

RESEARCH ARTICLE

Quality of public space and sustainable development goals: analysis of nine urban projects in Spanish cities



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Inclusiveness;
Accessibility;
Design strategy;
Urban project

Abstract The starting point of this research is the urban model promoted by the United Nations through the Sustainable Development Goals (SDGs). The importance of public spaces is especially highlighted in Goal 11.7: “provide universal access to safe, inclusive, and accessible, green, and public spaces ...” The quality of public spaces can be properly assessed by reconsidering the quality indicators and investigating their development potential, which is the main focus of our research. This study is based on a theoretical and methodological reflection on the quality of public space, considering the contributions of some contemporary urban traditions and a few recent experiences. From this perspective, a variety of public space projects developed in the European sphere have been selected and analyzed. The quality parameters identified in this initial analysis were then applied to the analysis of nine representative case studies in three Spanish cities (Madrid, Barcelona, and Zaragoza). The main goal is to propose a methodology that helps to evaluate the quality of those public spaces and determine its relationship with the safety, accessibility, and inclusiveness conditions they offer.

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1. Introduction: On quality public spaces in the urban tradition and in urban agendas

1.1. Public spaces in urban agendas

For quite some time now, a consensus seems to have been reached on the urban models to follow: the implicit model fostered by the Sustainable Development Goals (SDGs) set by the United Nations is a compact, polycentric city with quality public spaces. In the context of these goals, the importance of public spaces is specifically stated in Goal 11.7: “provide universal access to safe, inclusive, green and public spaces particularly for women and children, older persons, and persons with disabilities” (United Nations, 2015). The New Urban Agenda (United Nations, 2017, p. 30) expands on this point: “safe, accessible, green, and quality streets, and other public spaces that are accessible to all”.¹ Therefore, the concept of “quality,” rather implicit in Goal 11.7, becomes explicit—with constant references and certain variations—throughout the points of the Agenda.

Reflecting on the first three concepts may prove useful to clarify their content. A “safe space” tends to become confused with a “monitored space” when it should refer instead to a space that can be used and perceived as comfortable, not only against possible aggressions but also in terms of traffic. The first sense refers to the vision of Jacobs (1961) on the intense use of space as a key factor in the perception of safety (“eyes on the street”). The second one clearly refers to the traffic calming strategies of Gehl and Gemzøe (2002), among others. For some authors, the concept of “inclusive space” is a synonym for an urban space that is mainly public, that is, for public use, and with “free” access for all citizens and visitors (Carmona, 2019), especially when considering the gender perspective for women and children and elderly individuals (Col·lectiu Punt 6, 2017; Hayden, 1995). As other authors state, the call for a “public space for all” actually means its democratization, “an open space with universal access” understood as a “common good” (Borja and Muxí, 2003; Carrera, 2015). “Designing with users” and including them in the management of public spaces also favors inclusiveness. Regarding “accessibility,” the term has a twofold meaning and is slightly ambiguous. On the one hand, the UN-Habitat recommendations patently refer not only to the provision of public space for all but also to its availability and proximity, stressing urban balance in response to social and spatial segregation between privileged and disadvantaged areas. On the other hand, the recommendations can also be understood at a different scale, as easily accessible spaces, without any physical barriers (United Nations, 2017).

In addition to these three basic goals, urban agendas explicitly consider the quality of public spaces as a common good (de la Cruz-Mera, 2019). From an urban planning perspective, the challenge consists precisely of calling for

the goal of quality public spaces, a concept that also includes the other three aspects in the broadest sense.² The complex nature of the topic hinders a qualitative analysis of public spaces only from this perspective. However, several studies have reached convincing results in evaluating quality by using indicators that characterize “a good public space” (Mehta, 2014). Our work encompasses approaches to public spaces by classical, modern, and contemporary authors. Therefore, we consider public spaces not only in their strictest sense—that is, publicly owned open urban spaces—but also collective spaces in housing estates and public facilities and services, which play a relevant role in redefining certain urban areas (Clos, 2021; Díez Medina and Monclús, 2020, 2018; Solà-Morales Rubió, 2010, 1992).

1.2. Public spaces: urban tradition and new paradigms

This broad view of quality in urban design was already present in a significant part of the traditional urban discourse. Although marginalized in the age of modernist urbanism, the urban discourse was recovered in innovative ways in several modern traditions that developed in parallel, from the “townscape” by Cullen (1961) to the decisive contributions by Lynch (1981) about “good urban form,” which should not to be confused with “urban formalism.”

Along the same lines, Gehl and Svarre (2013) identify in “How to Study Public Life” several historic moments in which a field of study focused on the forms and uses of public spaces emerged and developed. The authors consider several approaches, from the “Stadtbaukunst” by C. Sitte or the Civic Art by W. Hegemann to H. P. Berlage, among others, from the first third of the 20th century. The discussions also focus on the critical views of the 1950s and 1960s, especially on those who rediscovered the urban virtues and qualities of traditional cities (C. Alexander, A. Rossi, etc.) and consider other approaches interested in the real use of public spaces, such as the method of W.H. Whyte.³ The 1980s brought about a real creative

² The importance that public spaces have acquired in various documents by international institutions has been obvious since Habitat III was held in Quito in 2016 and in later formulations, such as those in the New Urban Agenda, 2016–2030 (United Nations, 2017), which appears in urban design as one of the aspects for “more sustainable development, and better quality of life” (“Urban Design Network. Genealogy of Urban Design,” 2020). UN-Habitat considers public spaces as a “vital ingredient” in cities, for the construction of social and cultural capital, and for the regeneration of communities (Daniel, 2016). The Spanish Urban Agenda includes the following specific objective: “Guaranteeing the quality of, and universal access to public spaces” (Ministerio de Fomento, 2018). The close connection between both objectives is therefore clear: it is about achieving more democratic and better-quality public spaces.

³ On occasions, these views implicitly contained a somewhat nostalgic return to premodern forms, such as the proposals of the Krier brothers, supporters of New Urbanism. By contrast, J. Bakema, and other members of Team 10 defended the attention integrated into architecture and urban planning that also managed to attract the interest of other architects and urban planners, such as R. Moneo and M. de Solà-Morales, who remained attentive to history, and urban context without lapsing into postmodern rhetoric (Díez Medina and Monclús, 2021; 2018).

¹ Point 100 of the New Urban Agenda states: “We will support the provision of well-designed networks of safe, accessible, green, and quality streets, and other public spaces that are accessible to all, and free from crime, and violence, including sexual harassment, and gender-based violence, considering the human scale.” Point 109 introduces a variant: safe, inclusive, accessible, green, and quality public spaces.

