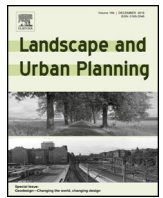




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A review of approaches and challenges for sustainable planning in urban peripheries

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HIGHLIGHTS

- We reviewed the content of 102 papers.
- Research about theories and methods of sustainable planning for urban peripheries is still rather limited.
- The transferability of the proposed methods is rarely discussed.
- There are unexploited opportunities to enhance planning practice in urban peripheries.

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ABSTRACT

As urban systems continue to grow worldwide, urban peripheries increase in number and typologies, which makes their planning a challenge for sustainable development. The aim of this article is to explore approaches and challenges related to the application of sustainable planning to urban peripheries. We reviewed the content of 102 papers related to sustainable planning in urban peripheries by applying a framework built on two main research questions that address: i) the type of peripheries and sustainable planning approaches considered; ii) the challenges and recommendations reported. The results show that urban peripheries are difficult to synthesize in operative classifications, and are not central in the discourse on sustainable planning approaches. The studies described are mainly context-specific and solution-oriented, aimed at responding to local socio-economic and ecological issues, and the analysis reveals uncertainties about their transferability to other geographical contexts. Few common trends can be highlighted, but many authors acknowledge the cross-cutting risks and trade-offs related to the complexity and dynamism of urban peripheries, which may eventually lead planning to unsustainable or unlivable outcomes. Integration among different scales and sectors emerges as a requirement for effective sustainable planning. We conclude with a remark on the underexploited opportunities offered by urban peripheries, especially with regard to ecological planning approaches.

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1. Introduction

This paper presents a review of the literature on sustainable planning approaches and solutions to address the challenges of urban peripheries. Generally speaking, the concept of periphery refers to distance or separation with respect to a core, in terms of geographic, economic, political or social factors (Bourne, 2010). In Europe, the term has been used to describe disadvantaged areas characterized by dependence, disconnection, poverty and outmi-

gration (Kühn & Bernt, 2013). In this view, peripheral areas lack the resources to sustain their own growth over time, hence their potential for development largely depends on processes that occur within the core area (Portnov & Pearlmuter, 1999). In contrast, in North America, other terms, like suburban and exurban, are used when referring to urban peripheral contexts. These terms are more commonly adopted to describe lower density development at the edge of a city, and these terms are not associated with disadvantage.

Today, urban peripheries continue to grow worldwide with different intensities and features (UN-Habitat, 2013). Recent modifications to existing urbanization patterns due to the opposite trends of urban development and shrinkage, and large urbanization

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processes worldwide, mostly in emerging countries, have progressively modified the concept of periphery, and made it more complex and difficult to capture (Taylor & Lang, 2004). Studies on the emergence of urban peripheries recognized different processes, ranging from the addition of new urban agglomerations far from existing nodes to the “peripheralization” of inner areas following changes in their economic and social conditions (Bernt & Rink, 2010). For example, once flourishing cities may stop their growth and start to decline, thus losing their centrality (Lang, 2012). At the same time, economic opportunities and innovation rise from peripheral areas (Fitjar & Rodríguez-Pose, 2011). Peripheries have thus acquired a diverse set of dimensions (spatial, social or economic) that go beyond the simplest indicator, i.e. the distance from a city core. This requires updated definitions, a strong re-framing of consolidated theories, and new models for planning and governance (DiGaetano & Strom, 2003; Rumford, 2002).

Sustainable planning, as considered in this paper, is related to physical and spatial planning, which aims to optimize the distribution and allocation of land and human activities, in a space-limited context or within certain administrative boundaries, providing indications and/or regulations for land-use and related activities. Sustainable planning aims at integrating knowledge on socio-ecological contexts to take community-determined public-interest action to effect improved change (Riddell, 2004) and implement principles of sustainability (Ahern, 2006). Since its formulation, the concept of sustainable development has been adopted by planners as a “belief system” or ideology, thus providing a type of underlying rationale for planning activities and decisions (Faludi, 2000; Persson, 2013). In the last three decades, approaches to sustainable spatial and urban planning have tried to incorporate socio-ecological issues in planning methods and processes. The types of sustainable planning approaches are extremely varied, including movements in urban planning and design, participatory and community based planning and design, environmental/ecological planning, and more recent approaches using nature and ecosystems within cities to provide numerous socio-ecological services and benefits to people (Gómez-Baggethun & Barton, 2013; Pickett et al., 2013; Schmandt, 1998; Wheeler, 2013).

