DOI: 10.1590/2175-3369.014.e20220998

Peri-urbanization, dynamics, and challenges in developing countries towards sustainable urban growth – Special Section Editorial

Periurbanização, dinâmicas e desafios em países em desenvolvimento rumo ao crescimento urbano sustentável – Editorial da Seção Especial

Vasco Barbosa[a], Mónica Marcela Suárez Pradilla [c], Lakshmi Priya Rajendran[b]

[a] Universidad de La Sabana, Engineering Faculty, Chía, Colombia
[b] The Bartlett School of Architecture, Faculty of the Built Environment, University College London, London, UK
[c] Universidad Escuela Colombiana de Ingenieria Julio Garavito, Bogotá, Colombia

How to cite: Barbosa, V., Pradilla, M. M. S., & Rajendran, L. P. (2022). Peri-urbanization, dynamics, and challenges in developing countries towards sustainable urban growth – Special Section Editorial. *urbe. Revista Brasileira de Gestão Urbana*, v.14, e20220998. https://doi.org/10.1590/2175-3369.014.e20220998

Special section editorial

Population growth in developing countries has resulted in cities with dynamic urbanization that surpasses the traditional boundaries and reaches the periphery areas (Dupont, 2005), leading to a physical, morphological, sociodemographic, cultural, economic and functional transformation in these city sectors (Geneletti et al., 2017). These processes have led urban researchers to redefine peri-urbanization, which traditionally refers to the transformation processes of rural areas located beyond urban boundaries. However, new transformations and dynamics imply novel concepts of urban periphery (Harris & Vorms, 2017).

The first studies on peri-urbanization emerged in Europe, where urban areas started to annex the population centres located in their surroundings as the land market made more central locations more expensive. In these new sectors, single-family and tourist housing, the so-called second homes, can be developed (Entrena Durán, 2005). Studies on peri-urbanization in North America, especially those focusing on the United States, have identified the implementation of transport infrastructure networks, such as interstate highways, that contribute to reduce the population of large urban centres and promote linear commercial development (Baum Snow, 2007).

During the 1980s, most developing countries centralized their economic and administrative services, which contributed to cities becoming centres that attract rural migration. These new settlers chose to establish in emerging areas located in the periphery of cities because of their low income and the transformations occurring in the land market (Ávila Sánchez, 2001) (Mansilla, 2018). Henceforth, informal urbanization has occurred, extending beyond the traditional city limits, and thus demanding large resources and presenting high vulnerability to different types of risks (Ravetz et al., 2013).

VB is associate professor in Urban Planning, e-mail: vasco.barbosa@unisabana.edu.co
MMSP is an assistant professor, e-mail: monica.suarez@escuelaing.edu.co
LPR is lecturer in Environmental and Spatial Equity, e-mail: lakshmi.rajendran@aru.ac.uk

Follmann (2022) identified three fundamental elements whose interaction contributes to our understanding of peri-urban processes in developing countries, namely, territorial (territorial demarcation), functional (interactions between different systems), and transitional (socio-temporal changes). Studies on peri-urbanization in Latin America have focused mainly on large cities, identifying urban sprawl (Inostroza et al., 2013), urban fragmentation (Edwards, 1991), and social segregation (Maffini & Maraschin, 2018) as the main processes that contribute to the development of urban peripheries in the region. Moreover, the focus of these studies has shifted from a spatial character on dense centres and low-density outer crowns, towards a functional approach highlighting the importance of mobility flows for the analysis of connectivity and different ecosystem services.

In this context, this paper proceeds by analysing the phenomenon of urban sprawl. Next, it turns its focus to how urban fragmentation has contributed to the peri-urbanization process. After that, it discusses the effects of urban segregation on peri-urbanization. Finally, it draws conclusions on the main processes that have contributed to peri-urbanization.

Urban sprawl

The study of urban sprawl in developing countries is recent, and it addresses mainly the formation of new metropolitan areas (Jiménez Aguilar & Thoene, 2021; Urso, 2021; Zambrano Loor & Pico Alonso, 2019). The beginning of these processes was not planned, and it is associated with processes of population growth resulting from migration from rural to urban areas and, more recently, regional migration (Sudhir Kumar, 2018). The characteristics of sprawling areas in Latin America are defined by processes of economic stratification, that is, they are related to real estate valuation. Therefore, one usually finds highly urbanized areas with low quality housing in contrast to areas that are little urbanized and present ample housing with an oversupply of public services (Gutiérrez López et al., 2022). More specifically, in most Latin American countries, urban sprawl occurred first in large cities, and this process has recently slowed down and moved to secondary urban centres. In more general terms, peripheral areas are located beyond the consolidated urban centre, in a process that is heterogeneous and corresponds only to residential use (Barros, 2004).

