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Restructuring the post-industrial landscape of Bistrita subcarpathian valley

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ABSTRACT

The paper examines the industrial landscape evolution of Bistrita subcarpathian Valley, focusing on the causes, and especially on the consequences of those rapid changes over the territory. The area under study has favorable conditions for the development of the industrial sector, being an area of old housing and having access to natural and human resources needed for this type of activity. The methodology was achieved through the spatial and temporal analysis of cartographic documents from different suggestive periods, carefully selection of the bibliographical mater lis, and through a detailed field study for validating the results of the laboratory and providing new information. To better illustrate the industrial landscape dynamics reflected in Bistrita subcarpathian Valley we used GIS techniques as the main tool in completing the work, resulting two cartographic materials that capture the state before and after the fall of the communist regime (1989), which affected the whole Romanian industry. The maps are supported by edifying images of the concerned periods. The results noted an accelerated process of transforming the industrial landscape within the analyzed territory, a critical moment being 1989, which marks the transition from planned to market economy, resulting a complex process of industrial restructu ng. The study identifies certain models of conversion of former industrial sites and finally aims to provide viable solutions for reinsertion in the economic circuit.

Keywords: industrial landscape, conversion, GIS, Bistrita Subcarpathian Valley, Romania

INTRODUCTION

Due to exploitation of natural resources, high energy consumption and production processes generating pollutants and waste, industrial activities have a major impact on the environment and hence on the landscape. According to the specific of the industrial activity may be impaired the quality of air, water or soil, causing various types of waste involving surface and storage problems. Thus, it requires a strict control in order to comply with legislation regarding environmental sustainability principles.

Following the policy of industrialization, large industrial facilities have resulted, outlining a type of landscape in the urban tissue, the industrial landscape, with the subtypes corresponding to each production activity, the emergence of new residential areas for workers in industry, all these actions resulting in an increased pressure among the environmental components [1], The technologies used in industrial activities artificially introduce into the environment energy and matter streams, causing disturbances at global level, in the natural cycle of matter, or local through more or less accidental pollution or synergistic effect of certain pollutants. Before 1989, Bistrita subcarpathian Valley represented an important industrial center of the country, and also a driver of socio-economical development of the entire neighboring area (fig. 1). The existence of the industrial centers Savinesti-Roznov, Piatra Neamt and Buhusi exerted a favorable influence over the economic aspects of the study area, being polarization centers of the population employment. After 1989, the industrial landscape of the territory has experienced major changes as a result of economic transition through the conversion of former industrial areas, or even their decommissioning without a further development plan.

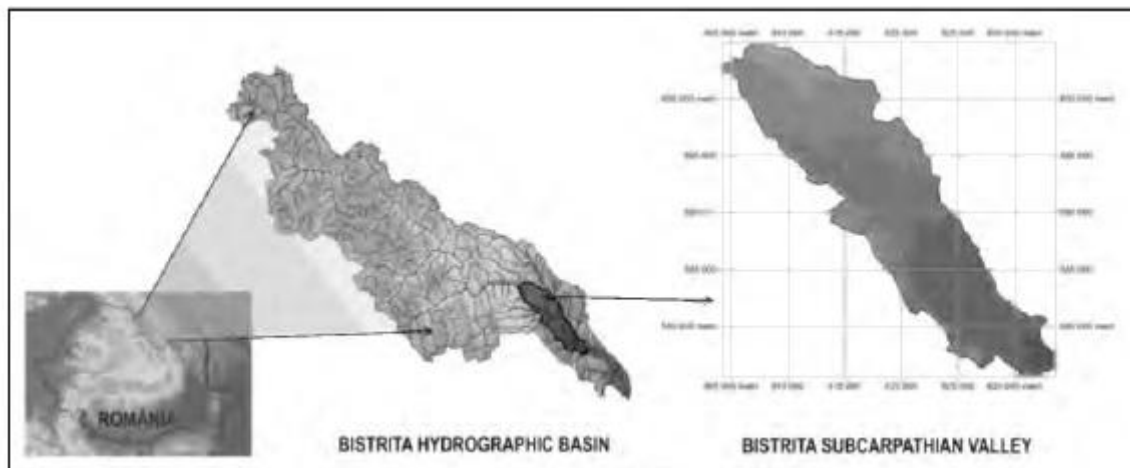


Fig. 1 - Geographical location of Bistrita Subcarpathian Valley (after [2])

