



## **Urban Cultural Heritage Endangerment: Degradation of historico-cultural landscapes**

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Sustainable development has become one of the great debates of policy-making of the XXI century. The world, is facing unprecedented change following the anthropocentrism of socio-economic growth. However, the commitment of man to 'transmit to future generations at least the same as had' (ref) seems to be a narrowing, given extensive urban growth, population increase and climate change. However, over the last twenty years, the usage of spatial information systems have brought a positive contribution for better acknowledging the problem of environmental change, and bringing more constructive approaches to planning. Prompted by much research interest in Europe, a broad specter of biodiversity loss models, pollution and environmental degradation algorithms as well as climate change models, have become important tools under the European umbrella.

Recognizing the essence of sustainable development, historico-cultural and archaeological regions have a remarkable role in the transformation of landscapes and maintenance of cultural and regional identity. Furthermore, the socio-economic, political-geographic and cultural-scientific history of the dynamics of places and localities on our earth is reflected in their historico-cultural heritage. This patrimony comprises cultural assets, such as old churches, palaces, museums, urban parks, historical architecture of cities, or landscapes of historical interest. Historico-cultural heritage also includes archaeological sites, which sometimes not only have a local value but may have a worldwide significance (e.g. Pompeii).

However, massive urban growth is affecting directly the existing historico-cultural resources throughout the European region, and little attention is given to this juxtaposing reality of peri-urban growth and cultural / archaeological heritage preservation. Also, the settling patterns within historico-cultural local clusters follow a similar pattern as current growth tendencies, given the physical conditions of land-use. This brings forth a dichotomy between areas to cope with population increase (and therefore highly probable of urbanization) and regions of valuable historico-cultural and archaeological legacy. To bridge this dichotomy, this paper attempts to provide a methodology for measuring cultural heritage endangerment brought by urban pressure. By using spatial modeling to prompt urban growth combined with archaeological predictive models, composing a secondary layer, a propensity map for areas with extremely high cultural value and where urban growth should be dealt with especial care become evident.

Fundamentally, the joined model of Cultural Heritage Endangerment, tackles a recent and unprecedented problem at global level: Committing urban planning to allow the conservation of cultural and archaeological legacy for future generation.

In an attempt to abridge the consequences of the decadence of historico-cultural landscapes, the historico-cultural endangerment (HCE) method will be applied to two entirely different regions in the world. On one side, the methodology will be applied on a regional emphasis in the Algarve region in Portugal, addressing the input of maintaining the integrity of archaeological landscapes, and on the other, a local micro-simulation of the Giza Pyramids in Egypt, shall allow to envision a segment of local consequences of urban pressure on irreplaceable monuments.

The conclusions of both study-cases abridge the global nature of this problem as well as the importance of HCE implementation at different scales.