Causes of urban sprawl

Numerous explanations have been advanced regarding urban sprawl in developing countries. The most important are population growth (Espindola et al., 2017), economic growth and globalization (Aguilár et al., 2003; Shi et al., 2016), and lack of efficient urban planning processes combined with other city policies (Córdova-Aguilar, 2019). All of these causes include common principles such as land prices (Habibi & Asadi, 2011); extension of public services and development and improvement of infrastructure, especially transport, due to accessibility (Otuoze et al., 2021); low tax rates in new locations; increased living standards due to consumer preferences related to the search of low population density areas located in more convenient natural environments (Robert et al., 2019).

Peri-urbanization has a high impact on the territory, contributing to the increase in public spending, particularly due to the development of new infrastructure and public service networks (Stoica et al., 2021). Peri-urbanization increases distances and travel times and leads to a rise in traffic volumes due to the high use of private vehicles and in emission of greenhouse gases (GHG), accident rates, and noise (Tennøy et al., 2019; Zhao, 2010). Regarding the environment, the impacts are very broad, with highlight to loss of native vegetation, partial destruction of green corridors and wildlife, and channelling of rivers and streams that can cause flooding problems in the future, as well as to increased energy expenditure, contributing to global warming and pollution (Güneralp & Seto, 2013; Qiao et al., 2014; Sun et al., 2018).

Although the phenomenon of urban sprawl significantly contributes to various economic sectors in developing countries, it imposes high economic, social, environmental and financial costs on all city dwellers (Osman et al., 2009; Swapan & Khan, 2019).

Alternatives to urban sprawl

Identifying alternatives to urban sprawl in developing countries, especially in Latin America, requires a research agenda that addresses the broad issues of peripheries on the one hand, and the involvement of local governments in the planning, controlling and problem-solving processes on the other (Couch & Karecha, 2006). Different urban centres in Europe and the United States have sought to avoid the effects of urban sprawl. To this end, they have developed policies that define the limits of urban growth (Lamer, 2003). Others have used innovative land use planning techniques in which communities are protagonists, such as new urbanism and smart cities (Falco et al., 2019).

The smart city management strategy supports the organization of urban growth through a set of technological tools that streamline administrative and policy interventions seeking to improve the effectiveness and efficiency of urban systems (Hao et al., 2021). New urbanism focuses on the physical design of communities to create liveable and walkable neighbourhoods, thus enabling the recovery of public space, as well as facilitating citizen participation and the implementation of swift policy measures (Batty, 2013; Meredith, 2003). An alternative strategy is the integration of urban planning with the development of transport networks and systems seeking to establish a balance between employment and population density (Ambarwati et al., 2014).

Urban fragmentation

Urban fragmentation results from urban development that permits the breakdown of urban space production mechanisms in the social, functional and visual senses (Canedoli et al., 2018). At the socioeconomic level, urban fragmentation follows an economic principle, generating territorial sectors with homogeneous characteristics (Poelmans & van Rompaey, 2009). The functional dimension is highly related to the zoning processes that are implemented in modern urban planning, in which specific sectors are defined for the development of certain land uses. This process has exacerbated problems of inaccessibility and long travel times (Rossi-Hansberg et al., 2005). Finally, the visual fragmentation responds to the failure of city designers to include diversity in the urban fabric, and is also the result of socioeconomic fragmentation (Bruyns, 2005).

At the metropolitan level, fragmentation can be understood as the disconnection of different parts of the territory where some are privileged over others depending on growth and land use (Delmelle, 2019). Urban fragmentation can be understood from two different vantage points. Firstly, as the absence of interrelation of urban or natural elements such as urbanization, rivers, and geographical features. The second approach implies absence of continuity and contiguity to characterize the morphological discontinuity and delocalization of recent growth (Salinas Varela & Pérez Bustamante, 2011).

The previous approaches define fragmentation in physical-relational terms, that is, the tendency of a city structure towards loss of coherence and cohesion. Thus, urban fragmentation is a phenomenon of the metropolitanization process aimed at the dynamics of land occupation and construction in the periphery of cities, and is highly dependent on the centre and centralities, having a mono-functional character (Labbé & Boudreau, 2011).