The industrialization stages of the Bistrita subcarpathian Valley are related to the political changes experienced by Romania, which set the tone for the following spectacular changes regarding the industrial landscape.

1. Pre-industrialization stage (craft stage) until the middle 19th century*

Can be named the manufacturing period which meant a great development of internal markets and labor division, commercial relations increasing. Being an area of old housing and having access to natural and human resources needed, Bistrita subcarpathian Valley has favorable conditions to perform this type of activity. Even before the appearance of the first factories, there was an intense handcrafts and farm industry, and hydraulic power of Bistrita river was used in numerous saws and water mills [3],

2. *Capitalist industrialization stage from the second half of the 19th century to 1948* This stage marks the shift from manufacturing to technical economy by founding the first factories. Thus, in 1841 occurred the first paper factory from Romania at Piatra Neamt, and later was founded The pulp factory „Reconstructia” in 1927, which will expand production after 1948 S.C. Mecanica Ceahlau S.A. was founded 90 years ago in 1921 as a small electrical and foundry workshop, but the first mechanization products began to be produced since 1953, when entering the next stage of industrialization, the most productive one. As a result of favorable conditions (good building space, plenty of quality industrial water from Bistrita, the railway finished in 1885, which facilitate the supply of cheap and abundant labor and a good expansion market) occurred in Buhusi one of the first cloth factory from Eastern Europe. Also for this unit, the year of 1948 represents an important step of industrial development of the region, by increasing the factory with new and modern departments

3. *Socialist industrialization stage (forced and extensive industry development) - 1948-1989*

After the Second World War, Bistrita subcarpathian Valley knows a new stage in the evolution of industry, conditioned by a series of political, economic and social factors [4], in which the territory presented important investments in this sector. These investments were part of a national policy of socialist economic development of the country.

