

"This book skilfully delivers a collection of interconnected readings focusing on the contemporary urban development issues and directions for potential solutions. The book, with snapshots from numerous cities across the globe, is an invaluable reading for urban policy makers, researchers, practitioners, and students."

Tan Yigitcanlar, Queensland University of Technology, Australia

Cities in the 21st Century provides an overview of contemporary urban development. Written by more than thirty major academic specialists from different countries, it provides information on and analysis of the global network of cities, changes in urban form, environmental problems, the role of technologies and knowledge, socioeconomic developments, and finally, the challenge of urban governance.

In the mid-20th century, architects and planners wondered if cities could survive; in the early 21st century, we see that cities have not only survived but have grown as never before. Cities today are engines of production and trade, forges of scientific and technological innovation, and crucibles of social change. Urbanization is a major driver of change in contemporary societies; it is a process that involves acute social inequalities and serious environmental problems, but also offers opportunities to move towards a future of greater prosperity, environmental sustainability, and social justice.

With case studies on thirty cities in five continents and a selection of infographics illustrating these dynamic cities, this edited volume is an essential resource for planners and students of urbanization and urban change.

Oriol Nel-lo is Professor of Urban Geography and Spatial Planning in the Department of Geography, Universitat Autònoma de Barcelona. His research interests refer to metropolitan dynamics, urban segregation, social movements, and urban policies. He has been Director of the Institute for Metropolitan Studies of Barcelona and Secretary for Spatial Planning in Catalonia.

Renata Mele is Head of Sustainable Development and Innovation Research Area at Enel Foundation. She worked for both academia and industry on research and innovation. Her present research interests include sustainability in urban environments, urban metabolism of the megacity, environmental impacts of energy systems, innovative technologies for power grids and wireless sensor networks.

URBAN DEVELOPMENT



www.routledge.com/9781138119642

Routledge
Taylor & Francis Group
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Cover image: © Thinkstock

ISBN 978-1-138-11964-2



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cent per year, making Angola the fastest growing economy on the planet. Per capita GDP grew quickly as well, especially in the period 2004–2008. National economic growth is largely related to oil export, and with new oil fields coming on-stream, is expected to continue on a similar path in the near future (according to data and scenarios of the IMF – International Monetary Fund). However, social inequalities persist in rural and urban areas, as the benefits of economic growth have not been distributed equally to the whole of society.

In the last few years, local government launched a series of major interventions in the city of Luanda. Since 2001, large rehousing projects have begun around the city, moving residents out of areas targeted for redevelopment (because they were unsafe or designated for new projects) to various social housing quarters, for instance Panguila, Sapú and Zango.¹ In 2010, President Dos Santos established a new administrative body to supervise the redevelopment of Cazenga and Sambizanga, Luanda's famous *musseque* (slums). Completely new areas have also been built, like the Nova Cidade de Kilamba, in the immediate outskirts of the city, completed in 2012.

These projects have seen the active involvement of the central and local government, together with some less traditional stakeholders. In particular, the project to redevelop the Cazenga *musseque* involved a Singaporean building consultancy firm, while the Nova Cidade de Kilamba was built by the China International Trust and Investment Corporation, a Chinese state-owned investment company. Indeed, China has been a major player in the reconstruction of Angola and Luanda, bringing money and technology to fuel Angolan growth, in exchange for access to the rich national oil reserves. The success of the efforts to reshape Luanda has, however, been controversial.

The rehousing plans have created organized new settlements with an improved basic level of services compared to previous informal solutions. Zango quarter, in particular, developed an active real estate market and house values have been rising, indicating people's interest in this housing option. However, many residents still preferred to move back to the city centre, close to economic and business opportunities, and therefore the project did not stop the growth of informal housing.

Nova Cidade de Kilamba is an extreme case, so far a sort of ghost town, despite the sums invested (3.5 billion US dollars, according to the press) and the vast scale of the project. The high price of houses in this new settlement makes it unaffordable for most of Luanda's citizens and therefore incapable of addressing the city's housing problems.

