

Urban Planning and Sustainable Development

Towards the Ecological Transition of Cities. The Case Study of the City of Palma, Island of Mallorca

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1. Introduction. City and Sustainability: From the Problem to the Solution

Since the nineteenth century Industrial Revolution, the “attraction factor” of population and activities” experienced by cities has induced a progressive explosion of urban space, causing an overexploitation of resources (land, matter, water, energy) that is becoming progressively more unsustainable. Cities are, consequently, “the places where the majority of emissions, waste, and polluting materials are produced and where the largest share of energy is consumed” (Camagni, 2005, p. 200). Cities are, therefore, models of inefficiency and entropy that externalize their impacts on to the environment.

According to data from the Sustainability Observatory in Spain (2020 a), between 1987 and 2018 the country’s artificial surface area doubled, going from 670 thousand hectares to 1,367 thousand hectares. The average rate of increase in artificial surface area in those years has been approximately 50 hectares per day, expanding to 75.80 hectares/day in the five-year period 2000–2005. In this brief moment at the height of the last real estate bubble, an area equivalent to 182 Ensanches of Barcelona has been artificially occupied, a rate of one Ensanche every 10 days (Nel-Lo, 2012a, p. 25).

This increase in artificial surface area has been especially intense on the coast – where 45% of the Spanish population resides – due to the uncontrollable proliferation of golf courses, tourist resorts, and second home developments, all of which flourished in the slipstream of expansive urban planning during the last real estate bubble (1996–2006). They attract millions of foreign tourists every year, who develop

patently unsustainable patterns of consumption.¹ This accelerated urbanization has meant that, today, 35% of the Mediterranean littoral is artificial coastline (Górgolas, 2020 a, p. 32).²

The unsustainability of our lands is clearly related to the degradation caused by the intense impacts of this artificialization process (OSE, 2006, p. 64). It should thus not be surprising that the voracious appropriation of land explained above has produced negative consequences in some areas that are key to fighting climate change, like the heat island phenomenon in cities or greenhouse gas emissions.

Thus, in the five largest Spanish cities (Madrid, Barcelona, Seville, Málaga and Valencia), temperature differences greater than 8 degrees Celsius are observed between the central and bordering areas (OSE, 2020 a). On this issue, the “Guide to the European Sustainable Development Strategy” (2007)³ already warned of the growing impact of global warming on EU residents, especially in urban areas. Over the years, this alarm has intensified. To this end, it should be noted that recent studies estimate that “in 2050, heat waves will be the cause of 120,000 deaths annually in the European Union and will cost around 150 billion euros if adaptation measures are not carried out.”⁴

According to the World Meteorological Organization (WMO), the economic slowdown caused by COVID-19 has not, in reality, had any obvious effect in reducing the emission of greenhouse gasses at a global level. Quite the opposite: their data confirms that the amount of these gases in the atmosphere once again reached a new record in 2020, with an increase rate higher than the average for the 2011–2020 period (WMO. Press Release Number: 25102021). Consequently, we are far from fulfilling the commitment signed in the Paris Agreement – adopted, in 2015, within the framework of the XXI United Nations Conference on Climate Change (COP21) – to limit the increase in global temperature below 2°C with respect to pre-industrial levels, leaving the door open to expand this goal to 1.5°C.

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- 1 As an example, in the city of Palma the water consumption of the resident population is 111 liters/inhabitant/day, while that of the tourist population (mostly of German nationality) is 278 liters/tourist/day; that is, 160% higher.
 - 2 This data is deeply important if we take into account that global warming caused by climate change is causing an increase in sea level that has accelerated erosive action on coastal areas. Some studies estimate that for every centimeter of rise in sea level, there is a retreat of about one meter of the coastline.
 - 3 https://www.miteco.gob.es/es/ministerio/planes-estrategias/estrategia-espanola-desarrollo-sostenible/Guia_de_la_Estrategia_Europea_de_desarrollo_sostenible_VE_tcm30-88618.pdf [Consulted 09–27-2022].
 - 4 Forumethics. “Climate change adaptation argument for city councils.” <https://foretica.org/?s=argumentario+de+adaptaci%C3%B3n+al+cambio+clim%C3%A1tico+de+ayuntamientos> [Consulted 09–27-2022].

Reinforcing this statement, the February 2022 Report of the Intergovernmental Panel on Climate Change (IPCC) explains that climate change constitutes an increasingly serious threat to our well-being and the health of the planet. Hence, the measures adopted today will determine how nature will respond to the impacts of this global challenge.⁵ In this sense, the Report concludes that, although cities are critical points of risk – they account for no less than 70% of the greenhouse gas emissions produced on the planet – they constitute, at the same time, an essential part of the solution (WMO. Press Release Number: 28022022).

To respond to this challenge, we must urgently sponsor a change in the spatial model driven by urban planning. This new model must be based on new planning guidelines that contribute to directing our cities “towards a scenario without fossil fuels, with greater energy and economic self-sufficiency and minimizing impacts on the environment, without implying a setback in terms of quality of life” (Subirats, 2014, p. 31). This new axiomatic framework, in the words of Carlos Verdaguer (2020, p. 248), must be based on the triple premise of “preserving what is unbeatable, improving what can be improved, and replacing what is unacceptable.”

