

Measuring Urban Sprawl in the Western Cape Province, South Africa: An Urban Sprawl Index for Comparative Purposes

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Abstract : The emphasis on the challenges posed by continued urbanisation, especially in developing countries has resulted in urban sprawl often researched and analysed in metropolitan urban areas, but rarely in small and medium towns. Consequently, there exists no comparative instrument between the proportional extent of urban sprawl in metropolitan areas measured against that of small and medium towns. This research proposes an Urban Sprawl Index as a possible tool to comparatively analyse the extent of urban sprawl between cities and towns of different sizes. The index can also be used over the longer term by authorities developing spatial policy to track the success or failure of specific tools intended to curb urban sprawl. In South Africa, as elsewhere in the world, the last two decades witnessed a proliferation of legislation and spatial policies to limit urban sprawl and contain the physical expansion and development of urban areas, but the measurement of the successes or failures of these instruments intending to curb expansive land development has remained a largely unattainable goal, largely as a result of the absence of an appropriate measure of proportionate comparison. As a result of the spatial political history of Apartheid, urban areas acquired a spatial form that contributed to the formation of single-core cities with far reaching and wide-spreading peripheral development, either in the form of affluent suburbs or as a result of post-Apartheid programmes such as the Reconstruction and Development Programme (1995) which, in an attempt to assist the immediate housing shortage, favoured the establishment of single dwelling residential units for low income communities on single plots on affordable land at the urban periphery. This invariably contributed to urban sprawl and even though this programme has since been abandoned, the trend towards low density residential development continues. The research area is the Western Cape Province in South Africa, which in all aspects exhibit the spatial challenges described above. In academia and popular media the City of Cape Town (the only Metropolitan authority in the province) has received the lion's share of focus in terms of critique on urban development and spatial planning, however, the smaller towns and cities in the Western Cape arguably received much less public attention and were spared the naming and shaming of being unsustainable urban areas in terms of land consumption and physical expansion. The Urban Sprawl Index for the Western Cape (USIWC) put forward by this research enables local authorities in the Western Cape Province to measure the extent of urban sprawl proportionately and comparatively to other cities in the province, thereby acquiring a means of measuring the success of the spatial instruments employed to limit urban expansion and inefficient land consumption. In development of the USIWC the research made use of satellite data for reference years 2001 and 2011 and population growth data extracted from the national census, also for base years 2001 and 2011.

Keywords : urban sprawl, index, Western Cape, South Africa

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