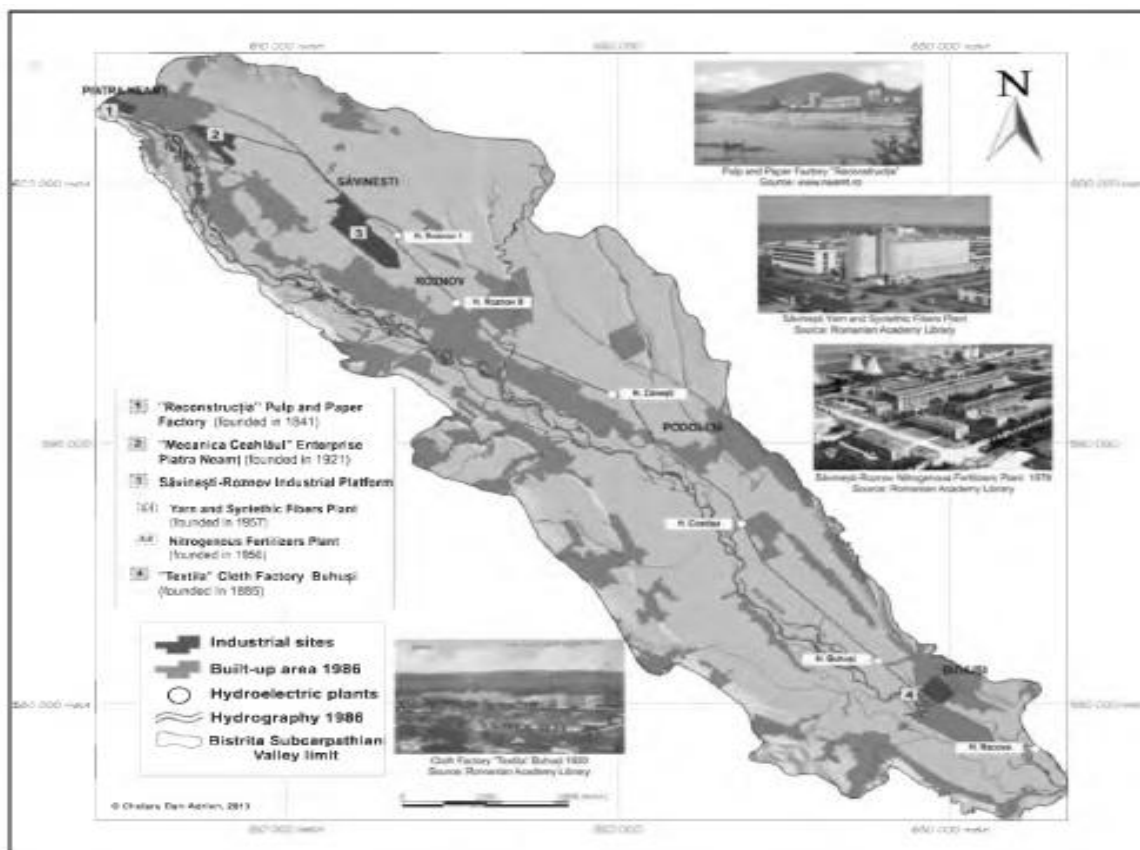


Fig. 2 - Bistrita subcarpathian Valley industrial landscape before 1989

The 1945-1968 interval is considered as a period of regional polarization of socialist type, in which the ideology subordinated the economical criteria, and the industrial structure changed radically [5], [4]. The key moments of the socialist period are represented by 1948 nationalization, agricultural collectivization (1949-1962) and industrial development policy with emphasis on heavy industry. The state became the most important influencing factor on the settlement system and their economic development. Socialism was based on a rapid modernization program of the society, centered on industrial development and urbanization, processes that encouraged a massive population shift from agriculture to industry, from village to city. Major changes occurred, the State dictating production and concentrating investments especially in heavy industry [6]. After 1950 were brought profound changes in territorial development, driven by the rapid industrialization process and strong population growth. This period represents a very dynamic phase of development. Appear new industries (particularly in chemistry and engineering domain), while the polarizing role of industrial centers in the area has increased. Industry has the largest share of the employment. During this period were developed the existing industrial units by creating new sections, especially by introducing new technologies that allowed the diversification of the production. Increased production imposed increasing consumption of raw materials, with implications for other branches, by making new commercial cycles. In essence, this stage of forced industrial development led to large industrial centers that have significant effects on social and economic life of the territory.

Another project of socialism that has proven its utility being used at full capacity nowadays is the development of energy industry, represented in territory after 1960, through the hydrotechnical works of Bistrita river (fig. 2). One of the main conditions of technical progress and mechanization expansion of the industry is a developed network of hydropower plants and electric transmission lines. The electrical network changed the socio-economic life of the territory and the settlements appearance. Major industrial centers took full advantage of this project both through water supply and water required for production activities.