However, many challenges to integrating sustainability in the real-world planning processes remain, and they are not much different from the challenges envisaged at the beginning of the millennium (Berke, 2002; Wheeler, 2013). For urban peripheries, challenges are directly related to their highly heterogeneous mosaic of physical environments (with different densities and land uses), their fast changing social and cultural structures, and diverse forms of governance that encompass several institutional regimes at different administrative levels (Allen, 2003; Friedmann, 2016; McGregor, Simon, & Thompson, 2006). The adequacy and effectiveness of the existing sustainable planning approaches for tackling the various, complex and dynamic systems represented by contemporary peripheries should be understood to improve current planning practices and identify needs for future research.

This paper reviews the existing literature on sustainable planning approaches to urban peripheries, by addressing two main research questions: i) What types of urban peripheries and sustainable planning approaches are considered? and ii) What challenges and recommendations are identified? The overall purposes are to better understand the relations between sustainable planning and different types of urban peripheries, to provide lessons learned from existing applications, and to formulate existing challenges for the future development of planning research. Section 2 presents the methodology used to select and analyze the literature, Section 3 reports the results of the review, and Section 4 discusses

Table 1

Combinations of keywords used for the search and respective occurrences in the Scopus database.

Keywords	Occurrences in “Social Science” and “Environmental Science” subject areas
peripher* OR fringe OR edge OR periurban* OR suburban* OR exurban*	59,020
(peripher* OR fringe OR edge OR periurban* OR suburban* OR exurban*) AND planning	4520
(peripher* OR fringe OR edge OR periurban* OR suburban* OR exurban*) AND planning AND sustainab*	660

the main findings. Finally, Section 5 draws some conclusions for future practice and research.

2. Materials and methods

2.1. Sample selection

The sample of papers was selected by performing a series of queries in the Scopus database (last update: August 1, 2015), using different combinations of keywords that include relevant synonyms, as shown in Table 1. We chose to use a broad set of keywords in the attempt to capture all the terms that may be used in the literature to refer to the broad concept of urban peripheries, such as fringe, edge, exurban, suburban, and peri-urban. The queries were performed in the “Article Title; Abstract; Keywords” field for the Scopus “Social Science” and “Environmental Science” subject areas, and were limited to the period 1991–2015.

The search resulted in 660 papers. Then, we checked all the abstracts to include only papers i) related to the description of a planning approach or a planning case study, and ii) explicitly addressing urban peripheries. The screening resulted in a set of 124 papers. From this set, 22 papers were not retrievable from the libraries of our institutions, mostly due to discontinuous publication history of the respective journals. The remaining 102 papers (listed in the Supplementary Material) comprise the final sample, which was analyzed through the review framework described in Section 2.2. Fig. 1 illustrates the temporal distribution of the selected papers, and Fig. 2 shows the geographical distribution of the case studies described.

2.2. Review framework

We performed a content analysis to address the two research questions (Table 2). Each question was decomposed into a set of sub-questions detailed by interpretation keys and criteria, which were used to guide the analysis of the papers and to analyze their content. The first part of the framework focuses on the types of urban peripheries and sustainable planning approaches considered in the papers. The framework investigates spatial and temporal dynamics, the definition and characteristics of urban peripheries, and the planning approaches adopted. The latter are classified into theoretical approaches (planning paradigms), practical approaches (planning strategies and solutions), and methodological approaches (operational methods and tools) (Table 2).

The second part investigates critical elements in the relation between sustainable planning approaches and urban peripheries. In particular, we identify the internal limitations of sustainable planning approaches, the external barriers to their implementation, the risks and trade-offs arising from their application to urban

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