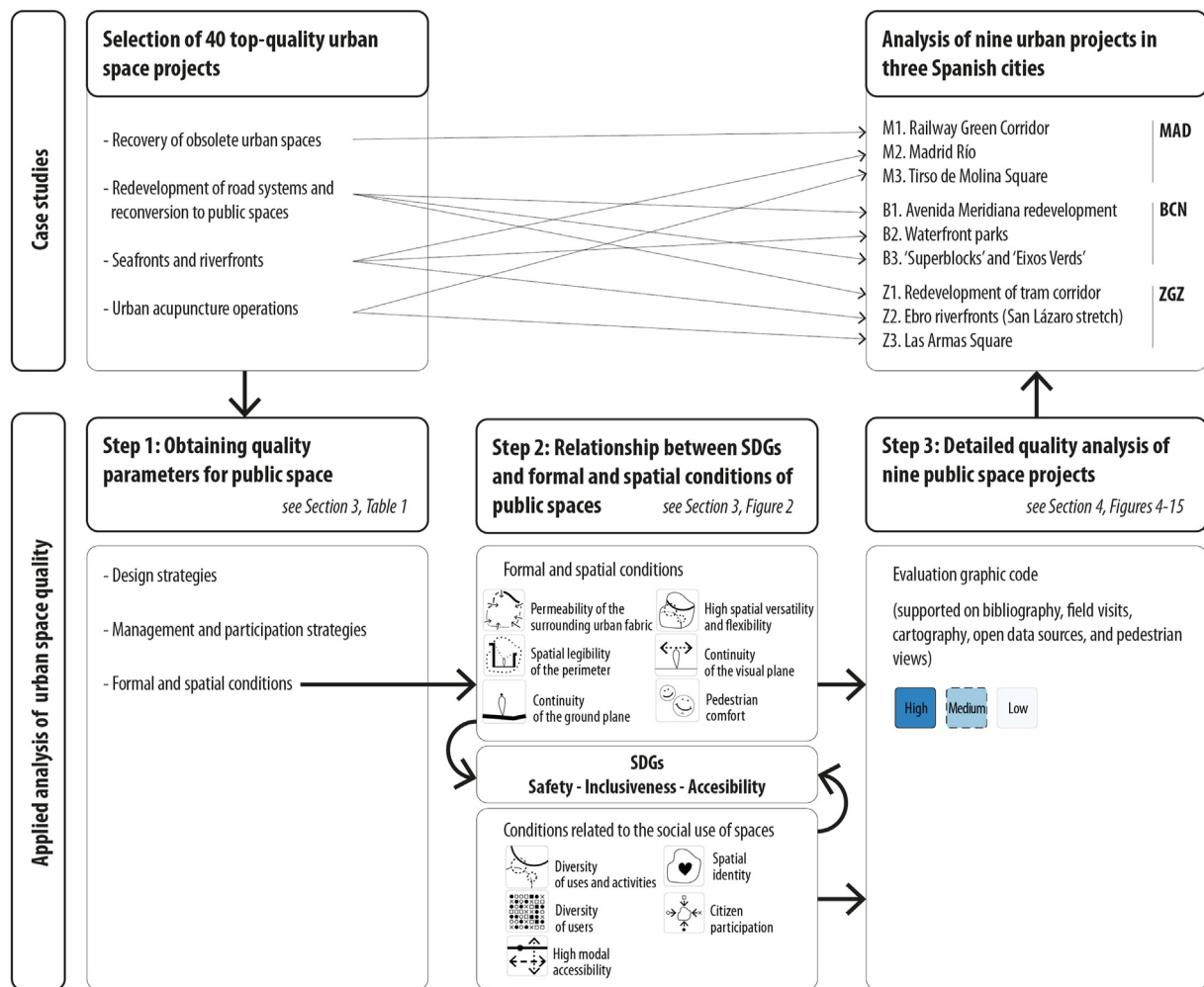


Fig. 1 Analysis methodology. Source: Own elaboration.

explosion in urban designs that managed to stop aggressions to and marginalization of the public spaces that had prioritized mobility in private vehicles to the detriment of public use.

In recent decades, urban historiography has ceased to consider these movements as “reactions” to modernity, regarding them as a real parallel tradition that has gained influence in response to current demands for urban, environmental, and landscape quality (Hebbert and Sonne, 2006). These works include both theoretical discourses and urban designs and the renowned experiences developed with solvency and disciplinary credibility.

2. Methodology for the comparative analysis of public space designs

Aiming to combine theoretical reflection and specific design experiences, our study proposes a working method based on the steps shown in Fig. 1.

2.1. Step 1: Obtaining quality parameters for public space

The first step starts with the review of a series of urban projects in European cities in which public space is particularly

important. The selection of these cases was based on the shortlisted projects included in the register of the European Prize for Urban Public Space (EPUPS).⁴ The EPUPS selects and gathers together some of the best projects for public space in European cities in the last two decades (Gray, 2015). Taking the EPUPS as a starting point is justified, as it is a leading document recognized by several institutions. Moreover, as its description states, it offers a complex and up-to-date view of the potential of interventions in public space, which aligns extremely well with the objectives of this work. On the database set up by EPUPS, 300 public spaces representing 200 European cities are classified according to four criteria: “what,” “where,” and “how” and the “quality” aspect. From all these urban projects,

⁴ The beginning of the EPUPS is related to the major exhibition held in Barcelona—“Espacio público urbano 1989–99” (Urban Public Space, 1989–1999) (García-Espuche, 1999)—where public space was considered a common good (Standing, 2015) and one of the democratic achievements of European cities (Carrera, 2015). Currently, EPUPS is promoted by the following institutions: Centro de Cultura Contemporánea de Barcelona (CCCB), the Architecture Foundation (London), Architekturzentrum Wien (Vienna), the Cité de l'Architecture et du Patrimoine (Paris), the German Architecture Museum (Frankfurt), and the Museum of Architecture and Design (Ljubljana).

we have selected a significant sample for this study that offers sufficient variety in terms of urban transformation processes, intervention strategies, and geographical location.

Together with the empirical observation of the projects, some key texts dealing with the quality of public space have been reviewed. Among them is the collective responsible for the “Project for Public Spaces,” an initiative based on the works of Whyte (1980), which reflects on the need for good accessibility, good diversity of use, capacity to promote sociability, comfort, and attractiveness (Project for Public Spaces Inc., 2000), or the reflections of J. Gehl, who proposes ten criteria grouped into three major concepts in his work “Cities for People” (Gehl, 2010): protection, comfort, and enjoyment. Both aspects have been included in various UN-Habitat documents (Biennale Spazio Pubblico, 2013; UN-Habitat, 2015). Some urban design guidelines have also been reviewed, in which approach quality not only originates from a theoretical but also from a design perspective. Carmona (2019, 2021) mentions ten categories: evolving, diverse, free, distinctive, attractive, significant, social, balanced, comfortable, and robust, and Mehta (2014) uses five indicators to determine a public space rating: inclusiveness, meaningful activities, safety, comfort, and pleasurability.

On the basis of a combination of the criteria, indicators, and principles presented in Table 1, we propose our own list by adapting the four major typologies of the EPUPS and developing some criteria related to design strategies (Table 1). The typologies of projects are 1) recovery of obsolete urban spaces, 2) redevelopment of road systems and reconversion to linear public spaces, 3) seafronts and riverfronts, and 4) urban acupuncture and regeneration operations. The criteria are divided into three groups that include a) design strategies, b) management strategies, and c) formal and spatial conditions, all related to the features included in Goal 11.7 of the SDGs. In particular, design strategies initially consider one or more of the following actions: new buildings, redevelopment of public spaces, addition of new uses to public spaces, interventions in existing buildings, removal of barriers, new connections, green infrastructure, heritage, and creation of new distinctive elements. Second, regarding management and participation strategies, we have considered tactical interventions, participatory design, adaptive design, and shared management. Finally, the formal and spatial conditions are connected to the permeability of the surrounding urban fabric, spatial legibility of the perimeter, spatial versatility, flexibility, continuity of the visual plane, continuity of the ground plane, and pedestrian comfort. This methodology is similar to previous research by the PUPC group (Bambó Naya and Díez Medina, 2020; Bambó Naya et al., 2020). The systematization of the study shown in Table 1 allows us to discuss in Section 3 which elements are most common in the selected urban projects.

2.2. Step 2: Relationship between the SDGs and the formal and spatial conditions of public spaces

In light of the analyzed cases, in the following step, we confirm that the quality of a public space does not lie exclusively in questions that are attributable to specific intervention projects in public spaces. The analysis of the design,

management, and participatory strategies helps to establish connections between SDGs and the formal and spatial conditions that quality public spaces share. Although the parameters do not have a one-to-one relationship, they appear broadly sufficient for the morphological evaluation of urban projects. The factors related to the social use of public spaces are also important. In this regard, the success of an intervention no longer depends solely on the ability of the project design team and the material condition of the intervention but on a series of contextual and strategic urban conditions that go beyond their responsibility, for instance, the diversity of users, the mixture of features, or accessibility conditions (Ruiz-Apilánez et al., 2014). We have represented this fluid and interconnected relationship between formal and spatial parameters and the social use conditions of a space in a flow diagram, further illustrating this interrelationship between the two sets of conditions (“formal” and “of use” conditions) and connecting them to the SDGs (Section 3, Fig. 2).

2.3. Step 3: Detailed quality analysis of nine public space projects

From this flow diagram (Fig. 2) and the conclusions drawn from it, the analysis focuses on those questions regarding the form and social use of public space. In Section 4, we study the quality of public space from this perspective in nine urban projects located in three Spanish cities—three in Madrid, three in Barcelona, and three in Zaragoza—in an attempt to evaluate the extent of influence of the detected conditions in each case. To achieve the objective, we use a descriptive and diagnostic text on the quality of each space and a graphic representation, allowing for the quantitative and qualitative information of each case to be synthesized into an easily comparable representation. The systematization includes the formal conditions and social use of space obtained in Section 3. The evaluation through specific bibliography reading and field work is complemented with the development of our own cartography—where the formal spatial conditions are collected (permeability, spatial legibility, and continuity) and the presence of vegetation that contributes to the environmental quality of the area (pedestrian comfort). Some indicators have also been obtained, such as the characterization of the resident population, the ratio between resident and floating populations, and the diversity of uses.⁵ General aerial photographs and detailed pedestrian views are also presented for each case study, complementing the information collected during the field visits. Finally, the evaluation is translated into a graphic code that is shown in the analysis graphic representation (Figs. 7, 11 and 15).

