

ASSESSING THE BENEFITS FROM COMBINED URBAN PARKS AND RETENTION BASINS USING THE SULD DECISION SUPPORT TOOL: A CASE STUDY FOR THE CITY OF AVEIRO (PORTUGAL)

Peter Roebeling

Carla Teotónio

Miguel Saraiva

Henrique Alves

João Rocha

Cátia Baptista

Teresa Fidélis

Filomena Martins

CESAM – Department of Environment and Planning

University of Aveiro

peter.roebeling@ua.pt

+351 234 370 387 / +351 234 370 309

Over the last decades, urban green/blue spaces were rarely considered in spatial development and management policies. However, they provide important ecosystem services, stimulate higher real estate values, mitigate flooding problems and reduce associated costs. Hence the need to better deploy the potential of green/blue spaces in urban landscape development and planning. This paper aims to contextualize this problematic and show how the SULD (Sustainable Urban Landscape Development) decision support tool can be used to assess and compare socio-economic impacts of green/blue space development scenarios. SULD is a GIS-based optimization model, based on an analytical urban-economic model with environmental amenities that builds on hedonic pricing theory to determine property values as a function of proximity to environmental amenities and urban centres. The paper illustrates the application of SULD, by assessing the cultural and regulating ecosystem service values of green/blue space projects in Aveiro (Portugal). Results show that the establishment of urban parks leads to an increase in total real estate (rental) value of between +0.5 and +0.8 m€/yr. Moreover, urban parks provide flood mitigation benefits of approximately +0.8 m€/yr. Total cultural and regulating benefits from urban parks amount to between 1.3 and 1.6 m€/yr. The SULD decision support tool is not an aim in itself but the starting point of a process. It facilitates participatory planning and scenario development, creating confidence and familiarity with the model and its outputs, encouraging stakeholders to reflect about their reality and future possibilities, and effectively engaging them in the design of urban development plans.

Keywords: green/blue space; cultural ecosystem services; regulating ecosystem services; hedonic pricing; scenario simulation