In conclusion,

“the eco-environmental situation of our cities, in a planetary context, requires a critical review of territorial urban models based on growth and expansion, to open a new era of regeneration. The risks and impacts produced by the demographic overflow, the extended use of the land and the overexploitation of resources are demanding a review of the praxis of urban planning and territorial planning in terms of prevention and, above all, foresight ... How can we contribute to a neo-renaissance of the land and cities in a context of environmental collapse? How can we do it while maintaining the adequate development of the ‘social economy’ in the post-Anthropocene city?” (Llop, 2022, p. 49).

Promoting this change requires limits being placed on the growth of the city, creating well-defined borders between the urban and the rural, and focusing on “reforming existing cities to make them more sustainable: rehabilitating buildings, regenerating neighborhoods and recovering landscapes” (Fernández-Galiano, 2022, p. 88).

5 With the European Climate Law approved in 2021, which is part of the European Green Deal, the EU turned the political commitment to achieve climate neutrality (net zero emissions) by 2050 into a legal obligation. In addition, it set the reduction of emissions by 2030 at least 55%. <https://www.europarl.europa.eu/topics/es/article/20180703STO07129/respuestas-de-la-ue-al-cambio-climatico> [Consulted 09–30-2022]

2. The Concept of Sustainable Urban Development: Disciplinary Reflections⁶ and Institutional Framework

The concept of sustainable development is institutionalized in the World Commission on Environment and Development's Brundtland Report entitled "Our Common Future."⁷ The report defines sustainable development as "a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs."

In the wake of this Report and in large part pushed by the UN and the EU, many letters, documents, and declarations have emerged in support of this model of development. This model has championed the promotion of the vast majority of urban-territorial policies deployed in recent decades. However, paradoxically, this generalized alignment with sustainability has led to the simplification and trivialization of its meaning (Figuroa and Suárez-Inclán, 2009, p.155), imbuing it with ambiguity. This is caused by the axiological vision of these policies, which have shifted, for the most part, towards the commercialization of our territories, causing a phenomenology characterized by a triple move: from compactness to dispersion, from complexity to monofunctional zoning and from socio-diversity to the spatial segregation of social groups (Nel-Lo, 2012 b, p.123). Specifically, the policies developed in Spain during the last real estate bubble are symptomatic of a strategy beholden to the interests of real estate capitalism and resource waste, from which we can only conclude that "it is not possible to make unlimited growth and sustainability compatible" (Subirats, 2014, p. 30).

Therefore, for Roberto Camagni, Professor of Urban and Regional Economics at Milan Polytechnic, sustainable urban development's object of study must be the type of city resulting from contemporary spatial trends, based on the principle "build where you want, live as you can." By spatial trends, we understand the processes of disordered and expansive growth that the city suffers in periods of economic deployment, underwritten by a "garbage urbanism that litters the territory" (Fernández-Galiano, 2022, p. 70). The previous section provided revealing data of this trend in the Spanish case. These processes have made the conceptual distinction between city and countryside empirically ambiguous, exacerbating "the entire problem of mobility and energy consumption as they have given rise to a model of positioning totally dependent on the automobile" (Camagni, 200, p. 204)

6 The reflections presented in this section are based on the text by Roberto Camagni (2005: 199–228) "Sustainable urban development: concepts and foundations for a research program."

7 <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf> [Accessed 09–30–2022]

As has been noted, the most characteristic feature of the latest generation of land policies has been the adoption of a commercial bias that has supported the idea of cities as “growth machines” (Logan and Molotch, 2015). Given that feature, the dilemma that imprisons the concept of sustainability in its application to urban-land processes can be summarized in the following question: is sustainability an economic problem, a function of the market, or an ethical problem?

For Camagni (2005, p. 212) there is no room for this dichotomy. The only possible way to achieve sustainable urban development is to build a market⁸ guided by a shared ethic, stimulated by a new urbanism that provides credible solutions to the problem created by the “urbanizing pandemic” of the recent past. And this, unavoidably, means preventing “letting” a market “do what needs to be done,” free from deliberated and agreed-upon restrictions. This requires introducing two types of corrections in the initiatives to be undertaken: internalizing the negative externalities and considering the long term to be able to integrate the interests of future generations.

Following Camagni (2005, pp. 215–219), sustainable urban development is based on the following foundations:

1. It is a process that is nourished by collective learning, the capacity for negotiation and the capacity for strategic design and not the application of an optimal model defined ‘once and for all.’
2. We must take into account, at the same time, the different systems that make up the city: the economic system, the social system, the physical-built system and the natural system. Sustainable urban development takes place by maximizing the integration of different systems and minimizing negative cross-externalities.
3. The regulatory principles of these systems – private efficiency, social equity, aesthetic quality and ecological balance – constitute completely valid intervention goals that, when applied independently, do not lead to the sustainability of the model. Therefore, it is imperative to move forward with the integration of these systems in order to achieve: (a) an allocative efficiency of the available resources in the long term, (b) a distributive efficiency that allows all citizens to enjoy the variety of services and options available in the city, taking advantage of the benefits of agglomeration, and (c) environmental equity that guarantees the entire population, present and future, the enjoyment of the values provided by nature.

8 For Camagni (2005: 211) “the market does not form spontaneously or naturally The market is a social ‘institution’, in the sense that it must be instituted, that is, it must be created. It requires time, collective good will and favorable historical conditions.”

4. The problem of sustainability must be addressed from three different areas: technology (energy and transportation), the urban-territorial form and living habits.