From this perspective, governance, urban planning, localization economy, and mobility can be included as drivers of urban fragmentation. In developing countries, particularly in Latin America, planning processes are not intertwined, so that functional and morphological changes weaken the urban system cohesion (Balbo, 1993). This circumstance is one of the key arguments to consider urban

fragmentation as an element that accelerates peri-urbanization processes through the geography of a place, natural boundaries, location preferences, large infrastructures, facilities, and social phenomena such as segregation and polarization (Barberis, 2007). Finally, it is important to consider the cultural dimension of urban fragmentation that deals with the social fragmentation produced by the lack of interaction between the different sectors that are defined in the territory (Bayón & Saraví, 2013).

Urban social segregation

Urban segregation studies the unequal location of social groups in the urban space according to occupation, income status, level of education, gender, and ethnicity, that is, it is directly associated with the degree of spatial proximity of families belonging to the same social group. The first studies on urban segregation were developed in the Chicago School and analysed the lifestyles of ethnic minorities (Vaughan & Arbaci, 2011). In a developing country context, social stratification processes started to emerge in the 1980s, resulting in spatial segregation and segregated urban areas. The social groups that reside therein share similar socioeconomic characteristics, have little social interaction, and are spatially separated from other social groups (Bogliacino et al., 2015).

It is important to highlight that urban segregation in some communities strengthens the sense of local and cultural identity. However, urban segregation increases social fragmentation. Moreover, in socially vulnerable groups and disadvantaged neighbourhoods, urban segregation generally leads to stigmatization and social exclusion. Thus, these sectors present multidimensional challenges that reinforce each other and whose solution requires an interdisciplinary approach, since they lack public services, such as sewage, water, electricity, internet, transport and health services, that are basic to the quality of urban life (Johnston et al., 2002).

The study of urban segregation at the spatial level deals with the physical proximity of the residential spaces of different social groups (Dunn, 1998), the social homogeneity of the different territorial subdivisions (Martínez Veiga, 1999), and the concentration of social groups in specific areas of the city (Sabatini et al., 2001). During the 1990s, these differences became more pronounced as the increase in the cost of housing and the reduction of job opportunities segregated mostly groups of lower social and economic levels. This transformed the urban landscape of large cities in developing countries, with constant growth of their peripheries and, in many cases, formation of poverty strips (Randon-Furling et al., 2020). The effects thereof translate into reduced social mobility, disintegration of the social fabric, lack of feeling of belonging to the place, marginal subcultures, and presence of different social problems exacerbated by poor urban management (Farfán Tocarruncho, 2020; Ziccardi, 2014). Reduction of urban segregation in developing countries calls for housing policies aimed at lowering urban poverty levels, integrating new groups such as immigrants and refugees, and facilitating access to education and employment (Gelézeau, 2008).

Latin America and peri-urbanization

Because of the political, economic and social transformations occurring in Latin America since the 1980s and of the still rather inefficient state of land use planning processes, there have been major changes in the peripheries of cities (Follmann et al., 2022). Most of these settlements are informal, and there are large social differences resulting from socioeconomic differences and the processes of expulsion of the low-income population from the central sectors (Sousa, 2010). Inostroza (2017) spatially characterized the new urban peripheries (NUP) in three Latin American cities: Bogota, Lima, and Santiago de Chile, and analysed specific material features of urban development that have been formed through informal processes, and which are generally integrated into urban areas. Lukas et al. (2020) evaluated the transformations of the province of Chacabuco, north of Santiago de Chile, and observed that territorial

changes are due to the development of urban mega-projects for affluent social segments, so that the production of the new urban periphery and its patterns are the product of socio-territorial and environmental fragmentation that cannot be explained by globalization, but rather by the concentration of property rights and the appropriation of natural resources such as land and water. Fadda and Jirón (2002) found that developments in urban periphery are the product of a deficient urban planning process and often impose additional burden on local administrations.

In Mexico, Isunza Vizuet and Méndez Bahena (2011) analysed the social and spatial dynamics of low-income peripheral urbanizations in Mexico City and identified a rezoning of land by local administrations as the main reason for urbanization growth in periphery areas. Hernández-Flores et al. (2017) analysed land use change to urban (LUCU) using Landsat images of the northern periphery of Mexico City from 2000 to 2014. They identified the causes of peri-urbanization as related to population growth, immigration, second and third economic sector workers, and distance to urban areas and highways. Aguilar et al. (2022) carry out an updated analysis of the dynamics of urban sprawl and land use changes in a conservation area (CA) located in the southern periphery of Mexico City to determine the extent to which socially segregated and environmentally unsustainable models of urban fragmentation have been reinforced. The normative and regulatory framework established in the CA was also analysed, and it was found that the CA has been deficient in that it has been implemented in a piecemeal fashion.

