

ABSTRACT

Urban Sprawl has become a real threat for global sustainability in an increasingly urbanized planet. This Doctoral Thesis provides evidence that, like any other node in the European Urban Network, the Asturias Metropolitan Area experiences a residential sprawl process, with specific features and significant consequences for the sustainability of this polycentric urban system.

According to the methodology adopted, once the general framework for the research has been sketched, a primary task is undertaken: the delimitation of the study area. After a careful examination of the state of the art approaches, an original delimitation method is proposed, based upon the combination of four criteria at district level: population density, occupation intensity (built surface/Hectare); primary sector's share of employment and commuting rate. The application of the adopted thresholds for each criterion results in an area around 2.000 Km² which accommodates 885.000 inhabitants (20 and 82% of the total surface and population of the Region, respectively).

Five independent variables have been selected in order to analyze the metropolitan residential growth: density (measured in residential units per Km² of developable land), continuity of the built-up areas, concentration of the development in certain zones, clustering of residential units into developed land, and nuclearity, i.e. the presence of mono- or polynuclear development. Aspects surveyed include: urban/rural population settlement patterns (on the basis of a high-resolution density model on a 100 × 100 m grid), single-family housing stock, regional and urban planning and land development patterns.

The uniqueness of housing sprawl in the Asturias Metropolitan Area lies in three main factors: a traditional rural settlement in transit to new peri- and suburban land development patterns, the prevalence of small-sized land property, and a set of land use regulations that encourages self-promoted single-family housing. In terms of sustainability, the main concerns of this model are: high consumption of land, a scarce, non-renewable resource; low economic efficiency related to public services provision and mobility; and landscape banalization. Tackling these challenges requires an

integrated, strategic approach to the role of villages and hamlets in the metropolitan urban system, which promotes the concentration of residential development and the renovation of the existing housing stock.

Key words: sustainable urban development, urban sprawl, metropolitan area, population density, continuity, concentration, clustering, nuclearity, rural/urban population settlement patterns, land development patterns.