3. Types of urban projects focused on public spaces and their evaluation according to the defined parameters

Despite the diversity of the selected urban projects, we decided to group them into four main categories depending

⁵ The data have been provided by the Spanish Cadastral Office (compiled in April 2021), the National Institute of Statistics (Population Register, 2020), and the Experimental Study on Public Mobility (2021).

Table 1 Analysis of 40 urban interventions focused on public spaces.

	Design strategies								Management and participation strategies	Formal and spatial conditions									
	New building	Redevelopment	Addition of new uses	Intervention in existing buildings	Removal of barriers	New connections	Green infrastructure	Heritage		Creation of new distinctive elements	Tactical interventions	Participatory design	Adaptive design	Shared management	Permeability of the surrounding urban fabric	Spatial legibility of the perimeter	Spatial versatility and flexibility	Continuity of the visual plane	Continuity of the ground plane
Recovery of obsolete urban spaces																			
Can Mulà multipurpose centre (Mollet del Vallès, 2000)	•	•	•	•										•	•	•	•	•	•
Stadtteilpark Reudnitz (Leipzig, 2002)			•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•
Urban regeneration project for the Marinha de Silvalde (Espinho, 2002)	•	•	•	•	•	•	•	•	•		•			•		•		•	•
Superkilen Park (Copenhagen, 2012)			•		•	•	•	•	•		•			•	•	•	•	•	•
Park am Gleisdreieck (Berlin, 2012)			•			•	•	•	•		•			•	•	•	•	•	•
Zollverein Park (Essen, 2018)	•	•	•	•	•	•	•	•	•			•		•	•	•	•	•	•
"Arquipélago" Contemporary Arts Centre (Ribeira Grande, 2016)	•	•	•	•	•	•	•	•	•					•	•	•		•	•
‘Be-MINE’ leisure site (Beringen, 2018)			•		•		•	•	•					•	•	•	•	•	•
Creation of the Niel Garden (Toulouse, 2018)	•	•	•		•	•	•	•	•	•	•			•	•	•	•	•	•
Railway Green Corridor (Madrid, 2000)	•	•	•		•	•	•	•	•						•	•	•	•	•
Redevelopment of road systems and reconversion to public spaces																			
Bringing gardens back to the ring road (Moscow, 2018)	•			•	•										•	•	•	•	•
Aménagement du quartier du Prainet (Décines, Lyon, 1998)	•	•	•		•	•	•				•			•	•	•			
A8ernA (Zaanstadt, 2006)	•	•	•	•	•	•	•		•		•	•		•	•	•	•	•	•
‘Shared space’ on Exhibition Road (London, 2012)	•				•									•	•	•	•	•	•
Municipal stadium transport hub (Wrocław/Breslavia, 2014)	•		•		•	•	•		•							•	•	•	•
‘Baana’: pedestrian and bicycle path (Helsinki, 2014)			•		•	•				•	•			•	•		•	•	
Norreport Station (Copenhagen, 2016)	•	•	•	•	•	•	•		•			•		•	•	•	•	•	•
Zaragoza - North-South axis tram line (Zaragoza, 2011)	•	•		•	•	•	•							•	•	•	•	•	•
Superblocks (Barcelona, 2018)	•	•		•					•	•	•	•	•	•			•	•	•
Avenida Meridiana redevelopment (Barcelona, 2018)	•			•	•	•								•	•	•	•	•	•
Seafronts and riverfronts																			
Lea River Park (London, 2018)	•	•		•	•	•	•	•	•		•			•	•	•			•
Renovation of the seafront promenade (Vlõre, 2018)	•	•		•	•	•	•	•	•					•	•	•	•	•	•
Oslo Opera House (Oslo, 2010)	•	•	•		•	•	•		•						•	•	•	•	•
Parque Verde do Mondego (Coimbra, 2010)	•	•	•		•	•	•	•	•					•		•	•	•	•
Restructuring of the banks of the Ljubljana river (Liubljana, 2012)	•	•		•	•	•	•	•	•					•	•	•	•	•	•
Redevelopment of the Old Port (Marseilles, 2014)	•	•		•	•	•	•	•	•		•			•	•	•	•	•	•
Third Garden (Florence, 2018)	•	•				•		•	•	•	•			•	•	•	•	•	•
Recovery of the banks of the Ebro River (Zaragoza, 2010)	•	•		•	•	•	•	•						•	•	•	•	•	•
Coastal parks (Barcelona, 1992)	•	•	•		•	•	•	•	•					•	•	•	•	•	•
Madrid Río (Madrid, 2010)	•	•		•	•	•	•	•						•	•	•	•	•	•

	Design strategies								Management and participation strategies	Formal and spatial conditions										
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Urban acupuncture operations																				
Redevelopment of the Óvalo Promenade, the Escalinata and their surroundings (Teruel, 2004)		•				•	•		•	•					•	•		•		•
Open-air library (Magdeburg, 2010)	•	•	•		•				•		•		•	•	•	•	•	•	•	•
Blue House Yard (London, 2018)		•	•	•	•						•			•	•	•		•	•	•
Refurbishment of vacant spaces in Les Courtillières housing estate (Paris, 2018)	•	•	•			•		•	•		•			•		•		•	•	•
Centrum.odorf (Innsbruck, 2008)	•	•	•												•	•	•		•	•
‘Stadshal’: market hall and central squares (Ghent, 2014)		•	•	•					•	•					•	•	•	•		•
‘Przełomy’ Dialogue Centre in Solidarność Square (Szczecin, 2016)		•	•												•	•	•	•	•	•
Renovation of Skanderbeg Square (Tirana, 2018)	•	•	•		•	•	•	•	•	•	•				•	•	•	•	•	•
Las Armas, San Pablo district (Zaragoza, 2012)	•	•			•				•				•		•	•	•	•	•	•
Tirso de Molina Square (Madrid, 2008)		•	•		•	•			•						•	•	•	•	•	•

on the type of intervention. Each of them is described below, with overall evaluations based on the criteria used for the EPUPS and our own parameters on "good urban forms."

3.1. Recovery of obsolete urban spaces

One of the most powerful urban regeneration strategies in recent decades has been directly related to the proliferation

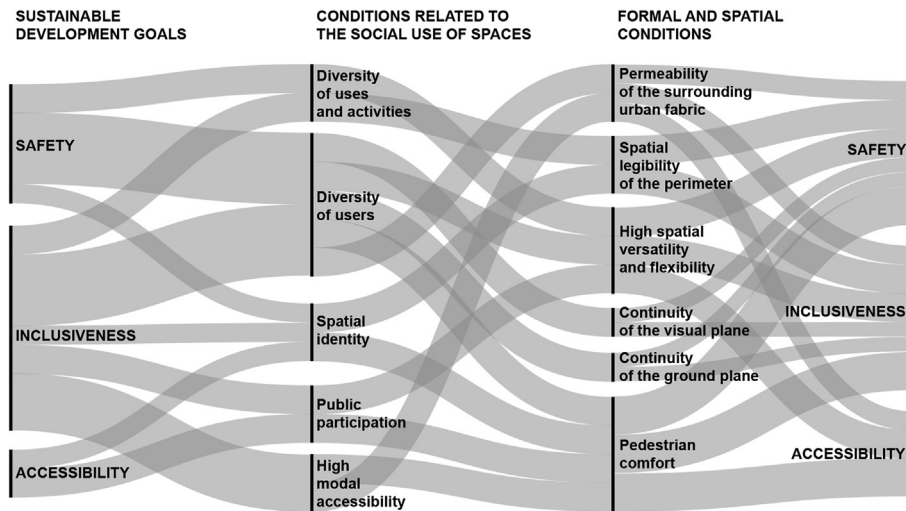


Fig. 2 Correlations between SDGs and conditions related to the social use of spaces and formal and spatial conditions. Source: Own elaboration.

of obsolete areas resulting from several processes accelerated from the 1980s onward. Despite the different natures of these urban processes, the obsolescence of industrial, railway, and port areas generates urban voids that are similar in functional terms, subsequently providing major opportunities for regeneration. The recovery of these obsolete urban fabrics has been, for the last fifty years, the subject of plans and projects of varying scope, with public spaces playing a leading role.