From everything explained in the preceding paragraphs, a definition of sustainable urban development emerges: “coevolution of the large economic, social and physical-environmental subsystems that make up the city, that guarantees a non-decreasing level of well-being to the local population in the long term, without compromising the development possibilities of the surrounding areas and contributing to the reduction of harmful effects on the biosphere” (Ibid., p. 228).

These theoretical foundations of sustainable urban development are aligned with the following principles of the Aalborg Charter (1994),⁹ which must be considered as guiding criteria by urban-territorial planning: (a) *environmental sustainability*, which means preserving natural capital, an unavoidable requirement to achieve economic sustainability and social equity, (b) *sustainable land occupation*, a key principle to achieve efficient use of resources through the promotion of a compact urban structure. This requires containing the phenomenon of urban sprawl through strong control of the supply of land, and (c) *sustainable mobility*, reducing forced displacement to avoid, thereby, the unnecessary use of motor vehicles.

These principles of urban-territorial planning have permeated the genetic code of the documents prepared by the European institutional framework since the Charter.¹⁰ These documents have focused on emphasizing the urgency of limiting excessive urban expansion as the main guideline for prompting the sustainable transition of our cities. To this end, we are unequivocally committed to promoting the compact city by encouraging the densification of peripheral residential areas and the use of unused urban spaces (mainly industrial facilities) and existing ‘waste-land’ in addition to ensuring urban planning of mixed-use lands. It emphasizes the obligation to reduce dependence on private motorized transport, prioritizing public transportation and active (pedestrian and bicycle) mobility. And, finally, it posits unequivocal responsibility to protect and preserve equitable access to common natural goods (air, water and soil), to minimize primary energy consumption (maximizing

9 The Aalborg Charter was approved by the participants of the European Conference on Sustainable Cities, organized by the International Council of Local Environmental Initiatives (ICLEI), held in Aalborg, Denmark on May 27, 1994.

10 Among these documents it is worth highlighting: (a) the “Action Framework for Sustainable Urban Development in the European Union” (1999), (b) the European Territorial Strategy (1999), (c) the “Towards a Thematic Strategy on the Urban Environment” (2004), (d) the Aalborg+10 Commitments signed a decade after the Charter (2004), (e) the Leipzig Charter on “Sustainable European Cities” (2007), (f) the Toledo Declaration (2010), (g) the Report “Cities of Tomorrow: Challenges, Visions and Ways forward” (2011), (h) the Charter of European Urbanism, signed in Barcelona in 2013 or (i) The New Charter of Leipzig (2020).

clean and renewable energies), to promote agriculture ecological proximity, and to increase biodiversity.

For its part, the Spanish institutional context has put special effort into creating reference frameworks that develop the vision of sustainable urban-territorial planning elaborated by Europe. All of these frameworks extol the values of the compact city model, which relatedly involves overcoming the dynamics of unlimited growth of the recent past by prioritizing the improvement, revaluation, regeneration, reuse and/or recycling of the consolidated urban fabric. Specifically, the Spanish Urban Agenda 2019 (AUE/2019) offers ten Strategic Objectives, including those aimed at “organizing the land, and making rational use of it, conserving and protecting it” (Objective 1) and “avoiding urban sprawl and revitalizing the existing city” (Goal 2). To this end, it notes that “land planning and management must pursue compact and multifunctional urban structures, which prioritize processes of recycling already existing urban fabrics, the recovery of unused land located within urban areas and the redensification of dispersed urbanizable land” (Government of Spain, 2019: 94). At the same time, it incorporates a series of measures aimed at “preventing and reducing the impacts of climate change and improving resilience” (Goal 3) and “promoting proximity and sustainable mobility” (Goal 5).

3. Urban Planning and Sustainable Development: Guiding Principles and Management Strategies. Application to the Case Study of the New General Plan of Palma (Island of Mallorca)

Sustainable urbanism, urbanism of a viable future, will be one of transformation ... which implies, first of all, abandonment of expansion, but not only that: it implies that the intervention in the existing city seeks to reduce consumption, making it at the same time friendlier, more habitable, a place to live, not a space to try to survive. (Caja, F, 2009, p. 9).

The choice of a specific urban-territorial model must be based on the adoption of a series of guiding principles capable of anchoring the decisions involved in the labor of planning. The collective assimilation of these principles will reveal “what is to be done” to promote actions that are consistent with the axioms of sustainable urban development, providing effective solutions to promote the ecological transition of our cities.

In this sense, the Methodological Guide on “Measures for Mitigation and Adaptation to Climate Change in Urban Planning,” prepared by the Spanish Federation of Municipalities and Provinces in 2015, has developed a set of thematic areas to be considered by urban planning instruments that can play the role of these guiding principles. Among them, it is worth highlighting:

1. Protect and safeguard the ecosystems around the city
2. Minimize the anthropization of the land by promoting urban growth appropriate to the needs of the population
3. Promote multifunctionality
4. Promote density and compactness
5. Integrate urban metabolism as one of the priority topics of urban planning, thereby mitigating, among other aspects, the “heat island” effect
6. Reduce mobility needs
7. Promote the regeneration of the existing urban fabric
8. Adapt construction to bioclimatic and habitability criteria
9. Establish public space as the backbone of the city’s development
10. Increase biodiversity, climate regulation, and carbon sink capacity of urban greenery

Transmitting these guiding principles to the praxis of urban planning implies implementing planning strategies that result in a spatial model that favors the co-evolution between the urban environment and natural ecosystems. This would mitigate the underlying threat of unlimited growth while enhancing the local connection between the needs of citizens (housing, work, leisure, health, culture, etc.) and the means of meeting them.