Post-industrialization stage (industry^ structuring and privatization) - after 1989 After 1989, the country entered a new phase of restructuring and privatization following the return from socialist to capitalist industry. The transition from planned to a market economy was strongly felt by industrial sector with general negative consequences. Mostly affected were the large industrial centers developed in the socialist industrialization stage. Thus, many units were partially or totally destroyed, or have been abandoned because of the old technology, lack of capital and political corruption. Certain industrial sections maintained the activity, others have entered to conversion process, but upgrading the used technology led to reducing personnel and maintaining only the departments producing competitive materials demanded on the market. The relict industrial areas are also a consequence of the present economic conditions and of the stricter environmental standards imposed after Romania joined the E.U. in 2007, leading to the decline of the industrial activity, but this should not mean complete abandonment and destruction of the industrial artefacts, some containing important elements of local identity. The abandonment is not a durable solution and leads to further environmental

problems (remnant pollution, uncontrolled waste deposits, inefficient land use), social problems (insecurity due to proximity to residential neighbourhoods, "sick buildings" phenomenon) and economic problems (unused spaces, unprofitable industrial units, poor productivity, incompliance with the environmental and sanitary regulations). All these issues require intelligent solutions based on the principles of sustainable and comprehensive urban development in order to achieve eco-efficiency, social cohesion and improved quality of life [7]. The analysis revealed in the last decade the emergence of a new phenomenon - an attempt of reintroducing into economical circuit of abandoned industrial sites.

DATA AND METHODS

The paper examines the industrial landscape evolution of Bistrita subcarpathian Valley, focusing on the causes, and especially on the consequences of those rapid changes over the territory. The methodology was achieved through the spatial and temporal analysis of cartographic documents from different suggestive periods, carefully selection of the bibliographical materials, and through a detailed field study for validating the results of the laboratory and providing new information. To better illustrate the industrial landscape dynamics reflected in Bistrita subcarpathian Valley we used GIS techniques as the main tool in completing the work, resulting two cartographic materials that capture the state before and after the fall of the communist regime (1989), which affected the whole Romanian industry. The maps are supported by edifying images of the concerned periods. For the graphical representation of industrial and post-industrial landscape of Bistrita subcarpathian Valley, we used the following cartographic documents: 1:5.000 scale topographic plans - 1976, 1:25.000 scale topographic maps - 1986, 1:10.000 scale cadastral plans - 1986, and the orthophotomaps at 1:5.000 scale from ANCPPI (National Agency for Cadastre and Land Registration). We used in the cartographic analysis the DEM (digital elevation model), which was created at 5 meters resolution on the 1:5000 topographic plans for viewing and analyzing the geomorphology on which are located the industrial sites. The other maps were used for the extraction of the vector layers required in the analysis such as hydrography, roads etc.

RESULTS AND DISCUSSIONS

The term "industrial landscape" can be used for a certain spatial unit which develops a productive activity involving both natural and anthropogenic factors, and is materialized through the existence of buildings, facilities and infrastructure required for this type of activity. Thus, any type of activity aiming at the conversion of natural resources, brings to the landscape new aspects and features that can be classified as industrial together with those submultiples coming from the main types of activities [8], [1]. After the post-revolutionary stage, Bistrita subcarpathian Valley has witnessed the occurrence of small factories from different industrial sectors participating at the economic development of the territory (eg. Romanel Roznov, HelixisProd Podoleni - see fig. 3).

Following the change of political regime in Romania and hence the transition to a market economy resulted a complex process of privatization of formerly industrial units owned by state. Depending on investors who have taken these industrial sites one can identify several models of conversion, not entirely positive. A general effect of post- revolutionary period is the abandonment of a large part of the industrial units having important implications on the environment.

