**Townscape concept as an alternative to urban sustainable development. Case study: Piatra-Neamț city**

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**Abstract.** The study approaches the problematic of unsuitable urban planning and aesthetic development of the territory according to the natural environment of Piatra-Neamț city and comes up with new solutions and measures for an equilibrated and sustainable planning. The methodology used implies cartographic materials from different periods of time to analyse the dynamics of the landscape and the environmental evolution. The territorial analysis determined the actual problematic of the urban aesthetics and planning. By combining these materials with the human activity from the urban space will result a number of maps necessary for the aim of the study: hypsometry, protected areas, land-use and landscape typology. Once identified the dysfunctions of the actual urban planning, it is necessary to provide measures in order to apply the townscape concept to the urban area of Piatra-Neamț city. The study concludes with a number of strategic measures for Piatra-Neamț city, measures that are to be useful for an enhanced planning and a sustainable development of the urban area, a more aesthetic, complementary and coherent image, which provides a healthier environment and a true townscape, not only functionality.

**Key Words:** townscape, environment, urban planning, aesthetic, development, Piatra-Neamt.

**Aims and background.** Townscape concept derives from landscape science, actually it can be known as the urban equivalent for landscape, referring to the act of giving visual coherence and organisation to an urban space given by sustainable local communities (Gosling & Norman 1996). In urban planning and design this concept deals with the configuration of the built environment and the interstitial space. Since 1979 there has been developed The Townscape Institute, a non-for-profit public interest organisation in Cambridge, Massachusetts which has used this concept in order to combine the face of a city, its design with its functionality. Each town is different, it is not possible to find a pattern and to apply it to every city. The main goal of townscape concept is to enhance the built environment and the urban planning process by combining the utility with design, aesthetics and sustainable development.

This study starts from the premise that each urban space can be developed and can also have maximum functionality if the planning process is combined with the environmental specific of the area, resulting a positive image for the urban space (Sauthgate & Sharpley 2004). In order to achieve this goal it is necessary to analyse the urban space, its natural base, its building areas, its protected areas, its flaws and its strengths. This gives the necessary information for the strategic directions and the measures proposed.

As a mountain city, Piatra-Neamț has a limited extending of the green space in the urban area due to its forests around it. From NW to SE the city is drained by Bistrita river, this hydrological factor and the morphology generated from it has a great impact among the place of the built areas, the necessary interventions for building nearby and the image of the whole urban space (Figure 1.). The territory of Piatra-Neamț is defined by the Oriental Carpathians units: Stânișoarei Mountains and Goșmanu Mountains and also by the subcarpathian Crăcău-Bistrița Depression, situated at the eastern part of the mountainous units. Stânișoarei Mountains are present in the analysed territory only with their southern part, they belong to the flysch stripe and they reach a maximum 806 meters altitude in Prihodiște Peak and 651 meters in Cozla Hill (Apavaloae 2004). Goșmanu Mountains are situated in the south-western part of the city, they belong to the sandstone flysch stripe and they reach a maximum 920 meters altitude in Căzăcuci Peak and 851 meters in Cernegura Hill. The slopes of this mountain were affected in the past by high frequency landslides. These two mountainous units are separated by Bistrita Valley, its evolution started in Medium Sarmatian (Donisă 1968) and the fluvial relief forms due to the erosion, transport and accumulation process.
Crăciun–Bistrița Depression is a homogeneous morphostructural unit, with low fragmentation and with lower altitudes from north to south, according to the hydrographical courses. On the central-western part of this unit is placed the administrative territory of Piatra-Neamț city. Another unit which defines the urban settlement’s morphology is Cujeidi Defile, extended between Cozla Hill and Pietricica Hill, on an ex-course of Bistrița river (Bojoi 1973).

The collapse of the communist regime has generated a fast development and a competition between the cities. So, in order to increase their economy and their value for the national urban system, Piatra-Neamț city was launched in a process of development and urban planning that highly diminished the industry and left behind entire troubled areas regarding the aesthetic and also the functionality of the city. On the other hand, the tourism development in Piatra-Neamt brought important changes but also generated very important dysfunctions and negative impact on the environment, the geomorphological activity and outlined the role of the local authorities in the planning process.

**Experimental.** In order to analyse the natural base of Piatra-Neamt and to realise a complex study, the research methodology consisted in an analysis of the territory and of the conditions for the urban activities. For achieving the purpose of the study there were consulted: the topographical map, 1:25.000 scale (1986), cartographic materials and pictures from different periods of time for a precise analysis of the temporal dynamics of the landscape. There was also consulted PUG Piatra-Neamț and the ISU maps regarding
the areas susceptible to landslides and it was analysed a satellite image, 1:5000 scale for a better accuracy. There were consulted paper works regarding the evolution and the dynamics of the urban area, the protected area legislation, the land-use and the natural or anthropic changes during the years.