Note

1. The projects mentioned above are very recent and coverage in scientific journals is therefore still limited. For some insights, see the series of articles published in *Urban Africa* by the anthropologist Claudia Gastrow.

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Beyond urbanization

Urban form and the low-carbon challenge

Francesc Muñoz

1. On density: former urbanism shaping the image of the traditional city

What we currently regard as the 'traditional city' is a cultural image based on the heritage of foundational 19th century urbanism. That was a former urbanism deeply involved with the idea of urban density. It emerged in response to urban conditions created by concentrating inhabitants and buildings in cities and evolved from the conflict between two positions: on one hand, defence of rational and scientific insertion of the industrial city in the territory it was increasingly colonizing and, on the other, the temptation to reject the big metropolis and to advocate an ideal urban community associated with the country and rural life. In both approaches, the desire to control the density of the city resulted in proposals that were not only geared towards introducing regularity and order into urban space but also towards sharing the common goal of decreasing the thresholds of concentration.¹

Thus, the urbanism that ended up giving material form to the 20th century metropolis first made itself heard with a fierce critique of the 19th century industrial city. That is to say, highlighting excessive urban density as the main attribute of cities, perceived both as dense and limitless. From this perspective, the city was ideally envisaged in association with the countryside, while there was no shortage of radical proposals calling for its extinction and a return to a pastoral past, a 'golden age' prior to industrial civilization, characterized by happiness and innocence.²

It is clear that excessive urban density entailed a whole series of problems and anxieties, the high rate of urban mortality being the first of these, but 19th-century city planners were also concerned with issues such as the effects of urban density in terms of confusion and ambiguity or the functional promiscuity of urban spaces. Thus the new city proposed by early urban experts and planners was to be less dense and better ventilated physically, more visually transparent and more functionally segregated.

The image of the 'traditional city' emerges in this way as a highly ideological concept which in the end involves the technical vision of the city space provided by former urban planning, a discipline that emerged and was shaped to deal specifically with the density conditions of urban spaces in the industrial city.

2. From the traditional city to dispersed regional urbanization

The traditional image of the city, arising as we have seen out of the contradiction embedded in the 19th century urbanization process, is particularly ill-fitted to represent, understand and manage the contemporary metropolis.

In 1975, James G. Ballard wrote *The Ultimate City*, a short story in which he offered a shocking image of the modern view of the relationship between natural and artificial: a giant pyramid of television sets built in the middle of an abandoned avenue in an abandoned city. The interesting thing about the image is that the whole structure is invaded by vegetation—wild elders, moss and firethorn. The television circuits, modulators and other electric elements mingled with cascades of berries, inviting the author to suggest his conclusion: “rival orders of a wayward nature merging again after millions of years of separate evolution”. The relationship between city and country seems to be explained again in a similar way after 150 years of the urbanization process.

Thus, the second half of the 20th century brought a general spread of urban sprawl to all cities, especially those that had not yet been much affected by such urbanization processes, such as Mediterranean cities. Thus, the spread of residential settlements, industrial areas and commercial centres over the land produced a type of urbanization not exactly corresponding to the famous metaphor of the oil slick. In the 1990s, a whole series of oil slicks created a pattern of settlements characterized by dispersion: the *ville éparpillée* (Bauer and Roux, 1976), the *città diffusa* (Indovina, 1992), la *città diramata* (Detragiache, 2003), the low-density city and the *ex-urbia* (Galdensonas, 1996) are some of the images used by planners and experts in attempts to define the emergence of alternative urban forms that shunned concentration and largely contradicted the image of the dense compact city.³ By the end of the 20th century, the words that appeared in 1972 at the start of *Learning from Las Vegas* had acquired new relevance: “a new type of urban form emerging in America and Europe, radically different from what we have known; one that we have been ill-equipped to deal with and that, from ignorance, we define today as urban sprawl” (Ventury *et al.*, 1972).

