the mineral water springs in Sărata, Slătinița and Viișoara.

Further on, the **case study on tourism development was constituted by the tourist resort of Colibița, with its local interest.**

Dysfunctions:

- split-up of the individual farm properties;
- deterioration of the orchards near Bistrița, as a result of the extension of the residential area;
- poor exploitation of the orchards, despite their valuable potential;
- poor exploitation of the woods, with the help of units of secondary processing;
- poor development of the craftsmanship;
- lack of capital concentration by local initiatives;
- poor development of the secondary sector in the rural area, by small production workshops (relocation of centres placed inside the industrial area of Bistrița).
- poor tourist development;
- lack of a correct exploitation of the mineral water sources;
- insufficient and inefficient, old-fashioned accommodation infrastructure;
- absence of tourist identity brands;

6. TERRITORIAL INFRASTRUCTURE NETWORKS AND SYSTEMS IN BISTRIȚA ARDELEANĂ CATCHMENT AREA

This chapter is, in our view, an extremely important one for the configuration of a correct vision from the point of view of land management. I have started with historical elements, which are extremely important for the initiation of a transportation infrastructure. The study concentrated on the actual situation, with a distinction given to the particularities previous to the major investment in the road, water and sewerage infrastructure. I refer to the ISPA project, started in 2005 and ended in 2009. There was also a pack of dysfunctions, in view of over-passing the performance deficit, subordinated to the sustainable perspective of land management and organising geographical space in Bistrița Ardeleană catchment area.

An analysis of the actual situation and a identification of the dysfunctions inside the transportation communication networks and in the area was carried out having in view their spatial expansion, their actual state, the role of the communication means inside the geographical site, the manner and conditions of rendering good transportation and the adverse natural phenomena which affect or may affect the state of the transportation means and traffic safety.

There have been several ***dysfunctions*** identified, for instance:

- lack of the highway section that should connect Transylvania to Bucovina;
- county roads not modernised, there is no asphalt and no drainage system;
- there is no beltway in the south of Bistrița;
- poor inter-connection of the settlements of the investigated area;
- an inexistent coherent system of vicinity roads, which should enable the access of the farmers on the farming lands, thus avoiding the congestion on E 576 road;
- poor technical state of the railway along 406 road (Bistrița-Bistrița Bârgăului): worn out, unequipped, no halts, low rolling speed;
- lack of any connection alternatives by railway with narrow gauge, especially in the areas that had a tradition of that kind and prove a high potential for tourist development: the upper course of Bistrița and Bârgău valleys;
- lack of a well-developed drinking water system for the settlements in Bârgău area.;
- lack of a sewerage system in most rural settlements;
- the houses around Colibița lake are all connected to septic tanks;
- the electric energy system is under-dimensioned in the rural area, especially in the upper part of the catchment area;
- lack of a natural gas system in the rural area (the middle and upper course of Bistrița and Bârgău valleys), which puts a lot of pressure on the forest stock of wood. The insufficient thermal insulation leads to an even larger consumption of wood;

7. STATE AND QUALITY OF THE ENVIRONMENT

The following issue categories have been assessed: air pollution, surface water and under-water pollution, soil pollution and waste management. Except for the phenomenon of uncontrolled waste disposal, specific to the rural areas, all the others are

the result of the socio-economic activities in the town of Bistrița and some of it of the economic activities in the surrounding villages.

Dysfunctions:

- poor development of a selective waste acquisition system;
- uncontrolled waste depositing in the flooding area and on the river banks, especially of garbage and sawdust (there are no temporary waste deposits in the wood exploitation areas);
- the presence of inappropriate depositing spaces in the rural area;
- construction of economic and living structures inside the environmental protection surfaces;
- lack of an articulated sewerage system and of the sewage treatment plants in the rural area;
- poor initiative regarding the cleaning of the tourist tracks;

8. DIAGNOSTIC ANALYSIS (S.W.O.T) OF THE INVESTIGATED TERRITORY

This chapter includes a SWOT analysis, according to the actual methodology, of all the previously described components, in view of establishing an articulated strategy of land management.

9. LAND MANAGEMENT IN BISTRIȚA ARDELEANĂ CATCHMENT AREA – A STATEGIC APPROACH

The problems and dysfunctions being expressed under the form of conclusions at the end of the previous chapters, the strategy scheme involves *the configuration of a development vision (main strategic objective),* and then *of strategic sectorial objectives,* while suggesting a plan, includes:

- Identifying the problem areas, in the context of spatial evolutions;
- Identifying intervention areas;
- Selecting priority intervention areas.

Subordinated to sustainable development, ***the vision resumes the idea of an optimal relationship between resources (of any kind) and their exploitation, with the aim of projecting the investigated territory in its natural geometrical place of a balanced, harmonious, pan-European evolution.***

The strategic management of the analysed catchment area must follow some clear directions (**sectorial objectives**):

A. *Extension and improvement of the quality of the territorial infrastructure (transportation);*
B. *Consolidation of the relations inside the settlement system;*
C. *Supporting tourism;*
D. *Diversification of the economical activities in the rural area, emphasising the local specificity;*
E. *Improvement of the environmental quality;*

The case-study on sustainable development of tourism in Colibița-Tihuța area was reiterated, in order to set up a tourist cluster.

The concluding chapter of the strategic management ended with a chorematic diagram. This simplified scheme of the territory has a double meaning: on one hand, it brings together the evolution patterns of the socio-cultural component, historically moulded on a geographic *datum* and, on the other hand, it announces the optimal development trends, paradigmatically subordinated to the sustainable development.

Expressed under the form of synthetic conclusions, the chorema becomes corollary of the efforts of articulating a coherent, almost thorough vision.