The most important thing in developing townscape for an area is to have an urban management based on sustainability (Kanti 2012). All the data and information achieved were analysed, organised and processed in order to consist the base for GIS analysis of Piatra-Neamt. The result of the research consists in the elaboration of the maps for the factors that have influenced the urban planning of the area, such as: hypsometry, land-use, protected areas (Irimus et al 2005). The next result was the identification of areas were the local stakeholders did not take into account the sustainable development, the aesthetic, coherent and suitable integration of the built element into Piatra-Neamt’s specific image. It is necessary to emphasize that the results could be obtained by combining the maps and the other used materials with the direct observation in the field, synthesis and comparison methods. The townscape concept depends on the practical utility of these maps to be reflected in the elaboration of documents for a sustainable, functional and aesthetic planning and development in the urban area (Dragut 2004).

The relief represents the main factor for the development of a city. The hypsometry and its importance is reflected in the place of the built areas, and the morphology influences the functionality of the urban space. In addition to that the protected areas establish the limits for the built environment and the restriction areas (Figure 2).

![Figure 2. Piatra-Neamt - protected areas map.](image)

In Piatra-Neamt city the urban area is spread especially on the terraces created by Bistriţa river and Cuiejdí river and the administrative territory has three altitudinal steps that induced the evolution, the development and the specificity of the city. In the analysed space can be distinguished: 450 meters average altitude level, is the most extended, it encompasses the urban area, over Bistriţa Valley and the subcarpathian area.
and it represents 59% of the total surface of the city. The 450-650 meters altitude level characterizes the mountain space of the territory, it belongs to the forests fund and it represents 30% from the administrative territory, integrating a part of the protected areas. The last level has altitudes over 650 meters, it is the high mountainous area and it represents 11% from the total surface.

According to the cartographic documents and research, the landslides were the biggest problem for the studied area. A landslide occurred on the south-western part of the Cozla Hill, in 1897 and lead to the disappearance of a part of one neighbourhood named Valea Viei. Another landslide that affected the area after torrential rains is the one stabilized today on the south-eastern part of Cozla Hill. It is notable for the study to specify the fact that, the development of the tourism facilities and infrastructure activated some landslides on the southern part of the Cozla Hill, at a 50 meters distance from people houses.

This landslide occurred in 2010 due to the pressure and to the intense work in this part of the city for the sky slope and for the gondola system. So, the enhancements proposed at the beginning brought also a negative impact on the environment and increased the vulnerability of the area. Also, the building of the touristic infrastructure affected the protected areas and determined negative impacts among it by reducing the protected surfaces, diminishing the number of the species that live here, increasing deforestation for getting access, and affecting the strata that contain paleonthological vestiges.

Regarding the land-use, in Piatra-Neamt city a major part of the administrative territory consists in forest, and are declared Forest Reservation summing over 500 species of plants and trees. Another major part is used as non-irrigated land, then there are pastures and some areas are used as complex cultivation patterns (Figure 3).

![Figure 3. Piatra-Neamt - land-use map.](image)

Not according to the townscape concept, the main urban built area has only a small part of green space due to the forests around it and these aspects leaves the whole space to be used for constructions, for buildings, commercial spaces, parking spaces and other
destination such as cultural or entertainment. The major green space that partially saves the image and the aesthetic of this city is “Stefan cel Mare” central park. The other green spots from the city consists in private gardens from the residential areas, or few trees grown between the blocks.

Results. The human activities and the globalisation ideas accompanied by the competition between the cities of a country determined a wrong approach of what development means forgetting the substantial principles of the sustainability, the identity of each settlement and the natural support base. This is an issue that highly reveals Piatra-Neamt city’s idea of modern, innovation and aesthetic. In the communism period, the centre dictate the utility, the functionality and not the sustainable development or the environmental principles, there were imposed the condensed block constructions, the neighbourhoods for workers brought from the rural space in the city which caused an urban explosion of buildings in (Photo 2). This policy destroyed the image of the mountainous Piatra-Neamt, ignoring the buildings suitable integrated in the landscape, the lines according to the relief and the optimum design for a settlement situated in a mountain region (Photo 1).

![Photo 1. Piatra-Neamt 1960.](image1)

![Photo 2. Piatra-Neamt 1970.](image2)

In the communism period, between 1965-1980, over 65% from the new constructions were built as blocks with five or eight levels, this thing change completely, in only 15 years, the image of the city and its perspectives improvement in this aspect and affected the environment causing pressure, massive deforestation, air, water and soil pollution due to the intense activity of the new factories and the increase of transportation means and auto park.

