USE OF THE GEOGRAPHIC INFORMATION SYSTEM IN LOCATING AND EVALUATING THE CONSERVATION OF HISTORICAL DISTRICT IN THE CITY OF RESITA

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ABSTRACT

The aim of the study is to assess the historic district of the town of Resita by using Geographical Information System (GIS) technologies. The first step taken towards the goal of the study was to inventory the historical monuments in the city of Resita and to create a database containing the buildings’ characteristics. A GIS-based conceptual model was design for urban heritage conservation, which integrates two parts: one serves for urban heritage inventory and another serves for evaluation of degree of conservation of historical district of the city of Resita. The authors’ choice of the historical district of the town of Resita was determined by several factors such as the diversity of the historical monuments and the presence of a significant number of historical monuments having a moderate and a bad degree of conservation. Resita, as an industrial town, failed to benefit from any special concern for evaluating the degree of cultural-heritage conservation. In addition, the industrial nature of the town caused the local administration to disregard any assessment of the conservation of its cultural heritage.

Keywords: cultural heritage, physical degradation, conservation, cultural policy

INTRODUCTION

In the last decades conservation of cultural heritage has become a priority. Nowadays, Romania showed an opening-up towards actions to capitalise its rich cultural heritage. The first steps in the modern monitoring of historical monuments in Romania consisted in creating a Geographic Information System (GIS) application to ease the inventory, evaluation and preservation of historic areas. Urban heritage is a component of the cultural heritage. Urban areas with a high density of buildings with historical and architectural value are, typically, located in the historic quarters of cities. Many of these areas are currently affected by urbanization, by high population density, and by industrialization, factors that may impact on the historical monuments in those areas. Because economic interests prevail, many historical buildings, especially those characterized by a considerable cultural value, may become “attractive” to investors, because they are located in favorable locations in a city or they occupy vaste areas. These factors are genuine motivations that drive investors to seek a new and profitable use for the industrial buildings. Cultural regeneration of historic centers should be based on a management plan whose development and implementation must be carried out after a good cooperation of the municipal, regional and national authorities.

In the paper the authors analyze the location and the degree of conservation of historical monuments in the historic core of Resita municipality. The purpose of the study is to create a GIS-based conceptual model meant to assess the actual condition of the historical monuments in the historical district of the town of Resita, so as to identify their individual degree of conservation and provide suggestions for their conservation and cultural valorization. The specificity of the historical monuments in the Resita municipality is closely linked to the history of industrialization, as Resita is one of the cities with the most numerous industrial-heritage assets classified as historical monuments.
MATERIALS AND METHODS

Work on the study involved inventorying the historic district of the town of Resita during several field research during 2010-2012. The information acquired was used to create spatial databases by means of the Geographic Information System, which were then used to create a visual representation of the location and degree of conservation of the historical monuments. The database contains information on the historical monuments, characteristics such as name, address, type, age, location, cartographic references, ownership status, degree of conservation, legal and zoning protection, images, comments (fig. 1).

Attribute information of the features were inserted into the database. In addition, GIS was used to obtain geometric data for the spatial features in a data set.

Terrestrial photogrammetry was used, too, which represents one of the most used method for acquiring and processing data for surveying and determining the historical monuments [5].

3D models were also used in order to represent the spatial distribution of the historical monuments in the old quarter of the city of Resita, a quarter characterized by a very high concentration of heritage buildings. The use of 3D models offers multiple benefits: they are more intuitive and richer in details than the information 2D maps can supply [6]; they are considered a method of high-quality visualization of data with spatial content [7]. The sites included in the scope of cultural heritage achieve a significant high-resolution added-value by means of the use of 3D models [8]. Multi-Criteria Analysis was used as a method to achieve a detailed analysis of the cultural heritage of the historical district of Resita. This method is currently used in urban heritage conservation, and it includes economic, social, environmental factors and so on [9].
The study also assessed the physical condition of the buildings; several factors that define the buildings’ construction quotient were taken into consideration (the surface of land a building covers, the number of floors, the buildings’ physical condition) [10].

STUDY AREA

In this study, the historical district was selected as subject of the study because it is one of the oldest residential areas in the town of Resita. Early on in its evolution, Resita was a small village called Resita Romana. With a view to the planned construction of factories, the imperial authorities in Vienna colonized German settlers in the area, who established the village of Resita Montana (German), a short distance from the initial village with a predominantly Romanian population. Later on, as a result of the gradual expansion of the built-up areas, the two villages merged and created the commune of Resita [11]. The town’s historical district consists in workers’ boroughs built in the 18th century (Muncitoreșc borough—current its territory overlaps to old Resita Romana village and the Rândurile borough). The structure of the houses, built one next to the other, lined up in rows and facing the street, indicates the German influence in the architecture of workers’ houses during the Habsburg rule in the region [11].

RESULTS

47 historical monuments were identified in Resita [12, 13], 31 of them, or 66% of the total number, located inside the historical district (fig. 2).
According to the borders drawn in the Town Zoning Plan [14], the historical district of the town of Resita consists in the following protection zones:

- protected built-up zone 1: the historical district of Resita Montana includes a section of streets surviving from the initial structure, in a rigorous grid-like pattern, and historical monuments from 1800-1930. It includes the Resita factories, with the furnace as the centerpiece (now in conservation).
- protected built-up zone 2: the Rândurile complex, part of the Resita Montana historical district, a predominantly residential borough.
- part of historical-monument protection zone 6: with typical two- or three-storey houses, with Art Nouveau facades, elongated courtyards with gates on opposite ends giving into distinct streets. Historical monuments in this zone include the “Maria Zăpezii” Catholic church complex, the Muller manor (now an industrial museum), the old German casino, etc.
- historical-monument protection zone 7: the park of the Resita Machine Factory (UCMR), the Vila Veche and Vila Rosie protected area, on the very edge of town, next to the treeline on the Budinicului hill, the premises of UCMR factory workshops “New Workshop”, “Diesel engines” and “Thermal treatment”, and the UCMR management’s offices area.
- historical-monument protection zone 8 includes: the custom house bridge (1931) separating Resita Romana from Resita Montana, the Twin Houses (1902-1903) – part of the initial Resita Romana town center, etc.
- historical-monument protection zone 9 includes: Resita Southern Rail Station.