Cavalcanti and Cruz (2015) reviewed the transformations in the periphery of Brazil's largest cities considering real estate expansion, which was strongly supported by the government housing programme "Minha Casa Minha Vida" (MCMV). Marques da Costa and Antonello (2021) linked urban sprawl to residential segregation processes defined in urban planning instruments at the municipal level. In Colombia, Guzman and Bocarejo (2017) showed how the difference between spatial distribution of the population and employment has led to longer travel times for the low-income population usually located in the peripheries. Corredor Tellez (2018) assessed the urban development of Bogota and found that it has developed as a function of the transport infrastructure, which demands long travel distances. In Colombia, Romero Novoa (2021) analysed the existing relationship between two urban sectors in Villavicencio and the highway to the surrounding Llano region, and identified the expansion and fragmentation around the implementation of the road as particular spatial phenomena, which underlie the social integration or dispersion of the sector.

Ledo Espinoza (2021) analysed the challenges that peri-urban areas pose to urban planning in Sacaba, Bolivia. The results revealed that these areas appeal to be formally recognized in urban planning, while traditional urban planners need to readjust their approach to adapting to the reality of cities in the Global South. Brites (2016) analysed the recent transformations occurring in Encarnación, Paraguay, as the result of additional works carried out in the Yacyretá hydroelectric dam built by Argentina and Paraguay on the Paraná River. They found that a new urban configuration of the city is taking shape, in which the expulsion of poor people to the peripheries is a product of the city's fragmentation.

In summary, peri-urbanization in Latin America is caused by demographic changes, lack of urban planning, socioeconomic characteristics of the population, broad processes of territorial fragmentation, and social and urban segregation. These processes are also reinforced by dynamic urbanization processes that generally depend on the socioeconomic conditions of society.

Selected manuscripts and their contextualization in urban periphery

This Special Issue presents a set of scientific articles that range from methodological proposals to analyses of peri-urban areas and approaches that integrate social and spatial factors, which predominate in or impact on the production of urban informality. The first article is a literature review on interventions in peripheral areas (e20210270). Subsequent texts address public policy and housing programmes according to their importance in the development of the periphery (e20210291, e20210276, e20210218). Furthermore, urban morphology is studied from its spatial understanding in areas defined as peripheral belts (e20210353). Additional contributions reflect on the informal land market and its spatial production (e20210283, e20210346). In this

context, the study (e20210209) applies the machine learning methodology to classify urban areas and the growth of informal settlements (e20210275, e20210289). Moreover, the socio-spatial dimensions from the perspective of inequalities (e20210241, e20210265) or spatial segregation (e20210401) are approached from a systemic perspective. Continuing with these themes, this Special Issue presents studies on spatial production in terms of socio-territorial representation and repair (e20210281, e20210287, e20210357). The mobility and accessibility of informal settlements are addressed in two other studies (e20210290, e20210192). Finally, the theme of climate change is presented through an analysis of the risks of urban flooding and the potential of ecosystem services that can characterize peri-urban areas.

References

Aguilar, A. G., Flores, M. A., & Lara, L. F. (2022). Peri-urbanization and land use fragmentation in Mexico City: informality, environmental deterioration, and ineffective urban policy. *Frontiers in Sustainable Cities*, 4, 790474. http://dx.doi.org/10.3389/frsc.2022.790474.

Aguilár, A. G., Ward, P. M., & Smith, C. B., Sr. (2003). Globalization, regional development, and mega-city expansion in Latin America: analyzing Mexico City's peri-urban hinterland. *Cities*, 20(1), 3-21. http://dx.doi.org/10.1016/S0264-2751(02)00092-6.

Ambarwati, L., Verhaeghe, R., Pel, A. J., & van Arem, B. (2014). Controlling urban sprawl with integrated approach of space-transport development strategies. *Procedia: Social and Behavioral Sciences*, 138(0), 679-694. http://dx.doi.org/10.1016/j.sbspro.2014.07.261.

Ávila Sánchez, H. (2001). Ideas y planteamientos teóricos sobre los territorios periurbanos. Las relaciones campo-ciudad en algunos países de Europa y América. *Investigaciones Geográficas*, 1(45), 108-127. http://dx.doi.org/10.14350/rig.59148.

Balbo, M. (1993). Urban planning and the fragmented city of developing countries. *Third World Planning Review*, 15(1), 23-35. http://dx.doi.org/10.3828/twpr.15.1.r4211671042614mr.