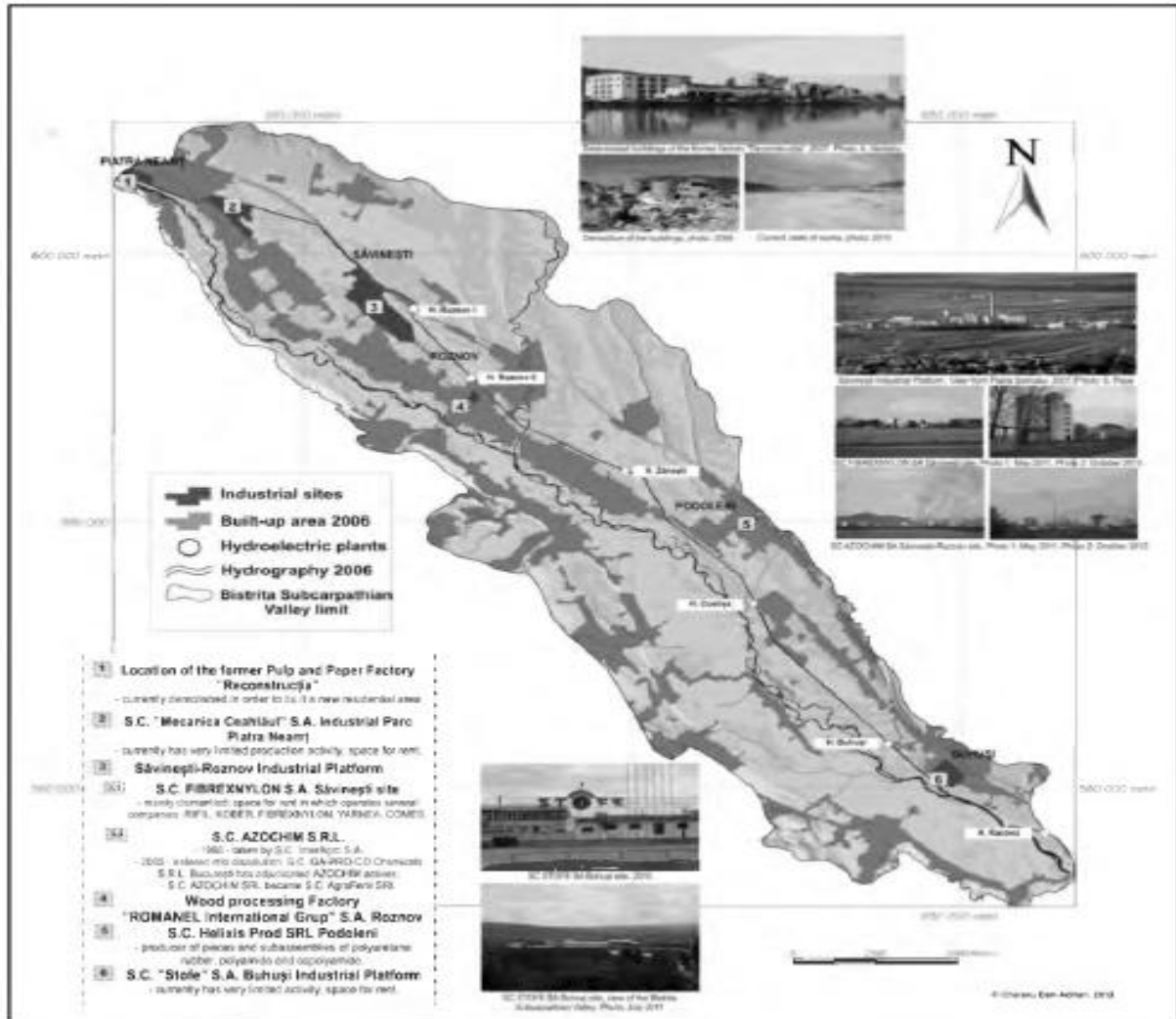


Fig. 3 - Bistrita subcarpathian Valley industrial landscape after 1989

The conversion of the industrial landscape is a solution to the phenomenon of deindustrialization and triggers the regeneration and the restructuring of the urban environment. If (1989-1991) this phenomenon was taking place slowly at the beginning, presently it is accelerated and the change is most often profound, disregarding the urbanism rules, the planning and rigors of the environment or the principles of sustainable development. Thus industrial areas "become victims" of investors, conversion projects being poorly motivated, ignoring their architectural, historical, cultural value and technically, component

buildings [1], Based on the documentary work, cartographic analysis and field study, we identified several models of restructuring the industrial landscape of the study area:

- Total transformation of the industrial unit by demolishing the whole buildings and installations assembly with the purpose of reinsertion to the economic circuit

In this category can be included the site of the former paper factory Reconstructia, which currently is entirely demolished, pursuing the reinsertion to economic circuit by building a new residential area.