The intensified dynamics of sprawl not only embraced residential uses but also cloned the urban land uses and activities characteristic of the concentrated city, adapted, however, to a regional scale. Thus:

- economic activities, services and logistics occupied the new business parks and industrial districts far from the city and its immediate suburbs;
- retail trade located in containers in metropolitan interstices offered ease of access by car, selling not only food and other basic commodities but catering to a broad range of specialized consumer choices, from interior design to gardening; and
- the leisure activities characteristic of the city gave way to theme spaces and resorts outside the more urbanized areas.

In the late 1990s, scholars such as the geographer Giuseppe Dematteis and the urbanist Robert Fishman explained how physical expansion of built space and the dynamics of suburbanization meant that it was increasingly easy to find metropolitan characteristics in places traditionally outside the process of urbanization. Using the metaphor ‘the end of the city’, Fishman argued that the urban form (the metropolis) that had necessarily been functional to the development of Fordism in the 20th century, was no longer such an important requirement in the age of late-capitalist accumulation.⁴

In contrast, first medium-sized cities and then less populated towns have experienced the progressive growth of urbanization based on radical reformulation of agricultural land use at local and metropolitan scale. In stark contrast to the idyllic, bucolic or romantic images inherited from the art and literature of previous centuries, an urbanized countryside has emerged as one of the main features of ongoing dispersed regional urbanization.

By the end of the 20th century it was clear that this urbanization of the countryside, presciently identified and dubbed ‘rurbanization’ by Gerard Bauer and Jean-Michel Roux in 1976, was not only a fact, but also had morphological and functional characteristics significantly different from the earlier processes of urbanization of areas adjacent to major cities from the mid 19th century onwards.⁵

The former agricultural landscape was giving way to a rurban landscape characterized by a proliferation of local roads, second-rank shopping malls, car parks and emerging areas of banal housing estates and services; a landscape in which suburban elements were mixed with the existing features of agrarian iconography. A ‘sprawlscape’, according to Richard Ingersoll (1999): “(Just) as we can ‘read’ the urban landscape (cityscape), so we must classify linguistically the transformation of rural areas into urbanized territory as a ‘landscape of dispersion’ (sprawlscape).”

3. Urbanization: urban form after dissolution of the traditional city

Dispersed regional urbanization induced dramatic transformation not only in urban form and urban fabric but also in the landscape. Thus the landscape of former urban centres and the whole regional space has tended to be transformed according to a number of common features that I have tried to summarize under the term *urbanization* (Muñoz, 2008; 2009).

The landscape has been traditionally understood as the morphological translation of the physical features and social and cultural relationships that define the place and shape the so-called *genius loci*. However, cities are currently facing the appearance of landscapes which are clearly independent of place, in the sense that they can be replicated in any other city. In this context, landscape no longer translates the features of the place as could be expected and neither does it contain cultural or symbolic attributes related to social identification and cohesion.

This process of disconnection between place and landscape can be summarized with the idea of *urbanization*. It has specifically characterized the recent evolution of cities and is readily observed in two different scenarios:

- The first scenario refers to the *brandification*⁶ of historical neighbourhoods. In these old urban areas, gentrification and the progressive orientation of urban space towards leisure and consumption has gone hand in hand with dramatic transformation of the local urban landscape. Urban regeneration and renewal projects have developed in a very similar way in different cities, producing a kind of *copy and paste* urban form which the visitor of the historical area has in mind and hopes to find when perceiving this specific part of the urban landscape.
- The second scenario refers to renovations along urban waterfronts and rivers. In these spaces, standardized architectural and urban design programs reveal a highly restricted menu of options: the aquarium, the shopping area, the leisure sector, the IMAX cinema, the local museum or cultural centre and high-rise residential areas configuring a brand-new urban seafront, copied and pasted from one waterfront to another

between different key examples since the 1980s, from the Baltimore experience to the long series of projects in Europe.