Superkilen Park in Copenhagen, Zollverein Park in Essen, and Park am Gleisdreieck in Berlin, among others, are examples selected in the EPUPS that are paradigmatic of this kind of urban regeneration. The analysis of these projects reveals not only a clear diversity of situations (infrastructures, obsolete industries, old military or port facilities, and obsolete public spaces on housing estates) but also certain constants. Preserving the memory of what these places once were is usually a recurring argument in this type of project. Furthermore, this approach determines not only the intervention in heritage to a great extent but also the recovery of lost identity, as is the case with the Zollverein coal mine—one of the largest industrial facilities in Germany. These spaces are generally linked to vulnerable settings. In addition, public participation is hindered by their considerably complex nature. Given their intrinsic condition, these spaces are usually closed spaces, barriers, or voids in urban fabrics in need of a new functionality that is sought by applying appropriate urban design strategies that will bolster connections and generate a finer grain in keeping with the setting.

By including these renovated public spaces, the existing city improves its legibility. The creation of representative and safe spaces, free from the threat of aggressions and traffic problems, contributes to the democratization of these free-access areas understood as common goods, thereby improving their urban quality.

3.2. Redevelopment of road systems and reconversion to linear public spaces

The views and strategies on mobility in cities have evolved, from the fascination at the beginning of modern urban planning—when transport infrastructures and vehicles played a leading role—to their progressive reconsideration in recent decades with the inclusion of environmental aspects (health, noise, or pollution). Some cities have applied advanced urban strategies related to their historical centers from the outset and, later, to other areas. In the 1950s, total or partial pedestrianization started to advance in many European cities. Germany and Scandinavia led the way, with determined proposals that promoted the reduction of private traffic and the promotion of public transport. In recent years, these strategies have received a new boost throughout Europe with the rise in active mobility (walkability, cycling, etc.). In this context, Copenhagen has been a pioneer by applying radical strategies that followed the guidelines proposed by J. Gehl on the basis of respect for “the human scale” and urban quality. In the EPUPS selection, we can find other interesting examples, such as Baana in Helsinki, Exhibition Road in London, the Tram & Train in Wrocław, among others.

In general, these projects have to address unfavorable initial conditions, not so much due to spatial reasons but rather to the complex urban sections (differences in height) caused by the presence of motor vehicles, which have now become obsolete. Therefore, proposals attempt to establish new access possibilities, connections, and uses, among others, that prioritize the human scale and safety in public spaces; to a certain extent, they are spaces open to tactical urban design strategies, which mostly focus on the ground plane and redevelopment. The most important point is the correct distribution of road and pedestrian traffic inside the intervention area.

In the case of the most isolated housing estates, or the unplanned growth of ordinary outskirts, road systems favor new situations that improve accessibility. Transversal connectivity recovers the human scale and reinforces inclusiveness by implementing new uses, as is the case for A8erna in Zaanstad. Again, fulfillment of the three aforementioned SDGs results in the improvement of urban quality.

3.3. Seafronts and riverfronts

The transformation of the seafronts and riverfronts of cities is a pivotal episode in experienced urban processes, especially from the 1980s and the 1990s onward. The focus is usually on “canonical waterfronts,” that is, those that are identified solely with port areas in decline or that have been recovered, while “urban riverfronts,” which have also been subject to notable recovery strategies, have received less attention in the professional and academic literature.

The slogan “open the city up to water” has been used in reference to sea, river, lake, or canal waterfronts. This will to permeabilize barriers created by port activities to construct new urban frontages forms the basis of some riverfront and waterfront regeneration experiences, such as Lee Valley Park in London, the surroundings of Oslo Opera House, or the ports of Rotterdam, Marseilles, and Hamburg. Landscape, eco-friendly, and “eco-urban” views show a growing potential in these projects attempting to reconvert cities by using waterfronts. In these, water is understood as natural heritage and a landscape element that helps to requalify public spaces. The concept of green infrastructure is also present, either as the recovery of something that already exists or as a new installation. Projects consider flooding risks and explicitly state their capacity for resilience: they are open, adaptive to the natural dynamics of water and to different situations, turning initial difficulties into qualities. The form of new spaces is no longer defined by built elements but rather by the inclusion of certain natural processes and green infrastructures, where water or vegetation are the agents that construct the public space (Jover Biboum et al., 2021).

The aforementioned spaces were originally controversial and unsafe. The projects turn them from marginalized into being used, appropriated, and enjoyed by the public, which promotes their protection and helps to make them safer and more attractive, resulting in their inclusiveness. Improving the accessibility and legibility of these spaces is essential, given their landscape potential, which was not originally used. Therefore, strategies for removing barriers

(roads and railways, among others) that make it possible to rediscover and include these spaces in the city are common in redevelopment proposals; these spaces thus develop a new urban vocation and play a key role in the quality of life of citizens.

3.4. Urban acupuncture and regeneration operations focused on public spaces

This category includes urban voids but also “ordinary” urban fabrics and “in-between landscapes” that increasingly proliferate in cities. These are susceptible to urban acupuncture

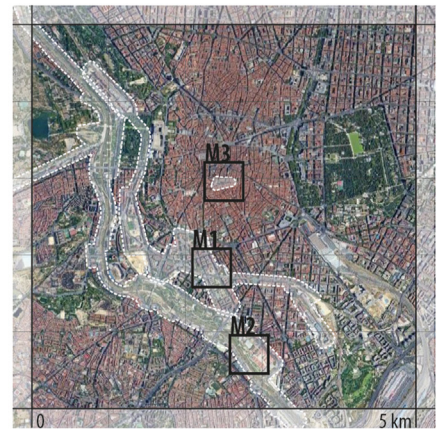
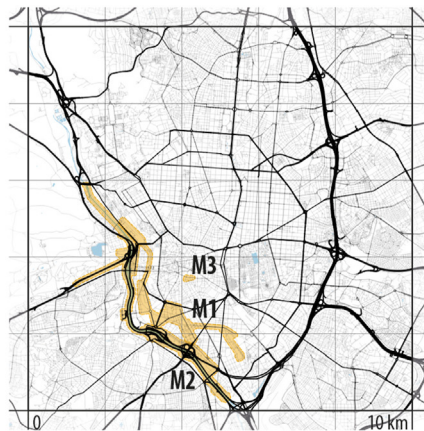
operations that can lead to significant improvements, particularly regarding the requalification of public spaces (Díez Medina and Monclús, 2018). It is not simply about interventions in degraded spaces but also about requalifying urban spaces that have become obsolete or underused and improving with these interventions. This group could include the numerous requalifying interventions of public spaces in collective housing and other episodes in the “city of slabs” (Díez Medina and Monclús, 2020). The Stadshal in Ghent, Skanderbeg Square in Tirana, or the Les Courtilières housing estate in Paris are excellent examples of this type of intervention strategy. These spaces are generally in decline and vulnerable—sometimes with specific accessibility

Madrid

M1. Railway Green Corridor, 1997
M. Ayllón, A. García Santos et al.

M2. Madrid Río, 2009
Ginés Garrido (project manager)

M3. Tirso de Molina Square, 2006
Haiku Arquitectura

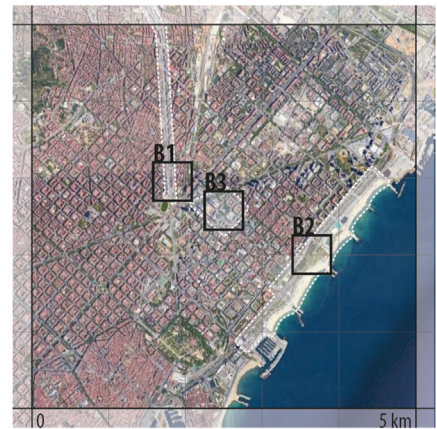


Barcelona

B1. Avenida Meridiana redevelopment, 2018
Ajuntament de Barcelona

B2. Waterfront parks, 1992
S. Pieras et al.

B3. ‘Superblocks’ and ‘Eixos Verds’, 2017
Ajuntament de Barcelona



Zaragoza

Z1. Redevelopment of tram corridor, 2011
Alday y Jover Arquitectura y Paisaje

Z2. Ebro riverfront (San Lázaro stretch), 2008
Bernabé Arquitectura

Z3. Las Armas Square, 2012
Aguerri Arquitectos

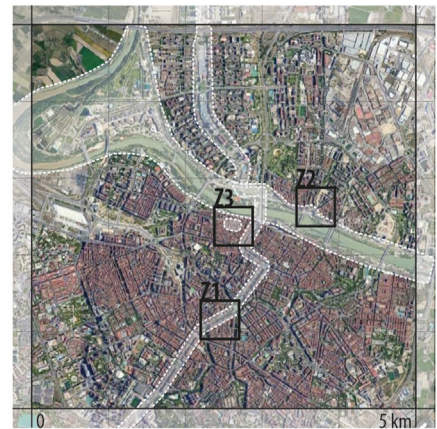


Fig. 3 Location of case studies. Source: Own elaboration.

problems—where questions related to cultural memory and heritage are usually relevant. The complexity of their surroundings means that the design work for the public space constitutes only one part of the interventions: participation, appropriation, and management often have a place in these projects.