Among the planning strategies that would need to be developed to assure this transition, the following acquire, in my opinion, special relevance: (a) design a green infrastructure that recognizes the substantive values of the natural environment and establish channels of communication with the city, (b) promote an “urbanism in reverse” that would help combat the explosion of the urban that has characterized the kind of urbanism practiced in the recent past (at least in Spain) and (c) favor sustainable mobility supported by two key axioms: intermodality and chron-urbanism.

This section is intended to briefly present the conceptual bases that must guide the integration of these strategies in designing a resilient city moving towards sustainability. To do so, I show their application in the case study of the New General Plan of Palma (Island of Mallorca),¹¹ an urban planning instrument clearly aligned with the guiding principles set out above. Its main purpose is to reverse the predatory inertia of resources (territorial, landscape, energy, water) and the environmen-

11 The new General Plan of Palma was initially approved on October 20, 2021, a date that marked the beginning of a public exhibition period that concluded on February 15, 2022. At the time of writing this text, a new document is being prepared that will incorporate the changes derived from the input of citizens, neighborhood associations, civil society organizations and administrators during that period.

tal and metabolic dysfunctions (heat island effect, waste generation, greenhouse gas emissions, etc.) caused, mainly, by its strong dependence on tourism.

3.1. Green Infrastructure: A New Planning Tool for Sustainable Urban Development

The European Commission (2013, p.3) institutionalized “green infrastructure” as a new urban planning tool in its Report “Green Infrastructure: Improving Europe’s Natural Capital.” It defines this tool as “a network of natural and semi-natural areas and other environmental elements, strategically planned, designed, and managed for the provision of a wide range of ecosystem services.”¹² The AUE/2019 has picked up the baton launched by the Commission by recommending the incorporation of green infrastructure into urban and territorial planning (specific objective 3.1), noting its proven effectiveness in providing ecological, economic, and social benefits.

The main purpose of this incorporation is to provide urbanized areas with ecosystemic goods and services that make the life of the population possible by adopting, to this end, “nature-based solutions.” At the same time, correctly defining green infrastructure will prevent the future city growth from generating irreversible impacts on the so-called “in-between territory,”¹³ which is where the greatest environmental assaults are occurring. In the words of Professor Pérez Iguada (2020, p. 149) “green infrastructure must be the guiding framework for territorial and urban planning, and for this reason, defining it must come prior to any implementation proposal about the residential, public, or productive uses of an area.”

Acting from these principles, we will be in a position to illuminate an urban-territorial model where it is plausible to show that, despite the city changing, renewing and expanding, the essence of the space will endure. This is the key on which the concept of green infrastructure is based: identifying the spatial durances that make up the etymological root of the biophysical matrix to guarantee its preservation in the face of any disturbance caused by the insertion of new urban spaces into the rural environment. Among these spatial durances, the ecological corridors associated with the hydrographic network and its flood plains take on a special significance (Górgolas, 2020 b, p. 286), in light of the importance conferred on the “reconnection between countryside and city” (Figure 1) as a central function of green infrastructure.

12 However, the origin of the concept of green infrastructure can be traced to the United States in the 1990s, specifically in the 1994 Greenways Commission of Florida, where it emerged in response to growing concern about the implications environmental effects of urban sprawl.

13 An “in-between territory” is one that, orbiting around the peri-urban and rural landscapes, is subject to maximum urban and infrastructural pressure.

Figure 1: Schematic of the green infrastructure of the New General Plan of Palma.



Source: drawing by the author.

Figure 2: Image of the Torrente Gros ecological corridor, an essential element of the green infrastructure of the New General Plan of Palma.



Source: Territorio y Ciudad SLP.

The green infrastructure project laid out in the New General Plan of Palma envisions an environmental-ecological matrix that tries to connect the Tramuntana and Na Burguesa Mountains with the coastline. The city is located, precisely, in the connecting territory between both ecosystems. The connectivity of the city is secured through a network of large green corridors linking it to the Sant Maguí, Sa Riera, Na Bárbara and Gros streams and their flood plains. These are linked to the city through a linear series of parks and city routes (Figure 2). We can conclude from this organization that, given the current context of climate emergency, Palma's coastal areas and waterway network are the supporting pillars of its green infrastructure, aiding the provision of important regulation services in extreme rain or sea storm events (Ibid., pp. 289–290).

3.2. A “Reverse Urbanism” to Combat Territorial Sprawl: Austere Growth and Prioritization of the Qualitative Renewal of the Existing City

The State Land Law 8/2007 (May 28) led the reorientation of the axioms of spatial and urban planning that had been used in Spain since the mid-20th century. The Explanatory Memorandum of that law claimed that the story “of Spanish contemporary urban planning is a developmentalist story, focused above all on the creation of a new city. Certainly, urban growth is still necessary, but today it also seems clear that urban planning must respond to the requirements of sustainable development, minimizing the impact of that growth and betting on the regeneration of the existing city.” Years later, the Law of Urban Rehabilitation, Regeneration, and Renewal 8/2013 (June 26) stated that “the main battle of urban sustainability must be staged precisely in achieving the maximum possible eco-efficiency in the urban fabrics of the already consolidated city.”