This general evolution is the result of a structural trend in the recent urban history of contemporary cities: the progressive conversion of urban historical centres and waterfronts into places of consumption, entertainment and other activities linked to global tourism.

This is to say, the traditional places of the city – the architectural setting, the topological elements like streets and squares, which have historically characterized the compact city as vibrant public urban spaces – are transformed by a similar pattern of intervention into a highly standardized type of urban experience. A very interesting paradox can be suggested here: in the last half century, leisure and consumption containers have been intensively recreating and imitating urban atmospheres, specific places and formal features of cityscapes: the street, the square, the boulevard, the park, etc. It now seems that to be successful as places to be visited and consumed, cities need to imitate urban forms found in shopping malls, festival markets or theme-parks, based on imitations of city spaces themselves. This is a process that contributes to and reinforces the standardization of urban landscapes.

Former urban regeneration programmes used to focus on diversification of economic activities and maintenance of residential functions. They used to conceive inner cities as complex urban environments. However, most urban renovation experiences finally produced exactly the opposite results: economic and functional specialization, morphological segregation of the urban form and thematization of the urban landscape. These three elements characterize *urbanalization*. Even when the residential function is maintained in experiences of urban renewal, historical areas acquire a new function: they are renewed as a city not for daily living but to be intensively visited.

To summarize, the contemporary city generates a double flow in relation to urban transformation. First, the creation of specialized islands, dedicated to production or consumption. Secondly, the recognizable urban form of the compact city, those areas where topological elements like streets or squares contribute to the urban fabric, are also converted into specialized containers. Although the morphology of the city is maintained, the urban functions are simplified in a thematic way. A recent example illustrating this process of urban thematization can be observed in urban renovation affecting Jewish ghettos in Eastern Europe. These old neighbourhoods are renovated using a similar pattern in different cities and offering a final scene where the historical urban form is merely visual support for highly specialized use of the space orientated towards leisure, entertainment and consumption (Murzyn, 2006). The results of these renovation experiences reveal a city which has been simplified in terms of its attributes and contents. Similar results can be observed in so many experiences of urban renovation in historical centres and waterfronts of Europe.⁷

However, these trends are not restricted to urban centres and waterfronts. There is a third scenario that takes *urbanalization* dynamics to a regional scale in the new areas of urban sprawl on the outskirts of traditional compact cities. These new peripheries are highly standardized residential landscapes, easily reproduced and independent of any historical background, physical features and local culture that normally characterize places. In this way, urban sprawl has become a very efficient urban growth machine for *urbanalization*.

The three scenarios reveal the main consequence of *urbanalization*, i.e. progressive loss of urban diversity and complexity.

4. Low-carbon urban form? Urban metabolism and new challenges from a climate-proof planning perspective

The potentials and challenges arising from the new forms of urbanization are not restricted to living conditions of the population and landscape diversity. The effects of dispersed regional urbanization on the environment are extremely important, and many authors consider that the energy consumption entailed by this pattern of settlement is unsustainable in the midterm.⁸ Thus dissolution of the traditional urban form not only concerns evolution of the morphological basis of urban settlements at the present moment but the types of urban functions and metabolism characterizing a city's environmental performance at local and regional scale.

The nodal question has to do with clarification of the kinds of urban form that can be more sustainable, considering urban metabolic behaviour in terms of energy consumption and balance from a low-carbon perspective. Two main issues can be considered in this regard.

First, recognition that energy has been a key issue for the formation of urban and metropolitan regions in the past century. A real system of physical infrastructures has been progressively implemented for the production, storage, transformation, management and transport of energy. It is a spatially discontinuous system of infrastructures that manifested hand in hand with urban growth and spatial expansion. This chain of energy infrastructures in cities and metropolitan areas partly explains regional urbanization phenomena as understood today.

Secondly, metabolic analysis of city behaviour in terms of energy consumption and balance elicits debate about the urbanization model and environmental performance of two major scenarios: compact cities and urban sprawl.