The most common strategy is the requalification of public spaces as a basis for the activation of uses. The proposed solutions are varied, including not only redevelopment but also the addition of new uses such as housing, public facilities, or services in existing or new buildings. The aim is to improve the connections of these spaces on their perimeters, making them more permeable to their surroundings. In this case, the objectives of legibility, accessibility, and connectivity take on more importance with the addition of new uses, resulting in an improvement in urban quality in the broadest sense.

The systematic study of the selected projects has contributed to establishing a series of relationships between the three SDGs (safety, inclusiveness, and accessibility) and some conditions produced by the projects: conditions related to the social use of spaces and formal and spatial conditions (the latter have been analyzed in Table 1). Exclusive and one-to-one relationships may be different to establish among certain conditions, and achieving the SDGs depends on several factors that include various strategies, scales, and processes. The flow diagram shows the complexity of these relationships (Fig. 2).

4. Case study analysis: Nine projects in the Spanish cities of Madrid, Barcelona, and Zaragoza

The relationships between urban form, urban strategies, and SDGs are explored in greater detail by analyzing a series of urban projects, as discussed in this section. Several Spanish cities show paradigmatic examples related to the intervention strategies previously mentioned. This study focuses on three Spanish cities: Madrid, Barcelona, and Zaragoza. The analysis covers nine projects, three from each city (Fig. 3). Some strategies can unequivocally be included in one of the four categories established in the previous section, while others could be included in several of them.

4.1. Madrid

4.1.1. Railway Green Corridor

As in many European cities, the construction of the railway network had a great impact on the urban morphology of Madrid since its installation in the mid-19th century. In the southwest of the city, the ring road for the transport of goods created an urban barrier and an internal border that limited the possibilities of the “Ensanche” (urban extension). The obsolescence of industrial areas offered major opportunities for urban regeneration, as the scope for activity in public property was defined by the considerably vast railway facilities (150 ha). In 1987, the government decided to bury the tracks, build a green corridor, create a new residential urban fabric on top of the urban voids, and

renovate the facilities of the run-down district of Arganzuela (López de Lucio et al., 2016, pp. 44–47).

This strategic urban project has several objectives on multiple scales. The reorganization and modernization of the railway network is at the city scale, while the ambitious reconversion of the area to a green corridor is an example of an urban planning initiative at the “intermediate scale.” Therefore, the result of this high-reaching urban regeneration operation must be evaluated by considering both. At the city scale, it represents a substantial improvement: it involves restructuring the public transport network; recovering a run-down district and integrating it with the urban centre; and constructing a residential fabric, a system of free spaces, and other public facilities organized along a major avenue that is treated not as an access route for road traffic but as a set of district streets. The improvements, therefore, seem evident in nodal accessibility and in the permeability of the urban fabric, creating continuities, and establishing inclusive public spaces—although the fragmented nature of the interventions does not allow for anything other than a general evaluation of the whole. At a smaller scale, the current conditions of public spaces show the positive impact and the limits of the operation two decades after the beginning of this ambitious project. Visiting them today, we can see the lack of attention given to the details in pedestrian recreational areas, that is, the urban design scale. The condition of many areas is the result of deterioration due to lack of maintenance but also to the questionable quality of the initial projects for public space, which were characterized by a certain formal rigidity and lack of landscape treatment, leading to poor comfort in pedestrian recreational areas and difficulties in adapting them. However, to a certain extent, the lush tree-covered areas compensate for the faults of the initial public space projects (Fig. 4).

4.1.2. Madrid Río

The Manzanares River has played a fundamental role in the urban development of Madrid, although it does not compare in importance with the watercourses of other cities. Despite the peculiarity of this case, the marginalization and neglect processes that turned the river into an urban barrier and a wastewater collector show clear similarities with the situation on the riverfronts of other cities.



Fig. 4 Railway green corridor. Madrid, 2000. Source: Crea Madrid Nuevo Norte.

The construction of the west section of the M-30—the ring road that used the riverbanks to define its route—brought about a radical scare by applying strictly sectoral criteria based on its road functionality. The decision to bury a stretch of the M-30 by building a tunnel over 5 km long offered the possibility to intervene in a linear corridor that would connect all the green areas bordering the Manzanares River. The overall intervention included road engineering throughout the M-30 ring road, burying of its western and southern sections, and establishment of criteria for the management of surface treatment of urban voids. The linear park project is complex and varied in its different sections.

This major project brought about unquestionable urban improvement and succeeded in integrating the river into the city by overcoming the barrier it had turned into. The construction of several walkways and the renovation of the existing walkways improved transversal connectivity. The redevelopment of the system of dams and weirs allowed for the creation of successive sheets of water, thus contributing to restructuring the watercourse by means of an outstanding landscape project. From an environmental and landscape perspective, Madrid Río represents the introduction of a green corridor in the city that meets the most recent criteria on the concept of green infrastructure, connecting the various more urban parks along its course—Casa de Campo, Montes del Pardo, and Manzanares Sur—with the possibility of integrating other periurban parks—Parque Regional del Sureste and Valle del Jarama.

Combining two kinds of strategies—the burying of the M-30 and the recovery of a watercourse by turning its banks into a linear park—had a positive impact on improving accessibility to the Manzanares Linear Park, which favored the appropriation of public spaces by users from all over the city. These situations allowed for the rediscovery of the river, recognizing it as an identity element. Thus, an originally neglected setting turned into a series of accessible, safe, inclusive, green, and quality public spaces.

While the operation as a whole can be assessed positively, some issues are appearing at a smaller scale. As this is such an extensive project, extremely diverse problems arise depending on different urban situations and their relationship with the road infrastructure. Some sections of the project are unsatisfactorily solved since the integration

of surroundings with the new linear public space is rather weak (as in the old Calderón Stadium). Another example at a different scale is the “Salón de los Pinos,” where the difference in height resulting from the burying of the M-30 has not been correctly resolved and instead has created slopes that hinder the integration of the new linear public space into the surroundings. The construction of parallel parking spaces makes the barrier effect of infrastructures even clearer. Over time, the trees and vegetation will help to improve the landscape quality of the linear park, which slowed down good quality landscape development at the design phase (Fig. 5).

4.1.3. Tirso de Molina Square (Lavapiés district)

Lavapiés was developed at the end of the 15th century around the square of the same name as an outside suburb connected to the Royal Way of Toledo. As a consequence of urban growth and development, in the second half of the 20th century, Lavapiés became part of the renowned “barrios bajos” (slums), inhabited by the most underprivileged population. By the 1970s, the degeneration of the district was patented.

As described in the “Guía de Urbanismo y Diseño Urbano de Madrid” (Guide to Urban Planning, and Design of Madrid) (López de Lucio et al., 2016, pp. 424–427), this initiative was the largest prioritized urban renovation project of the historic centre of Madrid. The arrival of the democratic local government in 1979 brought about urban regeneration initiatives. However, it was not until the end of the 1990s that the district became the focus of an ambitious initiative in one of the Priority or Integrated Renovation Areas.

The interventions in the Lavapiés district are a prime example of a strategy based on acupuncture, microuban planning, and urban regeneration focused on projects for public space but are not free from criticism concerning its eventual configuration as a “hard square” (Chinchilla, 2020, p. 139). The strong commitment to urban requalification by activating and recovering neglected and obsolete areas in ordinary urban fabrics is clearly far from “flagship initiatives” understood as one-off, exceptional projects in the city. Within the complex regeneration operation of Lavapiés, the selected public space, Tirso de Molina Square, is a clear example of the importance of urban and landscape projects for cities. In this case, the project reveals a high degree of preparation, which emphasizes the importance of utilizing the small scale. First, the connection of the square to the urban fabric achieved by removing road traffic on one side has transformed the initial condition of the island, thereby favoring its integration with the surroundings and improving accessibility to the square. Second, the management of various kinds of slopes and spaces by using flower boxes and vegetation enriches small squares, producing a variety of different spaces and improving pedestrian comfort. However, the small wooden cube-shaped kiosks have shown the passing of time very quickly, and two decades after their construction, they are terribly dilapidated and have a significant negative effect on the overall perception (Fig. 6).