Barberis, W. (2007). Mas allá de la fragmentación urbana. Identificación y mediación de los efectos de la fragmentación en área urbanizadas. In *VII Jornadas de Sociología* (pp. 1-17). Buenos Aires: Facultad de Ciencias Sociales, Universidad de Buenos Aires. Recuperado el 15 de agosto de 2013, de https://cdsa.aacademica.org/000-106/244.pdf

Barros, J. X. (2004). *Urban growth in Latin American cities: exploring urban dynamics through agent-based simulation* (Doctoral thesis). University of London, London.

Batty, M. (2013). *The new science of cities.* Cambridge: The MIT Press. http://dx.doi.org/10.7551/mitpress/9399.001.0001.

Baum Snow, N. (2007). Did highways cause suburbanization? *The Quarterly Journal of Economics*, 122(2), 775-805. http://dx.doi.org/10.1162/qjec.122.2.775.

Bayón, M. C., & Saraví, G. A. (2013). The cultural dimensions of urban fragmentation: segregation, sociability, and inequality in Mexico City. *Latin American Perspectives*, 40(2), 35-52. http://dx.doi.org/10.1177/0094582X12468865.

Bogliacino, F., Jiménez, L., & Reyes, D. (2015). Identificar la incidencia de la estratificación socioeconómica urbana sobre la segregación de los Hogares Bogotanos. *Investigaciones y Productos CID*, (24), 1-163. http://dx.doi.org/10.2139/ssrn.2714907.

Brites, W. F. (2016). New urban processes in Encarnación City, Paraguay: the waterfront development and urban renewal. In *11th International Conference Virtual City and Territory* (pp. 263-273). Cracovia, Polonia. https://doi.org/doi.org/10.5821/ctv.8117.

Bruyns, G. (2005). Urban fragmentation vs. spatial coherence. In *XXXIII IAHS World Congress on Housing Transforming Housing Environments through Design.* Pretoria, South Africa. Recuperado el 15 de agosto de 2013, de http://repository.up.ac.za/upspace/bitstream/2263/10443/1/Urban Fragmentation Spatial Coherences.pdf

Canedoli, C., Crocco, F., Comolli, R., & Padoa-Schioppa, E. (2018). Landscape fragmentation and urban sprawl in the urban region of Milan. *Landscape Research*, 43(5), 632-651. http://dx.doi.org/10.1080/01426397.2017.1336206.

Cavalcanti, D., & Cruz, M. B. (2015). A produção do Programa Minha Casa Minha Vida na Região Metropolitana da Baixada Santista: reafirmação da configuração metropolitana e exclusão socioterritorial. *Revista Pensamento & Realidade*, 29(3), 116-134.

Córdova-Aguilar, H. (2019). Urban Planning in Latin America: myth or reality. *International Journal of Urban Design*, 2(1), 53-63.

Corredor Tellez, J. (2018). Urban development in bogotá: the metro case of study. In Y. B. Ergen (Ed.), *An overview of urban and regional planning.* London: IntechOpen. http://dx.doi.org/10.5772/intechopen.79829.

Couch, C., & Karecha, J. (2006). Controlling urban sprawl: some experiences from Liverpool. *Cities*, 23(5), 353-363. http://dx.doi.org/10.1016/j.cities.2006.05.003.

Delmelle, E. (2019). The increasing sociospatial fragmentation of urban America. *Urban Science*, 3(1), 9. http://dx.doi.org/10.3390/urbansci3010009.

Dunn, K. M. (1998). Rethinking ethnic concentration: the case of Cabramatta, Sydney. *Urban Studies*, 35(3), 503-527. http://dx.doi.org/10.1080/0042098984880.

Dupont, V. (2005). Peri-urban dynamics: population, habitat and environment on the peripheries of large Indian metropolises: an introduction. In V. Dupont, & N. Sridharan (Eds.), *Peri-urban dynamics: case studies in Chennai, Hyderabad and Mumbai.* New Delhi: Centre de Sciences Humaines.

Edwards, M. (1991). About fragmentation in the urban context. *Architecture & Comportement*, 7(4), 339-359.

Entrena Durán, F. (2005). Procesos de periurbanizaci ó n y cambios en los modelos de ciudad: un estudio europeo de casos sobre sus causas y consecuencias. *Papers: Revista de Sociología*, 78, 59-88. Recuperado el 15 de agosto de 2013, de http://ddd.uab.cat/record/5552

Espindola, G. M., Carneiro, E. L. N. C., & Façanha, A. C. (2017). Four decades of urban sprawl and population growth in Teresina, Brazil. *Applied Geography*, 79, 73-83. http://dx.doi.org/10.1016/j.apgeog.2016.12.018.

