THE URBAN HERITAGE CHARACTERIZATION USING 3D GEOGRAPHIC INFORMATION SYSTEMS

THE SYSTEM OF MEDIUM-SIZED CITIES IN ANDALUSIA

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Introduction

This paper has been developed under the project entitled:

Caracterización Urbano Patrimonial y Modelo Turístico Cultural en Ciudades Medias. Potencialidades y Retos para su Internacionalización: Bética Interior

[Urban Heritage Characterization and Cultural Tourism Model in Medium-Sized Cities. Potentialities and Challenges for its Internationalization: Inner Betica]

This project is being financed by the competitive call of the State Plan 2013-2016 Excellence - R&D Projects of the Ministry of Economy and Competitiveness of the Government of Spain (HAR2016-79788-P).
Objectives & Methodology

This paper seeks to:

• approach the use of the 3D GIS in the urban heritage characterisation of the system of medium-sized cities in Andalusia

• make a multi-scale approach that addresses some of the 3D GIS applications.
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This paper seeks to:

• approach the use of the 3D GIS in the **urban heritage characterisation** of the system of medium-sized cities in Andalusia

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The general identification of heritage values in Andalusian medium-sized cities as a fact linked to territorial support
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The study of the historical evolution of these cities from the analysis of historical cartography
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Their characterisation through a series of urbanistic parameters, with particular emphasis on protection issues.
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The analysis of visibility aspects to guarantee the conservation of the historical urban environments
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The in-depth analysis of the characteristics that define some buildings or public spaces of heritage interest in some of these cities
ANDALUSIAN URBAN SYSTEM according to POTA (2006)
Medium-sized Cities declared as HERITAGE SITES

Urban structure of medium-sized cities

Urban structure of regional centers

Urban structure of Rural Centers

Regional Center
Medium cities 1
Medium cities 2
Rural center 1
Rural center 2
Heritage Site
TERRITORIAL INFLUENCE ON ANDALUSIAN HERITAGE

Urban settlements categorised by population range

Topography map based on shadows and elevation

Topography map based on contour lines

> 100.000 inh.  20.000 < 100.000 inh.  < 20.000 inh.
URBAN HERITAGE CHARACTERIZATION
Medium-sized cities in Andalusia

Urban evolution
The analysis of historical maps has allowed localising the consecutive borders of the cities

Plot surface analysis
The systematisation allows taking decisions concerning the conservation of urban environment
VISIBILITY OF HERITAGE LANDMARKS
Medium-sized cities in Andalusia

Historical and current views
The visual impact that these heritage elements have on the environment and vice versa

3D perspective
The topography is crucial to the understanding of its historical structure and position of some cities
INFOGRAPHIC TREATMENT OF 3D IMAGES
as a complementary tool for a detailed analysis

City scale
The reconstruction of urban hypotheses serves as a support to explain the historiography of cities

Neighbourhood scale
It also serves to simulate the visual impact of contemporary architectural performances
Results have demonstrated the suitability use of the 3D GIS to deal efficiently with the extensive and diverse amount of information that characterises heritage researches concerning urban and territorial scales.
CONCLUSIONS

Results have demonstrated the suitability of using 3D GIS to **deal efficiently with multiples approaches**, such as cultural values, historical cartography, heritage protection, urbanistic information, visibility aspects, etc.
Being the research under development, the use of 3D GIS also allows developing different analysis and graphical representation on multiple scales using the third dimension to facilitate a cross analysis among the complete information.
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