The diminishing of industry that occurred after 1989, left behind degraded areas, with no solutions to be found in that near future except demolishing. Today, local authorities have started a plan to revive the former paper factory, here they planed the
building of a neighbourhood with all the facilities. This project started in 2009, but, until today there were not many results, except the demolition and some foundations.

Nowadays, in Piatra-Neamţ city, the urban planning seems to have forgotten about the human dimension of a settlement. The transport infrastructure increased due to increase of the auto park, the parking areas were built through the disappearance of the green spaces between the blocks and the actual modern tendencies in architecture placed the public and the green space for the citizens socializing at the end of the priority list, also there is no importance of promotion for the green transportation in the city. The architectural tendencies moved the accent from the common space, and the relations that this one created between the citizens, to individual buildings, built without taking into account the specific of the city, of the relief and of the other buildings surrounding it. In these circumstances, the people from this city may confront with limited space, obstacles, noises and unpleasant conditions, buildings out of nowhere, with no sense of suitable aesthetic and coherence and some of them even without environmental authorisation. These changes affected the environment, the cultural functions and the social functions of the city and determined an image disturbed by the new constructions, an sustainable development diminished, threatened or eliminated from several areas. The modernist ideology in planning determined the placement of tall and dark buildings in the central part of the city (Photo 3).

The tourism development induced an economical increase and an increase in the visitors and tourists number. Many people come to sky or to visit the city from a high level with the gondolas. But this development created some issues regarding the new constructions. Furthermore, the building sheltering the gondola system does not fit into the general planning and this situation is similar to the construction from the top of the Cozla Hill, unsuitable to the environment. This aspect can easily be applied to other facilities for tourism development.

As a primary conclusion, the urban planning of Piatra-Neamţ, does not have a special regulation regarding the integration of the new constructions in the constructed area or into environment. The townscape is a product of sustainable development, aesthetic and functionality in urban space (Cullen 1961). For the townscape concept to be an alternative to sustainable development of Piatra-Neamţ city it is necessary to follow some basic environmental principles and to develop and educate a sustainable community (Evans et al 2006). This study generated few necessary measures proposed to be applied in order to to make possible a sustainable planning and development of the analysed space:

- the urban space and its natural base must be valued and preserved by a regulation imposed by the local authorities regarding the construction;
- the citizens must be informed, sustainable educated and consulted in the development issues;
- each construction project should be limited by some aesthetic principles;
- townscape principles encourage the reducing of forced mobility and the increase in bike riding in order to reduce the pollution, the traffic and the crowded busses, this should be a priority for urban planning;
- it is necessary to form a specialized committee in order to analyse each construction project and its impact among the environment;
- projects that limit the access of the citizen, occupy to much space or require green space diminishing/elimination in the urban area should not be allowed;
- in the central part of the city should be planned more green space, less parking spaces;
- any project for constructions should complete some norms regarding the environmental integration;
- the building materials should be chosen according to the environmental policies ones consisting the nearby buildings;
- the form of the construction and the colour should fit properly into the specific area;
- the change in authorising suitable and sustainable projects should refer to local authorities, stakeholders and urban specialists;
- all the land-use changes should be communicated and discussed with the special committee;
- the buildings aspect should be sustainable integrated the area they are to be built;
- touristic development should be based on a precise analysis of the support capacity of the environment for not generating hazards and vulnerability in the urban area.

Every city presents problems regarding sustainable development, unsuitable constructions and changes made to create a modern space with modern facilities. But sometimes, the modernity proves a lack of sustainability, aesthetic and is tributary only to functionality. The people are subjective and their perception goes above the functionality, the townscape concept combines the objectivity of the functionality with the subjectivity of the citizens, in consequence the sustainable development applied to an urban space planning is the most suitable solution.

Conclusions. Piatra-Neamț city is a modern settlement with perspectives for evolution and development. The city’s preoccupation for the anthropic dimension is not a priority for the local authorities but the urban planning is increasing in projects and tendencies. The connection from the enhancements made by now for the urban space and the ideal living settlement must have as the main goal the creation of a sustainable, secure, aesthetic city. In order to be possible to apply the townscape concept as an alternative to sustainable development to this city it is necessary to adopt the measures and the regulation that will combine the functional aspect with the anthropic dimension. It is not expensive or difficult to include the human factor in the constructions and urban planning projects. All that is required is a careful analysis of every project, an identification of its week points or its issues and their elimination from the implementation. It is also required a better land-use, according to their specific features and a proper manner of exploitation. Townscape brings benefits and these are to be past to generations, the unique value and the identity of a place is given by the people and what their built environment, a city focused on human, environment and functionality is the one that approaches a sustainable development and a coherent urban planning.

References