Fadda, G., & Jirón, P. (2002). Incorporación del concepto de calidad de vida a las políticas de desarrollo urbano y habitacional en Chile. In *Congreso Internacional Del Medio Ambiente y Desarrollo Sustentable*. Viña del Mar.

Falco, S., Angelidou, M., & Addie, J. P. D. (2019). From the "smart city" to the "smart metropolis"? Building resilience in the urban periphery. *European Urban and Regional Studies*, 26(2), 205-223. http://dx.doi.org/10.1177/0969776418783813.

Farfán Tocarruncho, W. Y. (2020). Aproximación conceptual de la segregación socio espacial y residencial en ciudades intermedias en América Latina. *Revista Boletín Redipe*, 9(8), 96-115. http://dx.doi.org/10.36260/rbr.v9i8.1044.

Follmann, A. (2022). Geographies of peri-urbanization in the global south. *Geography Compass*, 16(7), 1-20. http://dx.doi.org/10.1111/gec3.12650.

Follmann, A., Kennedy, L., Pfeffer, K., & Wu, F. (2022). Peri-urban transformation in the Global South: a comparative socio-spatial analytics approach. *Regional Studies*, 1-15. http://dx.doi.org/10.1080/00343404.2022.2095365.

Gelézeau, V. (2008). Changing socio-economic environments, housing culture and new urban segregation in Seoul. *European Journal of East Asian Studies*, 7(2), 295-321. http://dx.doi.org/10.1163/156805808X372458.

Geneletti, D., la Rosa, D., Spyra, M., & Cortinovis, C. (2017). A review of approaches and challenges for sustainable planning in urban peripheries. *Landscape and Urban Planning*, 165, 231-243. http://dx.doi.org/10.1016/j.landurbplan.2017.01.013.

Güneralp, B., & Seto, K. C. (2013). Futures of global urban expansion: uncertainties and implications for biodiversity conservation. *Environmental Research Letters*, 8(1), 014025. http://dx.doi.org/10.1088/1748-9326/8/1/014025.

Gutiérrez López, J. A., Quenguan López, L. F., & Nieto Martínez, H. D. (2022). Stratification model as a generator of segregation in Bogotá city. *Bitacora Urbano Territorial*, 32(1), 191-204. http://dx.doi.org/10.15446/bitacora.v32n1.87760.

Guzman, L. A., & Bocarejo, J. P. (2017). Urban form and spatial urban equity in Bogota, Colombia. *Transportation Research Procedia*, 25, 4491-4506. http://dx.doi.org/10.1016/j.trpro.2017.05.345.

Habibi, S., & Asadi, N. (2011). Causes, results and methods of controlling urban sprawl. *Procedia Engineering*, 21, 133-141. http://dx.doi.org/10.1016/j.proeng.2011.11.1996.

Hao, L., Chen, X., & Min, C. (2021). The impact of urban sprawl and smart city construction on regional coordination. *Scientific Programming*, 2021, 1-12. http://dx.doi.org/10.1155/2021/5589571.

Harris, R., & Vorms, C. (2017). Introduction. In R. Harris, & C. Vorms (Eds.), *What's in a name?* (pp. 3-35). Toronto: University of Toronto Press. http://dx.doi.org/10.3138/9781442620643-003.

Hernández-Flores, M., Otazo-Sánchez, E. M., Galeana-Pizaña, M., Roldán-Cruz, E. I., Razo-Zárate, R., González-Ramírez, C. A., Galindo-Castillo, E., & Gordillo-Martínez, A. J. (2017). Urban driving forces and megacity expansion threats. Study case in the Mexico City periphery. *Habitat International*, 64, 109-122. http://dx.doi.org/10.1016/j.habitatint.2017.04.004.

Inostroza, L. (2017). Informal urban development in Latin American urban peripheries. Spatial assessment in Bogotá, Lima and Santiago de Chile. *Landscape and Urban Planning*, 165, 267-279. http://dx.doi.org/10.1016/j.landurbplan.2016.03.021.

Inostroza, L., Baur, R., & Csaplovics, E. (2013). Urban sprawl and fragmentation in Latin America: a dynamic quantification and characterization of spatial patterns. *Journal of Environmental Management*, 115, 87-97. http://dx.doi.org/10.1016/j.jenvman.2012.11.007. PMid:23246769.

Isunza Vizuet, G., & Méndez Bahena, B. (2011). Desarrollo inmobiliario y gobiernos locales en la periferia de la ciudad de México. *EURE*, 37(111), 107-129. http://dx.doi.org/10.4067/S0250-71612011000200005.