The population data of the analyzed three Madrid public spaces do not differ considerably. The data all have a similar composition and a low percentage of floating versus



Fig. 5 Madrid Río. Madrid, 2010. Source: Madrides.



Fig. 6 Tirso de Molina Square (Lavapiés district). Madrid, 2008. Source: Wikimedia Commons. Fot. Enrique Barrera.

resident population. Residential use predominates in all of them, while in the case of Lavapiés Square, retail, bars, and restaurants have a higher percentage. However, in other areas, the mixture of uses is higher. In relation to the formal and use of the space conditions, the intervention in the Railway Green Corridor presents lower indicators, with remarkably low permeability with the perimeter and the conditions of use (Fig. 7).

4.2. Barcelona

4.2.1. Redevelopment of Avenida Meridiana

The Avenida Meridiana, laid out by Ildefons Cerdà in the mid-19th century, had become increasingly important and the entry point to the city from the north. The jump in scale came when it was turned into an urban motorway in the mid-1960s. Its design as a strict road infrastructure represented a barrier between the surrounding districts, to such a degree that elevated walkways were needed, although residents resisted using them. In addition, as a knock-on effect on the edges, the building works on both sides acted as a screen, leaving the districts hidden behind them. The construction of the ring roads in the run-up to the 1992 Olympic Games considerably reduced the traffic on Avenida Meridiana, which enabled its progressive reconversion to a civic hub and a public space structuring the adjacent districts. The initial project turned this highway into a boulevard, which meant completely reconsidering its 50-m transversal section, reducing the road used by vehicles, and it also allowed the width of the pavements to be more proportionally balanced, similar to the rest of the “Ensanche” (half for pedestrians and half for vehicles). In addition, the new pavement–road rate improved the relationship between the height of buildings and the urban space.

The road redevelopment project was conceived as a process in which the road is reduced as it advances north from Las Glorias square. The most recent interventions intend to continue transforming Avenida Meridiana into a civic hub with more vegetation and more public space for pedestrians, improving the connection between districts and unifying the section of the stretch. Therefore, the aim is to increase the focus on public space, allowing it to be

compatible with its role as the main access road to Barcelona from the north but understood as a street of the city with much less traffic and promoting sustainable mobility. This aspect shows the capacity of interventions based on reconvert the road system by recovering an updated idea of the street adapted to meet the urban conditions of the 21st century.

The design strategy in this case addresses the challenge of improving the balance between different modes of transport, with a fairer distribution of public space. This situation can be taken as a paradigmatic example of how to reduce the privileges of private motor vehicles without resorting to pedestrianization—favoring inclusiveness and safety of pedestrians and cyclists—or abandoning the structural role of Avenida Meridiana as the main access to the city from the north. This process progresses firmly in the reconversion of a road originally conceived as an urban motorway to a quality public space, removing the effect of physical and psychological barriers and producing a positive effect on its surroundings (Fig. 8).

4.2.2. Waterfront parks (Poble Nou stretch)

The Cerdà plan for the “Ensanche” did not define a solution for the coastline. Until the end of the 20th century, practically the entire coast was occupied by railway infrastructures, obsolete industrial facilities, and groups of self-built residential properties. Although “opening up to the sea” was an old aspiration of the city, already included in several urban planning designs (from the Jaussely Plan at the turn of the 20th century to the Macià Plan in 1932 and subsequent plans), the process did not begin until the late 1980s and is still being implemented. The strategy of opening up the port and the Moll de la Fusta project (1982) started the first renovation phase on the sea frontage of the city. Similar to other port cities, the transformation and relocation of the port helped the reconversion of these areas for urban use. The boost of the 1992 Olympic Games, with the decision to locate the Olympic Village in one of the “new central areas” defined in 1987, offered the opportunity to recover a part of the coast that had hitherto been inaccessible and heavily polluted.

The different initiatives conducted on the seafront include actions such as those initiatives for the Poble Nou Coastal Park, which is located close to the original heart of the district after which it is named, and in one of the areas of greatest urban transformation resulting from the Olympic Games. The park consists of a sequence of dunes covered in typical Mediterranean vegetation (pine trees and coastal vegetation), which extends from the beach inland, a network of transversal pedestrian paths toward the beach, and curving tracks that adapt to the topography and cross the park lengthways. Among the interventions in the Barcelona waterfront, the park has provided a unique leisure space resulting from its planning, and it also includes a set of new sport facilities. Apart from the success of the design criteria and their execution, the park has contributed to the general urban planning of one of the most neglected sectors of the city, thus reversing the historical separation between the city and its coast and truly opening the city up to the sea in this area.

The greatest achievement has been improving accessibility to the seafront by removing the barriers created by

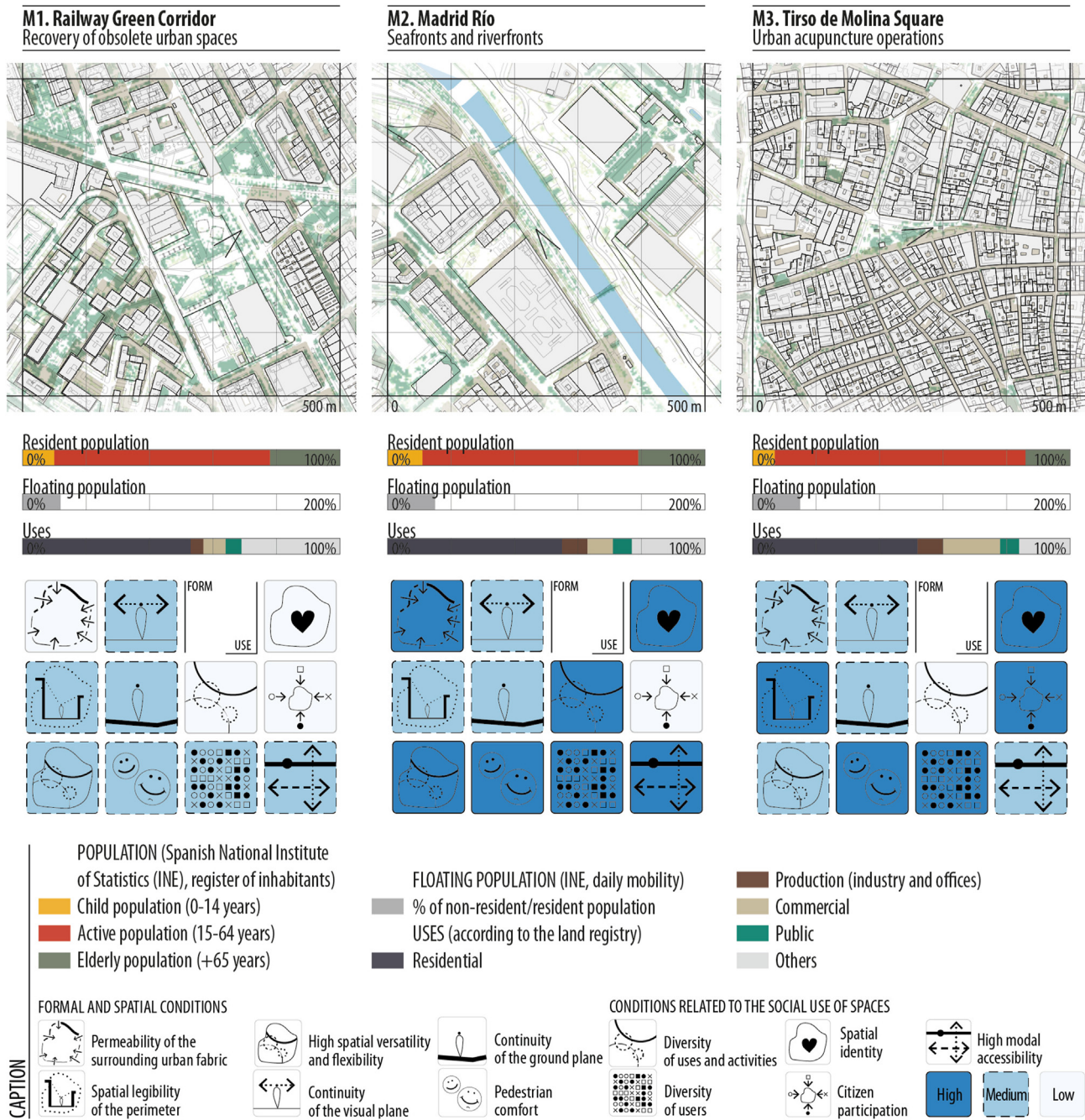


Fig. 7 Analysis and evaluation of the urban quality of three public space projects in Madrid. Source: Own elaboration.

infrastructures, thus managing to join and connect the beach area to the old centre of the district by expanding and redesigning the now recovered Rambla del Poble Nou. The project meant that the whole population—local, from the district, and from the whole metropolitan area—could easily access the beach areas for the first time, something that, until then, had not been possible in Barcelona. In this case, the quality of the urban design is clear at all scales, turning the complexity of the initial conditions into a solid argument for the urban and landscape project (Fig. 9).

