

# **PhD THESIS**

## **THE MORPHOLOGY, THE DYNAMICS AND THE URBAN PLANNING IN THE URBAN SPACE OF PIATRA-NEAMȚ CITY**

**-resume-**

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**Key words :** Territory morphology, urban dynamics, urban planning, urban development, townscape, Piatra-Neamț

## Introduction

Piatra-Neamț city is situated at the contact area from Oriental Carpathians and the subcarpathian depression Cracău-Bistrița, at the confluence area from Cuiejdri river and Bistrița river. Due to the geographic position this territory developed specific characteristics regarding geomorphology, geology, climatic factors, hydrography and urban planning. The central position in Neamț County, the development level and the residential status determine its polarising function for this area.

The detailed knowledge of the relief is basic for the urban planning process and for the development of an urban centre. For Piatra-Neamț is necessary an applied geomorphology study corroborated with urban geography elements in order to reach the main objective: **the analysis of the territory geomorphology and of the urban dynamics for the elaboration of suitable proposals for a sustainable urban planning and development of the city.** The actual urban planning of the city presents dysfunctions between the favourable and restrictive natural base, the building area and the legislation.

The urban planning needs an accurate research of the geographic factors because they are key elements in urban development process. These elements are the objective of the field research and lead to the identification of the favourable areas for a sustainable urban planning process necessary to a perfect functional and aesthetic territory.

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 Bistrița 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 (Fig. 1.). The territory of Piatra-Neamț is defined by the Oriental Carpathians units: Stânișoarei Mountains and Goșmanu Mountains and also by the subcarpathian Cracău-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. 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 Bistrița Valley, its evolution started in Medium Sarmatian (Donisă, 1968) and the fluvial relief forms due to the erosion, transport and accumulation process.

Cracău–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 Cuiejdî Defile, extended between Cozla Hill and Pietricica Hill, on an ex-course of Bistrița river (I. Bojoi, 1973).

In chapter I, **The methodology and theoretic aspects** was exposed the methodology used and the steps of the research during these three years of study and there have been approached the main concepts used further in the study.

There were used common methods such as observation, analysing, prognosis, synthesis, methods specific for geomorphology research. The study steps have a scientific based logic, beginning with the bibliography study and ending with the conclusions drawn after a meticulous synthesis.

Chapter 2, **Piatra-Neamț city- geographical and historical evolution premises**, describes the geographical factors and the historical events that influenced this urban space during the ages. It is also made a synthesis of the paper works that had as a subject Piatra-Neamț territory from a climatic, geologic, geomorphologic, hydrologic point of view.

In order to analyse the evolution of this territory I established as a reference element the communism period and I reported my research to the period before communism and after year 1989.

Chapter 3, **Geographical factors – premise for urban development**, presents the administrative territory of Piatra-Neamț city related to geographical elements that represent a base for its development: geology, climate, hydrography, vegetation, fauna and soils. Anthropogenic premises are a major influence factor that developed activities and generated specific

interventions on the morphology of the areas. The urban development in this space is tributary to the geographic and anthropic factors, so the population is directly responsible for the changes in this territory.

The 4<sup>th</sup> chapter, **The morphology and the morpho-dynamics of the urban space in Piatra-Neamț city** analyses the morphology of the urban territory related to its development and the problematic of the geomorphological risks associated to the river bed and slope processes. The main agent for the actual morphology of the territory is Bistrița river and its tributary rivers, these hydrographical elements determined three representative types of relief: fluvial, fluvial and denudation relief and anthropic relief.

In the 5<sup>th</sup> chapter, **The urban dynamics of Piatra-Neamț city**, is an analysis to the territorial evolution related to demographic dynamics, socio-cultural and economical dynamics from the urban space. The evolution of the society, the demographic increase the economy development generated a dynamic urban space, with a continuous extending.

The urban dynamics can be analysed according to some factors that reveal the anthropic intervention dimensions in the territory such as: territorial evolution, spatial dynamics, demographic dynamics, functional areas and urban dynamics in regional context.

In chapter 6, **The urban planning of Piatra-Neamț city**, is a strongly documented research of the urban planning process, there are analysed the local and the regional factors that influence this process in the study area. The urban morphology influence the extending and the implementation of the infrastructure, this has a direct impact on the quality of the vital elements of the urban development: air, water, soil, environment.

Piatra-Neamț city developed in strictly dependence of the morphology and the planning process is guided by the law 350/2001 for territory planning and urbanism completed by a number of more than 15 normative documents.

The urban development of a settlement is related to its urban planning, to the politics and methods applied. A sustainable urban space needs a sustainable urban planning.

The 7<sup>th</sup> chapter, **Proposals for sustainable urban planning and development**, is a synthesis of the study that lead to proposals and measures for a sustainable planning and development in

Piatra-Neamț city. The regional and local politics for development were corroborated with the measures elaborated after the SWOT analysis and determined the idea of "townscape concept" applied to this urban space. The townscape concept has as a main goal to create the image of a functional and aesthetic urban space, giving the city to its inhabitants.

## **Conclusions**

The study is an applied geomorphology study elaborated during 3 years 2012-2015, the research demonstrated that the morphology of the territory is a condition for the urban dynamics and for the urban planning.

The paper is structured in seven chapters in order to analyze all the factors that have influenced the urban dynamics and the process of the urban planning. Piatra-Neamț city presents disfunctions regarding the territory morphology and the urban development determined by the restrictivity induced by the geomorphological processes in intensive exploited areas, especially for tourism development.

The urban planning process in Piatra-Neamț city needs to be guided after the rules of the sustainable development, that implies the community and realize sustainable projects in its benefit. In order to achieve an urban space not only functional but also aesthetic and coherent I followed the rules imposed by townscape concept so I proposed objectives and measures for applying it to the analyzed space.

This study is a clear result of a complex research that sustains the fact that the urban dynamics and the urban planning is conditioned by the morphology of the territory. The co-working between the local stakeholders and the european financing opportunities offers benefits for a sustainable development of the urban space and community.