Jiménez Aguilar, C. M., & Thoene, U. (2021). Associativity in the Bogotá metropolitan region: coordination challenges in a fragmented region. *Area Development and Policy*, 6(4), 451-469. http://dx.doi.org/10.1080/23792949.2020.1848441.

Johnston, R., Forrest, J., & Poulsen, M. (2002). Are there Ethnic Enclaves/Ghettos in English Cities? *Urban Studies*, 39(4), 591-618. http://dx.doi.org/10.1080/00420980220119480.

Labbé, D., & Boudreau, J. A. (2011). Understanding the causes of urban fragmentation in Hanoi: the case of new urban areas. *International Development Planning Review*, 33(3), 273-291. http://dx.doi.org/10.3828/idpr.2011.15.

Lamer, C. (2003). Why government policies encourage urban sprawl and the alternatives offered by new urbanism. *The Kansas Journal of Law & Public Policy*, 13(3), 391-412.

Ledo Espinoza, P. J. (2021). Peri-urbanization in Sacaba, Bolivia: challenges to the traditional urban planning approach. *International Planning Studies*, 26(3), 286-301. http://dx.doi.org/10.1080/13563475.2020.1839389.

Lukas, M., Fragkou, M. C., & Vásquez, A. (2020). Hacia una ecología política de las nuevas periferias urbanas: suelo, agua y poder en Santiago de Chile. *Revista de Geografía Norte Grande*, 119(76), 95-119. http://dx.doi.org/10.4067/S0718-34022020000200095.

Maffini, A. L., & Maraschin, C. (2018). Urban segregation and socio-spatial interactions: a configurational approach. *Urban Science*, 2(3), 55. http://dx.doi.org/10.3390/urbansci2030055.

Mansilla, P. (2018). Transformaciones socio territoriales en el periurbano y desigualdad espacio-temporal. *Revista Espacios*, 39(16), 27.

Marques da Costa, E., & Antonello, I. T. (2021). Urban planning and residential segregation in brazil: the failure of the "special zone of social interest" instrument in londrina city (PR). *Sustainability*, 13(23), 13285. http://dx.doi.org/10.3390/su132313285.

Martínez Veiga, U. (1999). Pobreza, exclusión social y segregación espacial. Areas. *Revista Internacional de Ciencias Sociales*, 19, 35-50. Recuperado el 15 de agosto de 2013, de http://dialnet.unirioja.es/servlet/articulo?codigo=226126&info=resumen&idioma=SPA

Meredith, J. R. (2003). Sprawl and the new urbanist solution. *Law Review*, 89(2), 447-503. https://doi.org/10.2307/3202437.

Osman, S., Nawawi, A. H., & Abdullah, J. (2009). Urban sprawl and its financial cost: a conceptual framework. *Asian Social Science*, 4(10), 39-50. http://dx.doi.org/10.5539/ass.v4n10p39.

Otuoze, S. H., Hunt, D. V. L., & Jefferson, I. (2021). Predictive modeling of transport infrastructure space for urban growth phenomena in developing countries' cities: a case study of Kano-Nigeria. *Sustainability*, 13(1), 1-20. http://dx.doi.org/10.3390/su13010308.

Poelmans, L., & van Rompaey, A. (2009). Detecting and modelling spatial patterns of urban sprawl in highly fragmented areas: A case study in the Flanders-Brussels region. *Landscape and Urban Planning*, 93(1), 10-19. http://dx.doi.org/10.1016/j.landurbplan.2009.05.018.

Qiao, Z., Tian, G., Zhang, L., & Xu, X. (2014). Influences of urban expansion on urban heat island in Beijing during 1989-2010. *Advances in Meteorology*, 2014, 1-11. http://dx.doi.org/10.1155/2014/187169.

Randon-Furling, J., Olteanu, M., & Lucquiaud, A. (2020). From urban segregation to spatial structure detection. *Environment and Planning. B, Urban Analytics and City Science*, 47(4), 645-661. http://dx.doi.org/10.1177/2399808318797129.

Ravetz, J., Fertner, C., & Nielsen, T. S. (2013). The dynamics of peri-urbanization. In K. Nilsson, S. Pauleit, S. Bell, C. Aalbers, & T. Sick Nielsen (Eds.), *Peri-urban futures: scenarios and models for land use change in Europe* (pp. 13-44). Heidelberg: Springer-Verlag. http://dx.doi.org/10.1007/978-3-642-30529-0_2.