4.2.3. “Superblocks” and “Eixos Verds” (green axes) system

The essential argument for the superblock program was based on the need to reduce traffic in the “Ensanche” to improve the environmental conditions of the public space, which was under pressure and limited by the intensity of traffic and the disproportionate occupation of streets by private vehicles to the detriment of pedestrians. In contrast to previous functionalist diagnoses (the views of Le Corbusier and Josep Lluís Sert with the Macià Plan of 1933) that considered the isotropic grid designed by Cerdà (1860)



Fig. 8 Redevelopment of Avenida Meridiana. Barcelona, 2018. Source: Photo by the authors.

obsolete because it did not adapt to the needs of road traffic, the need to rethink and modernize this section in recent years has surfaced in line with environmental and urban quality considerations.

The strategy consisting of freeing certain urban sectors from fast through traffic has been widely considered in modern urban planning, especially since the release of the Buchanan Report. In Barcelona, it began to be applied in the 1990s in some districts, although it did not receive a major boost until the approval of the Urban Mobility Plan (2013–2018). The main objective is to reduce the space occupied by private vehicles to have space for pedestrians, thereby fostering new forms of mobility that prioritize public transport, walking, and cycling. As the EPUPS states, it attempts “to advance toward healthier, fairer, and safer public spaces that promote close social, and economic relationships” (Bravo, 2019). At the beginning, the program was based on health considerations, as the noise plan detected levels exceeding the recommended values by the World

Health Organization (WHO). Therefore, the superblocks were defined based on the grouping together of the blocks designed by Cerdà in units of 400×400 square meters, such as “new urban cells” (Rueda, 2017; Rueda-Palenzuela, 2019). These approaches can provide a favorable setting to reorganize public access to nearby services and equipment, a key instrument in the correction of urban inequalities (Ezquiaga, 2018, 2020).

The “Poblenou Superblock” has recovered over 1 ha of public space for pedestrians.⁶ The analyzed area is not overly residential and is mainly devoted to the service sector, which means that public space is still generally used by the floating population. The result is that, in contrast to the initial situation (an obsolete industrial estate), public spaces with the capacity to be inclusive, accessible, and attractive currently proliferate. Other sites, such as the Sant Antoni superblock, have been proposed as a pilot study for a sequential transformation of all the districts in the city, especially the “Ensanche.” This objective of the renewed program attempts to broaden the concept and define a new system of “green axes” for pedestrians throughout the city.⁷ This plan is an ambitious strategy, and it is still early to be evaluated, but it has led to a strong commitment to fairer and more sustainable mobility and to inclusive, safe, and quality public spaces (Fig. 10).

In the three urban projects of Barcelona, a high percentage of the floating population is highlighted in the last two cases, especially in the last one, the superblock. This situation is related to a decrease in residential use and a large increase in productive use. In the three projects, the improvement of the formal and use conditions related to accessibility stands out, such as the permeability of the perimeter or the high modal accessibility. The rather good visual continuity and identity have also contributed to the inclusiveness of these spaces and to improving the feeling of safety (Fig. 11).



Fig. 9 Waterfront parks (Poble Nou stretch). Barcelona, 1992. Source: Wikimedia Commons.



Fig. 10 “Superblocks” and “Eixos Verds” (green axes) system. Barcelona, 2018. Source: EYS Municipales

⁶ According to data obtained from Barcelona City Council, perimeter roads have seen an increase in traffic of 2.6%, but the number of vehicles that use inner city streets has fallen by 58%, in addition to an average reduction of 5 dB in the daytime noise levels.

⁷ For more information, visit the website of bimsa.cat.

4.3. Zaragoza

4.3.1. Redevelopment of the north–south axis of tram corridor. Gran Vía

The Gran Vía operation was conceived as early as 1906 in the Preliminary Urban Extension Project as an accurate direct continuation of Paseo de la Independencia toward the south, with a residential extension that culminated at Buena Vista Park. This idea came to fruition in the 1920s when the covering of the Huerva River enabled the development of Gran Vía on top of the riverbed. A 40-m-wide and 600-m-long thoroughfare connects the extension to the

south of the city. The intention was to create a new linear urban space that was relatively unitary, consistent, and in proportion. With the increase in road use, the routes on the various stretches of the central walkway became reduced to marginal use with extremely few chances of pedestrian continuity. The commitment to a new tram system in Zaragoza (2009–2013) that would cross the city from north to south was decisive in a significant spatial transformation. In contrast to the old tram lines conceived using sectoral criteria, this project has not only resolved mobility problems but also “makes city” by substantially requalifying the public spaces along its route.

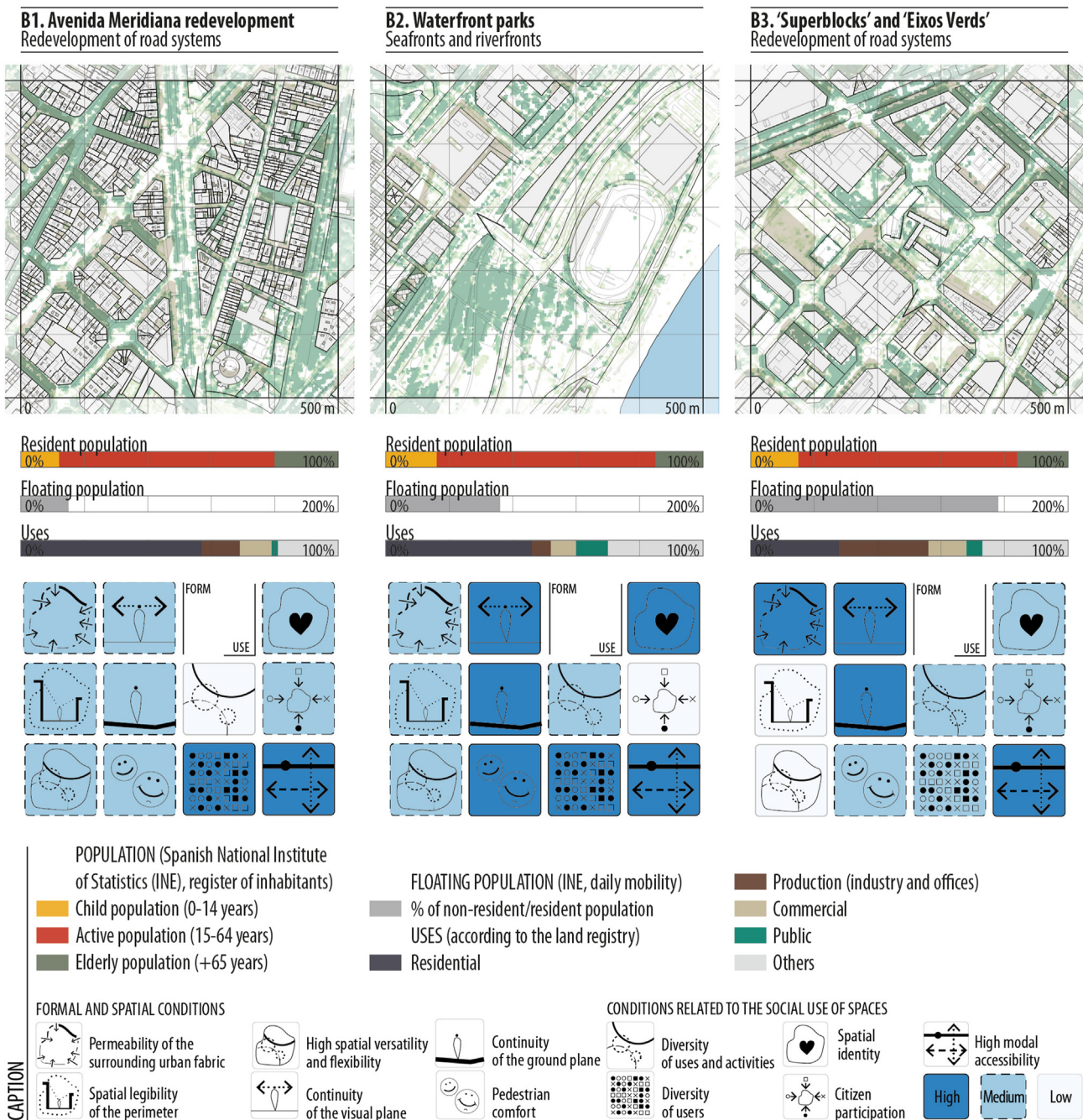


Fig. 11 Analysis and evaluation of the urban quality of three public space projects in Barcelona. Source: Own elaboration.