The current state legislative framework includes the need to protect the rural environment, preserving the values of “unnecessary or unsuitable land to meet the needs of urban transformation” among the principles that must govern sustainable territorial and urban development (Article 3). This framework was codified in the Royal Legislative Decree 7/2015 (October 30), which approves the consolidated text of the Land and Urban Rehabilitation Law (TRLSRU/2015).

Autonomous regional legislation reproduces, in general terms, these principles of territorial planning. For example, Law 12/2017 on Urban Planning of the Balearic Islands (LUIB/2017) requires that public policies contribute to “materializing a sustainable and cohesive development of cities and municipal territory ... prioritizing the completion, conservation, reconversion, and reuse or improvement of already transformed and degraded soils, as well as urban densification and rehabilitation, instead of new land transformations, urban sprawl and construction outside the urban fabric” (Article 3.2.a). The New General Plan of Palma requires observance of this law.

The translation of these legal precepts into the praxis of urban planning implies exercising a careful spatial organization of the areas of urban growth – how much, where and how to grow – to avoid reproducing the drive to expansion. Now, it must be noted that to adequately control the supply of land destined for urban growth, it is necessary to force the reduction, the attenuation, the decrease of that which, today, is supported by the instruments of urban planning in force in Spain.

And this, given the opportunity to formulate a new General Plan, implies implementing three complementary planning strategies: (a) *declassify*, that is, return lands to their original rural condition, specifically those slated for development by previous plans considered unnecessary because they were excessive and inconvenient for promoting dispersed and low-density growth, (b) *optimize* lands already classified as developable that are understood to be integrable into the new city model to contribute to its sustainability by redefining their urban parameters (increase in residential densities, mixed-use areas, incorporation of a relevant proportion of public housing, etc.), and (c) *minimize* as much as possible the promotion of new urban planning interventions on rural land.

This contractive guideline is closely linked to the commitment to the comprehensive regeneration of the existing city, which should act as a stimulus to exercise a kind of “urbanism in reverse” aimed at restricting the land for urban growth to that which is strictly necessary to accommodate demands that have not been able to be met on existing urban land.

The application of these principles in the New General Plan of Palma has been applied in the following guidelines:

1. Unequivocally prioritize the completion, conservation, and reuse of already transformed land, as well as urban rehabilitation. This has allowed that, of the total housing supply to be satisfied in the New General Plan, just over 80% is located on urban land through renovation and reform of the urban fabric (Figure 3), building on vacant plots, activating the stock of empty homes, or rehabilitating existing buildings.
2. This commitment to the qualitative transformation of the city has favored the promotion of moderate urban growth, which barely represents 5.5% of the urban land surface (Figure 4). This figure comes from promoting the declassification of 180 hectares of undeveloped developable land provided for in the current General Plan (which dates back to 1998) and limiting as much as possible new urbanization activities devised ex novo by the New General Plan. Thus, for every m² of rural land that is proposed to be classified as a new urban growth area, 14.12 m² are declassified – that is, they regain their rural condition.

daily life of citizens. To achieve this objective, it is necessary to “seek the revitalization of proximity services in nearby space so that the times required to access them through active mobility (on foot or bicycle) range around 15 minutes ... The proposed urban model manages its metabolism more efficiently (it is less demanding in terms of energy consumption and generates fewer impacts) leading to a city that is friendlier to the environment” (Mardones-Fernández et al, 2020, pp. 660–662).

Now, in the words of Olivier Mongin (2006), an open society implies the ability to move, to not expect everything from a single place. Therefore, we must know how to combine neighborhood self-containment with the demand for mobility caused by the extension of “market areas” for work and “life areas” for leisure or culture (Camagni, 2005). Therefore, in addition to promoting functional proximity to achieve a “city of short distances,” the second urban planning criterion to be applied in terms of sustainable mobility is *intermodality*, a fundamental objective of contemporary urban dynamics. And this is because, as Colin Buchanan taught us, no transportation system can, on its own, provide a solution to the problem of moving around the city.