Robert, S., Fox, D., Boulay, G., Grandclément, A., Garrido, M., Pasqualini, V., Prévost, A., Schleyer-Lindenmann, A., & Trémélo, M. L. (2019). A framework to analyse urban sprawl in the French Mediterranean coastal zone. *Regional Environmental Change*, 19(2), 559-572. http://dx.doi.org/10.1007/s10113-018-1425-4.

Romero Novoa, J. (2021). Análisis espacial de la integración y dispersión urbana sobre los flujos vehiculares a Villavicencio por la vía antigua y la vía nueva a Bogotá (Colombia). *Perspectiva Geográfica*, 27(1), 146-167. http://dx.doi.org/10.19053/01233769.13086.

Rossi-Hansberg, E., Iii, R. O., & Rossi-Hansberg, E. (2005). Firm fragmentation and urban patterns. *International Economic Review*, 50, 20090201. http://dx.doi.org/10.3386/w11839.

Sabatini, F., Cáceres, G., & Cerda, J. (2001). Segregación residencial en las principales ciudades chilenas: Tendencias de las tres últimas décadas. *EURE*, 27, 21-42. http://dx.doi.org/10.4067/S0250-71612001008200002.

Salinas Varela, E., & Pérez Bustamante, L. (2011). Procesos urbanos recientes en el Área Metropolitana de Concepción: transformaciones morfológicas y tipologías de ocupación. *Revista de Geografía Norte Grande*, 49(49), 79-97. http://dx.doi.org/10.4067/S0718-34022011000200006.

Shi, Y., Yang, J., & Hu, X. (2016). How economic globalization affects urban expansion: an empirical analysis of 30 Chinese provinces for 2000-2010. *Quality & Quantity*, 50(3), 1117-1133. http://dx.doi.org/10.1007/s11135-015-0193-1.

Sousa, S. (2010). *Planning for shrinking cities in Portugal.* Oporto: University of Oporto.

Stoica, I. V., Zamfir, D., & Vîrghileanu, M. (2021). Evaluating the territorial impact of built-up area expansion in the surroundings of bucharest (Romania) through a multilevel approach based on landsat satellite imagery. *Remote Sensing*, 13(19), 3969. http://dx.doi.org/10.3390/rs13193969.

Sudhir Kumar, S. (2018). Causes of urban sprawl: a comparative study of developed and developing world cities. *Research Review International Journal of Multidisciplinary*, 3085(09), 4-9.

Sun, X., Crittenden, J. C., Li, F., Lu, Z., & Dou, X. (2018). Urban expansion simulation and the spatio-temporal changes of ecosystem services, a case study in Atlanta Metropolitan area, USA. *The Science of the Total Environment*, 622–623, 974-987. http://dx.doi.org/10.1016/j.scitotenv.2017.12.062. PMid:29890614.

Swapan, M. S. H., & Khan, S. (2019). Costs of sprawl. *Urban Policy and Research*, 37(3), 426-428. http://dx.doi.org/10.1080/08111146.2019.1637074.

Tennøy, A., Tønnesen, A., & Gundersen, F. (2019). Effects of urban road capacity expansion: experiences from two Norwegian cases. *Transportation Research Part D, Transport and Environment*, 69, 90-106. http://dx.doi.org/10.1016/j.trd.2019.01.024.

Urso, G. (2021). Metropolisation and the challenge of rural-urban dichotomies. *Urban Geography*, 42(1), 37-57. http://dx.doi.org/10.1080/02723638.2020.1760536.

Vaughan, L., & Arbaci, S. (2011). The challenges of understanding urban segregation. *Built Environment*, 37(2), 128-138. http://dx.doi.org/10.2148/benv.37.2.128.

Zambrano Loor, F. J., & Pico Alonso, K. A. (2019). Crecimiento disperso y su proceso de metropolitanización. In *International Conference Virtual City and Territory*. Barcelona: CPSV. http://dx.doi.org/10.5821/ctv.8675.

Zhao, P. (2010). Sustainable urban expansion and transportation in a growing megacity: consequences of urban sprawl for mobility on the urban fringe of Beijing. *Habitat International*, 34(2), 236-243. http://dx.doi.org/10.1016/j.habitatint.2009.09.008.

Ziccardi, A. (2014). Poverty and urban inequality: the case of Mexico City metropolitan region. *International Social Science Journal*, 65(217-218), 205-219. http://dx.doi.org/10.1111/issj.12070.

Guest editors: Vasco Barbosa, Mónica Marcela Suárez Pradilla and Lakshmi Rajendran.