Regarding the first issue, different energy landscapes can be identified when analyzing the urban spaces and metropolitan regions that have formed since the industrial revolution:⁹ former coal landscapes with mines and other extractive infrastructure or canals for transport, electric power stations and dams for hydroelectric production are only some landmarks of the discontinuous global *energyscape* that has been evolving since the 19th century. This global *energyscape* includes a wide range of artefacts and built infrastructures, constituting what François Béguin (2001) metaphorically called the 6th continent: high-tension transmission lines, sewage digesters, wind farms, electrical substations, thermal plants, solar cell plants, geothermal power stations, heat transfer stations, power stations ranging from hydroelectric to multi-fuel, and offshore platforms, just to list a few examples.

From the morphological and architectural perspectives, we agree with Brian Thomas Carroll (2001) when he observes the main role of electricity today – like water in past civilizations – shaping a whole architectural and visual order which models and explains the built urban and metropolitan environment. That is why the so-called low-carbon challenge can be particularly relevant in redefining this system of electric infrastructures manifesting in space as architecture. New requirements and opportunities can be discussed, such as more environment-friendly electric infrastructure or more areas for expansion of renewable energy production and opportunities such as possibilities for recycling and reusing old *energyscapes*: new uses and programs for a 'decarbonized' urban environment. Updating and recycling the energy infrastructure system in urban and metropolitan spaces is therefore a real challenge from a new low-carbon perspective and provides new inputs for comprehensive urban planning in the face of dissolution of the traditional city.

Regarding the second issue (the urbanization model and environmental performance of compact cities and urban sprawl), the low-carbon challenge reflects new urban requirements that have also emerged with the climate-proof view of urban planning and design. In this sense, academic research and discussion since the 1990s shows progressive agreement on the contribution of compact urban form to urban sustainability.¹⁰ This conclusion is also underlined by different institutional publications at the European level devoted to general recommendations and guidelines for new urban strategies and policies.¹¹ Both academic and institutional production agree on some specific points of the sustainable profile of the compact urban form: shorter intra-urban distances with less dependence on cars, optimization of land use and more districtwide energy use are major features of the compact urban form that contribute to more sustainable performance.

In this discussion and evaluation of the energy efficiency of the compact urban form, the accent moved from the basic idea of urban compactness – defined as a direct result of high residential density – to a much more complex notion of urban intensity relying on issues such as urban configuration and neighbourhood coherence, route network permeability with effective frameworks for active travel and trips on foot or by bicycle, and facilities/services at local urban scale.¹² That is to say, spatial strategies based on land use and transport planning can have a very significant impact at local urban level with positive inputs, both environmental, such as lower CO₂ emissions and per capita energy consumption, and socioeconomic, such as lower transport costs, a wider range of mobility options for access to local services and facilities without a car, higher productivity due to shorter travelling time and diversity and vitality of urban life.¹³

Addressing these contents, the compact city strategy has become a relevant planning policy in the European context, aimed at mitigating climate change and introducing the *low-carbon* perspective in urban planning schemes. Some key policies towards compact cities have been recommended, such dense urban development and retrofitting existing built areas. These policies can be developed through actions such as establishing minimum density requirements for new urban development, targeting compact urban development in green-field areas, harmonizing industrial policy with compact city visions or improving and recycling existing urban assets. However, these ambitious principles are facing two main problems at the present moment.

First, the idea of the compact intense city, characterized by multiple functions going hand in hand with a diversity of urban assets, hardly fits the *urbanalization* scenario. In other words, the specialization and simplification of urban functions defined by *urbanalization* are specifically characterizing evolution of the traditional urban form as previously explained. A key question emerges from this diagnosis: once *urbanalized*, can the compact city perform equally well in the low-carbon sense?