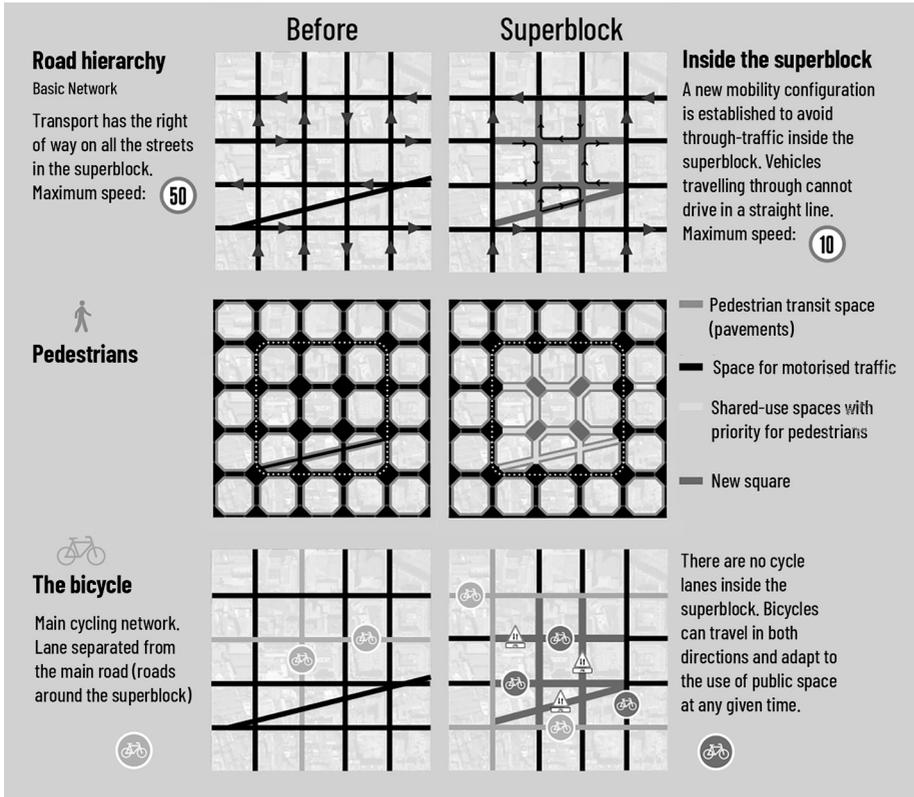
The main purpose of promoting intermodality is to encourage citizens to modify their habitual patterns of movement, favoring the use of the most sustainable modes. That is to say: (a) get people to walk or cycle on short routes,¹⁵ and (b) use public transport on longer routes (above 5–7 kilometers). Thus, the modal distribution between the different means of transport will be rebalanced with the objective that non-motorized transport and public transport assume greater percentage shares.

This inevitably implies confining the private automobile to those elements of the road network where it is most useful, blurring the traditional “inseparable link” that exists between the street and motorized traffic. And, to fulfill this purpose, it is very useful to adopt the “*superblock*” as a planning device that allows for the efficient integration of all transportation networks, giving prominence to active mobility and public transportation (Rueda, 2022). The practical implementation of this device involves “adopting a cellular structure for the city consisting of environmental areas linked by a basic network of distribution routes” (Buchanan, 1973, p. 56). In this way, it is possible to significantly reduce the street space occupied by vehicles, freeing more than 70% of it for predominantly pedestrian uses. This stimulates the creation of what Colin Buchanan calls “urban rooms,” that is, “areas with good atmosphere where people can live and coexist, move on foot with reasonable protection and freedom from the risks of motor traffic” (Ibid.). The superblock, in short, will make it possible to reconquer public space for citizens, which will thus recover its original

15 In this regard, it should be noted that, in Europe, more than half of urban trips made by private car are less than 5 kilometers and 30% do not even reach 3 kilometers. These are, therefore, journeys that, due to the distance traveled, could be carried out in non-motorized modes. https://www.elconfidencial.com/motor/nueva-movilidad/2022-09-25/ford-urb-ano-trayectos-movilidad-bicicleta-salud-ciudad_3495576/ [Consulted 10/05/2022]

function as a “social condenser,” forcing the private vehicle to develop a secondary and subsidiary role (Figure 5).

Figure 5: Conceptual scheme of superblock: “urban rooms” for a sustainable city.



Source: “20 years of the Barcelona Urban Ecology Agency”, p.39 (Translated by the editors).

In conclusion, the superblock model is an urban and transportation planning guideline that aims to: (a) recover public space for people, (b) stimulate local commerce, (c) reduce motorized transportation, (d) promote active lifestyles, with consequent beneficial effects on the health of the population (e) make cities more ecological by enabling their renaturalization, and (f) mitigate the effects of climate change, due to control to be exerted on the environmental variables (improvement of air quality, thermal comfort, reduction of noise and CO₂ emissions, attenuation of the heat island effect, etc.), and its contribution to the proper functioning of the water system by facilitating the use of Sustainable Urban Drainage Systems

(SUDS) in the redevelopment of streets freed from motorized traffic, increasing the permeable surface of the city (Górgolas, 2020 b, p. 294).

In the case of the New General Plan of Palma, the commitment to sustainable mobility has become one of the main axioms of the proposed city model. We must take into account the fact that Palma is currently one of the Spanish cities with the highest motorization rate (741 vehicles/1,000 inhabitants), so it should not be surprising that just over half of urban trips today are made in a private vehicle. Furthermore, the city has a very low share of public transport (14%) and a meager network of pedestrian routes (just over 2% of the total street network, compared to the average of 9% in other Spanish cities of similar size range) (Greenpeace, 2019).

To reverse this situation, the New General Plan intends, first of all, to eradicate the “stigma of zoning” that has characterized the urban planning developed in past decades, aiming to give the new neighborhoods a wide range of uses, laying firm foundations to be able to develop the principles of chrono-urbanism. To this end, the proposal is to achieve a ratio of 26 m² of local tertiary-commercial uses for each new residential home, a figure that guarantees a high level of self-sufficiency and thus reduces daily movement.

Secondly, the two most notable actions to increase the insufficient percentage share currently absorbed by public transit are: (a) the introduction of a tram infrastructure on a reserved platform that initially will connect the city center with the airport, supplying the tourist area of Playa de Palma, and extending in subsequent phases towards the metropolitan west and, (b) a complete redesign of the urban bus network in order to increase the distribution efficiency of flows in this mode of transport.