A purely quantitative analysis indicates a relatively large number of historical monuments in the historic area of the town of Resita, belonging to several categories (4 industrial-heritage monuments, 22 architectural monuments, 4 religious buildings and 1 urban complex: the Randurile workers’ borough) (fig. 3).

Mapping of the historical monuments in the historical district of the town of Resita in terms of physical condition revealed several categories of buildings: those in a good condition (most of them have been recently renovated), buildings in a moderate condition (most historical buildings), buildings in an advanced state of deterioration (a few buildings where conservation efforts were negated in time, because of their age: the Caryatid House, certain houses in the Rândurile borough) (fig. 4).

Fig. 4. Categories of physical quality of the historical monuments in the historic urban fabric of Resita city

The degraded condition consist in the heritage buildings in the worst situation, from the point of view of the physical condition, suffering from accelerating and advanced deterioration as a result of their age but also because they are directly exposed to the weather conditions.
Six activities are proposed in order to ensure urban heritage conservation and renewal that are: maintenance, improvement, restoration, rehabilitation (upgrading), reconstruction, and redevelopment [9]. The authors use a GIS-based conceptual model for evaluation of historical district conservation and renewal. A GIS-based conceptual model for the historical district of Resita allows one to decide which buildings can be maintained or improved (the parish house of the “Maria Zăpezii” Catholic church, the Friedman house), which need to be restored (the houses in the Randurile borough, the Caryatid House), and which historical buildings should be redeveloped (undergo conversion/revalorized: the furnace, the Alexandru Popovici house, the Pittner schoolhouse).

According to the model for the evaluation of the conservation and renewal of the historical district, by using variables of buildings classified as historical monuments, age, stage of conservation, architectural value, the authors submitted several suggestions regarding the future steps to be implemented. After evaluation, 8 buildings should be conserved, 4 buildings need renovation in the future; another 7 buildings have to be assigned a new role, matching their historical-building status (conversion into tourist or cultural attractions); 12 buildings need maintenance or improvement, many of them having recently undergone renovation (fig. 5).

**DISCUSSIONS**

Assessing the condition of the historical monuments in the historical district of the town of Resita enabled the identification of certain characteristics of the historical monuments, to serve as a stepping-stone for further protective measures and optimal valorization.
One may thus notice that the typology of the historical monuments is closely connected to their spatial emplacement: for instance, most industrial-heritage assets are found in the city’s industrial area, or close to it (for instance, the “Rândurile” workers’ borough, which represents a social dimension of the industrialization of the city, is located close to the industrial area).

The classification of some industrial buildings as historical monuments draws attention on the undertaken initiative by the local authorities, to preserve the remains of the past. The problem appears in the conversion phase in case of the historical industrial monuments which belong the private entrepreneurs (e.g. Resita factories) who oppose any form of conservation.

The evaluation of the buildings’ physical condition according to multi-criteria assessments may frequently be subjective, but it is useful because it indicates the historical monuments’ physical state at a particular moment in time, as well as the measures taken to conserve and restore, in the case of the buildings in an advanced state of deterioration. This indicator is particularly important because there are numerous historical buildings in the historic district of Resita that are in an acceptable physical condition or even in an advanced state of deterioration.

In order to highlight the architectural and historical value of the buildings in the historical urban fabric of Resita, a future phase will consist in identifying the buildings with historical value. This would be a useful action because it may represent the first step in the suggestion to include new buildings on the national cultural heritage list, with the purpose of including them under the scope of the protection and conservation regime.

In addition, there will be further steps towards assessing the degree of conservation of the historical monuments in the area studied, and various suggestions will be made for conversions that would contribute equally to both their conservation and increasing their visibility as symbolic landmarks of the town of Resita. The furnace on the premises of the Resita steel mill was built in 1895 on the foundation of the ovens (“hochöfen”) that had previously functioned there during 1771-1923 and 1961-1962, with technological upgrades in 1987-1989. The furnace is in good condition, but some of the metal parts are deteriorated (superficial corrosion) and some of the components are missing (as a result of theft and vandalism). Conservation in situ is needed. The furnace could be included in the tourist circuit because of its technological significance.

CONCLUSIONS

The analysis of historical monuments in the city of Resita in terms of the criterion of physical condition draws attention particularly to the buildings that need urgent intervention to conserve and consolidate them, a particularly important action in the administration of cultural heritage.

Field research led to the conclusion that there are a limited number of historical monuments that have been restored and conserved. At the same time, few heritage buildings have been put to best cultural or touristic use.

The study focused on assessing the current state of conservation of the cultural-heritage assets and subsequently drawing a set of suggestions on ways to conserve and reuse those assets. Some of these historical monuments are nowadays improperly used, and they could undergo cultural revalorization, which would capitalize on their architectural and cultural qualities.

The town of Resita is characterized by a large variety of cultural heritage assets; standing out among them are the industrial heritage assets. This requires an active intervention in the process of their conservation and cultural valorization, because some of them have been abandoned and are in a state of advanced deterioration.

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