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EDITED AND REVIEWED BY  
Riccardo Buccolieri,  
University of Salento, Italy

\*CORRESPONDENCE  
Salvador García-Ayllón Veintimilla,  
✉ salvador.ayllon@upct.es

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# Editorial: Challenges in sustainable urban planning and territorial management for the XXI century

Salvador García-Ayllón Veintimilla<sup>1\*</sup>, Josep Lluís Miralles-Garcia<sup>2</sup> and Barbara Sowińska-Świerkosz<sup>3</sup>

<sup>1</sup>Department of Mining and Civil Engineering, Technical University of Cartagena, Cartagena, Spain, <sup>2</sup>Department of Urban Planning, Universitat Politècnica de València, Valencia, Spain, <sup>3</sup>Department of Hydrobiology and Ecosystems Protections, University of Life Sciences in Lublin, Lublin, Poland

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## Editorial on the Research Topic

### Challenges in sustainable urban planning and territorial management for the XXI century

Urban and Territorial Planning are disciplines that have undergone a major transformation in recent decades. The increasing level of complexity of the reality surrounding us (Haghani et al., 2023); technological improvements in analysis tools (Eilola et al., 2023); or paradigm shifts in many of the phenomena that until now were studied in universities and research institutes are just a few of the causes that have driven these changes (Ju et al., 2019). The unidisciplinary vision of planning and executing held by engineers or architects of cities in the 20th century is long gone, with current challenges consisting of a complex multidisciplinary mix of phenomena that require the integration of knowhow from many different fields of knowledge. Based on this approach, this Research Topic is presented with different proposals on the challenges of the 21st century for sustainable urban planning and land management.

The development of increasingly sustainable urban planning is no longer a scientific vocation nor a social commitment (Glaeser et al., 2008), but an unextendable functional necessity for a planet where today more than half of the population lives in cities. Most international organizations also predict that the figure will exceed 70% by the year 2050 (United Nations, 2022). Xu et al. clearly show the harmful socioeconomic and urban effects of the accelerated rural-urban migration process that occurred in China between 2000 and 2020, pointing out what challenges should be addressed in the cities to sustainably absorb this transformation process.

The growth in cities and their new role as great resource consumers is undoubtedly the biggest challenge to be faced in terms of sustainability (Gyourko and Saiz, 2004). This challenge is especially important in developing countries, where the highest growth rates of cities occur due to ongoing rural-urban migration. In many such cities, either due to greater environmental awareness in the society, or due to the simple need not to consume more resources than a country can afford to pay for, green design solutions for the urban fabric of cities are beginning to be implemented, as Marzouk et al. points out in the case of Cairo in Egypt.

However, this issue is not exclusive to developing countries. In developed countries, inertia towards urban concentration also exists, since the increasingly demanding needs of the labor

market favor inertia towards urban concentration into large metropolitan areas, depopulating small towns and even medium-sized cities in certain countries (García-Arias et al., 2021). For this reason, taking advantage of new emerging technologies and scientific knowledge, traditional urban planning must now be integrated and must generate synergies with other fields. These include transport engineering, due to the need to implement more sustainable urban mobility; material design, due to the obligation to control the growing phenomenon of heat islands; or environmental planning and monitoring, in view of the increasing awareness of improving the quality of the air we breathe in urban environments.

Wangbao shows us, for example, how the design of cities can be improved through spatial statistical analysis of street vitality. The integrated management of transport and urban planning can be dramatically improved through the application of the most demanding scientific knowledge, making our cities friendlier and more sustainable places through the application of rigorous numerical methodologies based on GIS spatial analysis. Melchiorri teaches us how, through new technologies based on remote sensing and the analysis of the spatial patterns of socioeconomic and urbanization behavior of the urban fabric, it is possible to know how the centers of these new megacities are evolving.

The aforementioned challenges are not exclusive to city planning. If we expand the scale of work to a supra-municipal level, land management is also subject to new challenges and phenomena that must be approached from innovative perspectives based on scientific knowledge. Climate change will force us to rethink many of the ways we currently have of occupying the territory. The greater frequency of extreme weather events associated with catastrophic floods will lead us to review how territory is occupied in areas at risk of flooding. Serra-Llobet et al. clearly show in their research that in developed countries with a strong liberal tradition in terms of land management, it is necessary to implement more demanding territorial regulations regarding the urban sprawl phenomenon in flood-prone environments.

It is clear that, in the field of flood risk management, the unstoppable inertia of climate change will inexorably drive us to propose flood mitigation strategies in the future that are more focused on better and more responsible management of the territory, compared to the traditional use of expensive hydraulic infrastructures for rolling floods (García-Ayllón and Franco, 2023). Urban and territorial planning must be increasingly oriented in general towards Nature Based Solutions (NBS)

aimed at improved management of the territory and cities (Skrydstrup et al., 2022), rather than resorting to new consumption of resources to mitigate existing problems.

There is no B planet, so identifying urban and territorial challenges in our territories is mandatory for our 21st century generation. Planning land uses to be compatible with the ecosystem services of the territory and managing them in a responsible way is a vast challenge for our global society. Human activities very rarely included the maintaining of ecosystem services of the territory among their objectives in the 20th century (Qian et al., 2022). Therefore, forthcoming urban planning and territorial management must help to guarantee the maintenance of natural resources, also known as Natural Capital (Miralles-García, 2022), essential for the social and economic survival of our society for the 22nd century. Our global society, with many common urban and territorial problems, often related one to each other, needs a global vision of new problems and solutions to achieve targets such as the SDG of 2030 UN agenda, and change local consciousness through processes of sharing research results and collaborative international learning.

## Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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