And, finally, in relation to prioritizing active mobility, we highlight the application of the superblock organizational formula (Figure 6). Thanks to this formula, we expect to recover 980.74 hectares for pedestrian access from the 1,406.06 hectares currently occupied by the road network. With this, the street will become the main public convivial space in Palma: a new model of the 21st century street designed for people and equipped with an environmental infrastructure suitable for increasing the proportion of urban greenery and repairing the impermeability of the soil using “soft urbanization models” that consider SUDS.

The integration of these measures will make it possible to substantially improve the existing distribution between the different modes of transit. Thus, it is estimated that, in developing the city model projected in the New General Plan of Palma, the share of private motorized transport will decrease by 12 percent, from the current 51.8% to 39.6%. Public transport will increase by more than 7 percent to reach 21.2% and non-motorized modes will increase from 33.8% to 39.2%.

Figure 6: Delimitation of superblocks in the New General Plan of Palma.



Source: Territorio y Ciudad SLP.

4. Conclusion: A New Culture of Urban Planning to Promote a Sustainable and Resilient City

From the reflections provided throughout the text, it is possible to draw the main conclusion that the promotion of a new urban planning model aimed at achieving the ecological transition of our cities is not only indispensable, but also feasible, credible, and viable, opening a door to the hope of winning the fight against climate change.¹⁶

To do this, we must internalize the theoretical foundations provided by academic research on the meaning of sustainable urban development with conviction and apply the guiding principles promulgated by our institutional framework with determination. This directs us to the absolute need to reverse the neoliberal trends that have conditioned urban planning praxis in previous decades. This inevitably forces us to commit to a transformational urbanism aimed at prioritizing the comprehen-

16 The objective of presenting a case study such as that of the New General Plan of Palma has been to try to provide a certain dose of credibility to the change of direction demanded of urban planning.

sive regeneration of the city, definitively overcoming the inertia of continuing to promote the commercialization of our spaces.

This regenerative tactic requires urban planning that is attentive to envisioning a city with and for citizens, to guarantee affordable housing located in inclusive, multifunctional, socially mixed and environmentally comfortable neighborhoods, to banish the stranglehold exercised by the private car that strips public space of its basic function as a condenser of social interactions, and to promote the circulation of the urban metabolism. It requires a renewed urban planning that knows how to appreciate its raw material (the territory, the soil) as a scarce resource that must be guarded, preserved and protected by testing “nature-based solutions” – those that provide the ecosystem goods and services necessary for human life – and that values the agroforestry mosaic that gives meaning, character, and identity to our landscapes, avoiding disturbing it with insensitive actions that become “urbanization” (Muñoz, 2008).

And this, in conclusion, implies undertaking a resilient route making “good use of memory and forgetting in order to learn from the past, which means building on it without returning to the starting point” (Méndez, 2012, p. 217).

5. Bibliography

- Buchanan, C. (1973). *El tráfico en las ciudades*. Madrid: Editorial Tecnos. Colección de Ciencias Sociales. Serie de Sociología
- Camagni, R. (2005). *Economía Urbana*. Barcelona: Antoni Bosch.
- Comisión Europea (1994). *Carta de las ciudades europeas hacia la sostenibilidad (Carta de Aalborg)*. <https://www.upv.es/contenidos/CAMUNISO/info/U0667128.pdf> [Consulted 27-09-2022]
- Comisión Europea (2013). *Infraestructura Verde: mejora del capital natural de Europa. Comunicación de la Comisión al Parlamento Europeo, al Consejo, al Comité Económico y Social Europeo y al Comité de las Regiones*. Disponible en: https://eur-lex.europa.eu/resource.html?uri=cellar:d41348f2-01d5-4abe-b817-4c73e6f1b2df.0008.03/DOC_1&format=PDF [Consultado 27-09-2022]
- Comunidad de las Islas Baleares (2017). Ley 12/2017, de 29 de diciembre, de Urbanismo de las Islas Baleares, *Boletín Oficial del Estado*, 23 de enero de 2018 (20).
- Estado Español (2008). Real Decreto Legislativo 8/2007, de 28 de mayo, de suelo, *Boletín Oficial del Estado*, 29 de mayo de 2008 (128).
- Estado Español (2013). Ley 8/2013, de 26 de junio, de rehabilitación, regeneración y renovación urbanas, *Boletín Oficial del Estado*, 27 de junio de 2012 (153).
- Estado Español (2015). Real Decreto Legislativo 7/2015, de 30 de octubre por el que se aprueba el Texto Refundido de la Ley del Suelo y Rehabilitación Urbana, *Boletín Oficial del Estado*, 31 de octubre de 2015 (261).