Secondly, these compact city strategies are clearly focusing on the existing urban form in neighbourhoods that are already compact or in areas where new development still needs to be defined, but they do not consider existing urbanized areas resulting from dispersed regional urbanization patterns. Another key question can be suggested at this point: can dispersed regional urbanization be managed in the same way as the compact urban form in terms of the new low-carbon rationale and climate-proof planning? Applying the strategies already considered for compact cities in those contexts, specifically defined by features which are the opposite to those traditionally defining the compact urban form, can hardly be successful since the absence of density changes the whole system of interactions defining urban metabolism and the attributes of urban life.¹⁴

Understanding the relationships between energy and urban form after dissolution of the traditional city also requires consideration of these two questions. Proposing effective low-carbon guidelines for the management of the compact urban form after *urbanalization* and of sprawling low-density areas resulting from dispersed regional urbanization is still a challenge in the current context of climate-proof urban planning and design.

Notes

1. For an explanation of these statements referred to the context of the European metropolis, see Muñoz (2010).
2. As Raymond Williams made clear in many of his writings, the two ideas are equally important in the cultural construction of the countryside, notably as a locus of rural innocence, from the earliest pastoral poems contrasting the life of the country with that of the city and the court, based on abstraction of the physical effort that agricultural work entails and the power relations that shape it. See R. Williams (1973).
3. For an explanation and revision of some of these concepts, see Muñoz (2008).
4. This has not prevented central cities from regaining population once more after decades of accumulated losses and after inspiring such explicitly negative images as that of 'urban decline'. Due to transnational global migration, their populations were again in many cases on the increase in the last decade of the 20th century and the first years of the new millennium. Thus, concentration of population in central cities and urban sprawl into regional spaces have coexisted in many European cities in the last few decades.
5. The authors defined 'rurbanization' as the movement of population from urban to more rural peri-urban areas since the late 1960s, prompted by the spread of the private car and its potential to satisfy the desire of living closer to the countryside. However, the idea of urbanization of the countryside is considerably broader and includes other recent phenomena such as the intense development of residential migration flows from big cities to smaller towns in response to more affordable or suitable housing.
6. For a detailed explanation of the term 'brandification' when applied to the changing nature of urban spaces in the context of postindustrial metropolises, see Hannigan (1998).
7. Paradoxically, historical areas and waterfronts have also been the spaces culturally identified with the urban attributes of the urban form of the traditional city. The urban iconography created by the cinema, for example, has always shown key contents of urban life clearly present in these two specific landscapes: density, intensity, relationships, hazard, chance or conflict. A film with a very meaningful title, *On the Waterfront*, by Elia Kazan (1954), is a good example. The relation between city and port is always present and the action is framed by the above city attributes.
8. See, for example, Camagni *et al.* (2002) or Gibelli (2007).
9. For a summary and explanation of this long-term process from the architecture and landscape perspectives, see Jakob (2001).
10. Numerous contributions suggesting a lack of evidence of sustainable performance of compact cities and mistrusting urban policies of densification or intensification can be found in debates and academic discussions of the 1990s. See Breheny (1995, 1997) and K. Williams (1999) for the specific context of UK cities. Evidence of more recent research offering a positive evaluation of the compact urban form in terms of different perspectives such as general sustainability balance, low-carbon environmental profile

and energy efficiency, can be found in the 2000s in papers by Steemers (2003), Bart (2007), Madlener & Sunak (2011) or Dempsey *et al.* (2012).

11. Since the 1990s, different documents such as the *Green Paper on the Urban Environment* (1990) and the *European Spatial Development Perspective (ESDP)* (1999) have progressively addressed the relationship between energy and urban form in general terms. More recent publications by the European Environment Agency (EEA) (2006) have specifically focused on the debate about sustainability performance of the compact city and urban sprawl.
12. With regard to evolution from the basic idea of urban density to the more complex approach of urban intensity, see Poumanyvong & Kaneko (2010); Colombert *et al.* (2011); and Barton, Grant & Horswell (2011).
13. A detailed summary of these points can be found in the comprehensive work on compact urban form and compact city policies by the OECD (2013).
14. For an updated view of the different features and attributes of urban sprawl versus the traditional compact city, see Kirby & Modarres (2010).

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