- *Qualitative transformation: preserving the functional profile by modernizing, rehabilitation, but maintaining the original aspect of architecture*

S.C. Mecanica S.A. represents one of the successful conversion models of industrial areas from Bistrita subcarpathian Valley by thinking a functional project that integrates both the research part responsible for modernizing and updating to current requirements of production profiles, an effective relationship between employees and investors and finally an internal and external marketing policy of regaining past marketplace and entering to new ones, having large export availabilities

- *Partial functional transformation* of industrial units is common to most large sites. Regarding Mecanica Ceahlau Industrial Park, after the process of modernizing facilities resulted the employees and large production areas dismi ;sal, especially production halls which were offered for rent and now functions as materials storage or administrative spaces for various small firms, the degree of occupancy being approximately 20% (3 of 10.44 ha). The same is the case for Savinesti Industrial Complex which houses by renting large areas having proper facilities a series of companies with different activity profiles: RIFIL (textile fibers preparation and spinning), KOBER (lacquers and varnishes industry) or COMES (produces machinery and pressure equipment). The other area having the * tie of Industrial Park located on SC Stofe Buhusi SA site offers for rent storage spaces, offices, headquarters or production facilities, thus the buildings have changes their business profile.

- = *Keeping the industrial activity profile but partial abandonment of unused buildings*

All the industrial centers within Bistrita subcapathian Valley have experienced in the post-revolutionary period the abandonment of the artifacts following the privatization process. Thus, although industrial units have mainly maintained the same activity profile, because of the facilities modernization, obsolete technology, lack of capital, or even maladministration, resulted large areas of abandoned buildings which have been vandalized. As examples should be noted Nitrogenous Fertilizer Plant located on Savinesti-Roznov platform, which still operates, but most of the buildings were dismantled. The most dramatic is the case of Buhusi Cloth Factory, which has restricted its activity very much, and most buildings and facilities giving a predominantly negative note to the landscape both aesthetically and functionally.

CONCLUSIONS

The results noted an accelerated process of transforming the industrial landscape within the analyzed territory, a critical moment being 1989, which marks the transition from planned to market economy, resulting a complex process of industrial restructuring. Bistrita subcarpathian Valley has known a contradictory evolution, oscillating between progress, stagnation and regression, and directly influenced the socio-economic aspects of the whole territory. Due to geographical position, the proximity to quality water sources, favorable land for building, and the positive socio-economic aspects (developed communication ways that facilitate the exchange of materials, cheap and abundant labor, commercial tradition of the territory) made Bistrita subcarpathian Valley a suitable area for the growth of the industry and a reference point at national level in certain activity sectors. Nevertheless, Bistrita subcarpathian Valley industry still shows an important role in relation to the economy area.

This type of development of productive activities has irreversibly influenced the culture of the population, this is why there is now an international interest in maintaining and integrating old industrial structures, now abandoned in the vast majority of cases, among other patrimony treasures [1], There is even an European network that has as main point of interest the industrial sites capitalization named European Route of Industrial Heritage (ERIH). Although this type of facilities require major investments, they are not impossible having many successful examples in Western Europe (for example, the Ruhr region of Germany represents a model of solving the socio-economic problems by exploiting old industrial centers). The industrial tourism is a less developed form of tourism in Romania, yet we believe that this type of activity is feasible for the abandoned former industrial units of Bistrita subcarpathian Valley. To achieve such demarche, the material witnesses of the industrial past (buildings installations, plants) must be considered as part of the identity of the region, focus,,ig on their selection, protection and conservation. All this must be realized in time for the industrial landscape to penetrate the consciousness of the inhabitants and other people interested in what this site represented.

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