- Ezquiaga, J.M. (2020). “La huella de las epidemias en los instrumentos de control urbanístico de las ciudades”, *Revista de Derecho Urbanístico y Medio Ambiente*, 337–338, pp. 157–200.
- Federación Española de Municipios y Provincias (2015). *Medidas para la Mitigación y la adaptación al cambio climático en el planeamiento urbano. Guía Metodológica*. Madrid: Federación Española de Municipios y Provincias.
- Fernández-Galiano, L. (2022). *Territorios Mutantes. Urbanismo y ciudad*. Madrid: Arquitectura Viva, SL.
- Figueroa, E. y Suárez-Inclán, L. (2009). *Ciudad y cambio climático. 707 medidas para luchar contra el cambio climático desde la ciudad*. Sevilla: Ayuntamiento de Sevilla. Colección Pensamiento Global.
- Gaja, F. (2009). “Urbanismo sostenible, urbanismo estacionario. Ideas para la transición”, *Revista Digital Universitaria*, 7 (10). Coordinación de Publicaciones Digitales. DGSCA-UNAM. Disponible en: <http://www.revista.unam.mx/vol.10/num7/art41/art41.htm> [Consultado 29-09-2022]
- Gobierno de España (2019). *Agenda Urbana Española 2019*. Madrid: Ministerio de Fomento.
- Górgolas, P. (2020 a). *El urbanismo en el litoral andaluz tras la última burbuja inmobiliaria. Cambio de ciclo o reincidencia*. Valencia: Tirant Humanidades. Crónica/ Geografía.
- Górgolas, P. (2020 b). “Inundabilidad y planificación urbanística: hacia el acoplamiento de la ciudad a la matriz biofísica del territorio”. En: Melgarejo, J y López M.I. Eds. *Riesgo de inundación en España: análisis y soluciones para la generación de territorios resilientes*. Alicante, Universidad de Alicante, pp. 281–304.
- Greenpeace (2019). *Ránking de la movilidad urbana en España. Neopolitán 2019*. Disponible en: https://es.greenpeace.org/es/wp-content/uploads/sites/3/2019/05/ranking_ok.pdf [Consultado 30-09-2022]
- Logan, J. y Molotch, H. (2015). “La ciudad como máquina de crecimiento”. En: Observatorio Metropolitano de Madrid. Ed. *El mercado contra la ciudad. Globalización, gentrificación y políticas urbanas*. Madrid: Traficantes de sueños, pp. 157–210.
- Llop, C. (2022). *Proyecto Docente del concurso para la provisión de plaza de Catedrático de Universidad*. Inédito. Universidad Politécnica de Cataluña.
- Mardones-Fernández, N., Luque-Valdivia, J. y Aseguiolaza-Braga, I. (2020). “La ciudad del cuarto de hora, ¿una solución sostenible para la ciudad postCOVID-19?”, *Ciudad y Territorio. Estudios Territoriales*, 205, pp. 653–664.
- Méndez, R. (2012). “Ciudades y metáforas: sobre el concepto de resiliencia urbana”, *Ciudad y Territorio. Estudios Territoriales*, 172, pp. 215–231.
- Mongin, O. (2006). *La condición urbana. La ciudad a la hora de la mundialización*. Buenos Aires-Barcelona-México: Editorial Paidós. Espacios del Saber.
- Muñoz F. (2008). *Urbanalización. Paisajes comunes, lugares globales*. Barcelona: Gustavo Gili.

- Nel-Lo, O. (2012 a). “Herencias territoriales, exploraciones geográficas y designios políticos”. En: J. Schulz-Dornburg. Coord. Ruinas modernas. Una topografía del lucro. Barcelona: Ambit. Servicios Editoriales. Colección Palabra y Paisaje, pp. 23–69.
- Nel-Lo, O. (2012 b). Ordenar el Territorio. La experiencia de Barcelona y Cataluña. Valencia: Tirant Humanidades. Colección Crónica.
- Observatorio de la Sostenibilidad en España (2006). Cambios en la ocupación de suelo en España. Implicaciones para la sostenibilidad. Alcalá de Henares: Universidad de Alcalá. Observatorio de la Sostenibilidad en España.
- Observatorio de la Sostenibilidad en España (2020 a). “Aumento de las temperaturas por ciudades en España. 1893–2010”. Nota de prensa. Disponible en: <https://www.observatoriosostenibilidad.com/2021/09/11/aumento-de-las-temperaturas-en-las-ciudades/> [Consultado 27–09-2022]
- Observatorio de la Sostenibilidad en España (2020 b). “Estimaciones de emisiones de gases efecto invernadero en 2020 en España”. Nota de prensa. Disponible en: <https://www.observatoriosostenibilidad.com/2021/03/26/estimaciones-de-emisiones-gases-efecto-invernadero-en-2020-en-espana/> [Consultado 27–09-2022]
- Organización Meteorológica Mundial (2021). “Press Release Number: 2510201”. <https://public.wmo.int/es/media/comunicados-de-prensa/un-a%C3%B1o-m%C3%A1s-las-concentraciones-de-gases-de-efecto-invernadero-volvieron> [Consultado 29–09-2022]
- Organización Meteorológica Mundial (2022). “Press Release Number: 28022022”. <https://public.wmo.int/es/media/comunicados-de-prensa/cambio-clim%C3%A1tico-una-amenaza-para-el-bienestar-de-la-humanidad-y-la> [Consultado 29–09-2022]
- Pérez-Igualada, J. (2020). El Proyecto de paisaje. Arquitectura, Urbanismo y Ecología. Valencia: Universidad Politécnica de Valencia. Colección Manuales de referencia.
- Rueda, S. (2022). Carta para la planificación ecosistémica de las ciudades y metrópolis. Barcelona: Icaria Editorial. Colección Ecología Urbana.
- Subirats, J. (2014). “Las políticas urbanas en el cambio de época. Desarrollo sostenible y transformación social”. En: Boix, A y Marzal, R. Eds. Ciudad y Movilidad. Valencia: Publicaciones de la Universidad de Valencia. Colección Desarrollo Territorial, 14, pp. 23–36.
- Verdaguer, C. (2020). “Pasos hacia la ciudad de las tres ecologías”, TERRA, Revista de Desarrollo Local, 7, pp. 228–262.