The redevelopment of Gran Vía through the implementation of the tram system has transformed its cross-section. Private motor vehicles have been reduced to two lanes, one in each direction. This solution has enabled the general calming of the area and the widening of some sidewalks, leading to the more convenient use of ground-floor commercial premises. The project has brought about a transformation along the longitudinal section by removing existing barriers at various scales. Thus, a commitment has been reached to introduce soft modes of transport and support the weakest users. Numerous initiatives have been established in the central promenade, such as stands, open-air seating areas, and children's play areas. It includes some large London planetrees which provide high vegetation cover, complemented by a quality architectural setting. The side flower beds and the furniture have been recently redesigned, correcting some points that did not work yet desired in the initial project.

The Award for the Best Urban Integration Project from the International Association of Public Transport recognized that this project "combines the logics of transport with urban planning, and has established a consistent system of paving, and urban elements for the whole city, which democratizes the quality of the management of public spaces without differentiating between districts".⁸ Indeed, Gran Vía fulfills the conditions of accessibility, inclusiveness, and pedestrian comfort, having been turned into a route used by a large part of the population, who find solutions for resting and promenading—and for moving about—in one of the historical hubs of the city (Fig. 12).

4.3.2. Linear Park on the banks of the Ebro River

The Ebro River has historically played an ambiguous role in the urban growth of Zaragoza. For centuries, the city was identified with it, even though it was also a barrier, so urban development expanded toward the south. Although the occupation of the left side by industries and urban infrastructures began as early as the 19th century, it was from the 1970s onward when the river ceased to be an almost unsalvageable barrier, thanks to the construction of new bridges designed as part of the road system of the city. The will to integrate the Ebro into the city and to "open the city up to the river" began in the 1990s (de la Cal and Pellicer, 2002), and it came into fruition in the Ebro Riverbank Project (2001) (Monclús, 2016; Pellicer Corellano and Sopena Porta, 2019). The proposed strategy was the reconversion of riverbanks to linear parks by, among other measures, achieving pedestrian continuity at three levels, from the most natural to the most "urban," conditioned by the flood danger level of each route.⁹

The new linear park includes a series of well-designed and meaningful spaces that provide much-needed diversity along the course of the river. Among them, the "Balcón de San Lázaro" is a strategic point where the Arrabal district on the left bank meets the river and a perfect spot to



Fig. 12 Redevelopment of the north-south axis of tram corridor, Gran Vía. Zaragoza, 2011. Source: AldayJover Arquitectura y Paisaje.

admire the traditional view of the city's towers on the right bank. The initial situation was extremely complicated, as the road traffic from the riverbank and the streets that came from the Puente de Piedra bridge converged at a markedly narrow point. The decision to preserve the archaeological remains of the old San Lázaro convent site changed the initial plans to bury the road traffic, and it was decided to find an overground solution for this nodal space.

The road system folds up to give space to pedestrian leisure facilities, although at the same height. The large roof that protects the archaeological remains is configured, such as a "new square" viewpoint, along with water stations and an extremely long linear bench. The intense traffic and the growing use of the Puente de Piedra bridge as a pedestrian route connecting to the historic centre give this viewpoint great urban relevance. Moreover, the design of the ground plan, play, and pedestrian recreational areas has created safe and inclusive spaces for community coexistence. In the water plan, the extension of the existing pedestrian routes has also proved decisive in resolving the integration and accessibility of the Puente de Piedra bridge in Ebro Park. All these interventions have catalyzed other urban improvements in the neighborhoods located along the two banks of the river (Fig. 13).



Fig. 13 The linear park on the banks of the Ebro River. Zaragoza, 2008. Source: Photo by the authors.

⁸ UITP. Global Light Rail Award 2012: Best Project. Global Light Rail Award 2016: Best Environmental Initiative.

⁹ The Parque del Agua, with over 120 ha, constitutes a landmark public space in the new river park along the banks of the Ebro in its far west. Its design as a floodable area, compatible with the ordinary, and extraordinary rises of the Ebro River, laid the foundations for the final design of many other linear spaces in this central park in Zaragoza.

4.3.3. Las Armas Square (San Pablo district)

The district of San Pablo was part of the first medieval urban extension that spilled over the Roman wall toward the west and extended along the Ebro River toward the Aljafería Palace. Since the 19th century, the area has undergone a process of growing density with the high occupation of blocks and convent spaces. In the mid-20th century, the district suffered progressive deterioration in parallel with various internal renovation operations that led to a certain degree of regeneration. Later, the relocation of the wealthier population to other parts of the city opened the situation for the arrival of immigrants and of more underprivileged social groups. The entire area experienced a process of deterioration that accelerated at the end of the 1990s. Furthermore, the district is characterized by its strong identity, a feeling of belonging, and solid multiculturalism, contributing to the formation of a large network of associations.

In the context of the General Plan for the Historic Centre (1997–2004), one of the most significant urban initiatives was implemented in a single block. A Special Inner Renewal Plan was drawn up for this initiative. A small square was opened up at the end of one of these streets to add the Las Armas Music Centre. This new square, which was designed to host various activities at both the district and city scales, is connected to the internal space of the block.

New residential buildings are being designed for a large part of the block that contribute to renewing an obsolete fabric, and existing buildings on the other side of the block are being renovated. Aiming to achieve the best urban integration, in an attempt to improve the management and safety of both public spaces, the medieval plots were respected, providing a broken perimeter band, with dual-access entrance ways—from the street and from inside the block. A useful strategy has therefore been proposed aimed at promoting mutual coexistence between the residents and the users of public spaces. Different commercial premises of varying types are considered, but they are unitary in form, thus reinforcing the idea of a commercial boulevard open from both the street and from the inner square.

The operation in Las Armas can be considered a paradigmatic example of a strategy based on urban acupuncture, microuban planning, and one-off urban regeneration. The urban project has managed to introduce these renovations and greater social diversity into the district, improving its accessibility and the inclusive use of the new spaces by all citizens. The result of this operation can be considered a success insofar as it has boosted the overall urban regeneration of San Pablo. However, this intervention must be supported by others of a similar weight to improve the social indicators of a district that still has a high concentration of vulnerable people and a kind of “spatial stigmatization” that has not been successfully resolved in recent decades (Fig. 14).

The three urban projects from Zaragoza show important differences in their indicators. In Gran Vía, an urban extension district that has become highly central in recent decades, we can see incipient population aging. Both this sector and the Plaza las Armas show a higher percentage of floating population related to higher percentages of nonresidential uses, although residential use continues to be predominant. The improvement of the formal and spatial conditions in all interventions has managed to improve the sense of identity. In



Fig. 14 Las Armas Square (San Pablo district). Zaragoza, 2012. Source: Wikimedia Commons.

the case of the linear projects as Gran Vía as a section of the tram line corridor, and San Lázaro as part of the riverbanks, at a city scale, and in the case of Las Armas, at a local scale. In this case, the low permeability in the perimeter of the neighborhood makes the project difficult to access and hinders a larger-scale effect (Fig. 15).

5. Concluding remarks. Toward responsible, quality urban planning

The abovementioned sections tackle the analysis of several urban projects exploring the relationships between public spaces and their conditions of safety, inclusiveness, and accessibility. Applying these three concepts to the public spaces of cities is not a new concept, as they have been repeatedly raised in modern and contemporary urban planning culture. Nonetheless, considering them as questions of utmost relevance is becoming increasingly important, both at a city scale and at the smaller scale of specific public space projects. The definition of SDGs is quite generic and does not allow us to establish direct relationships with specific urban forms. However, the concepts included in urban agendas are more explicit when referring to the quality of urban spaces, and they open opportunities for more precise considerations.

This research has focused on designs of public space in European cities. This emphasis acknowledges Europe's particular approach of understanding and experiencing the city because of its structure, morphology, history, and specificities, with its strengths and weaknesses (Carrera, 2015). Despite presenting regional differences with a wide variety of public spaces due to different climates, languages, customs, and histories, “public space is the intrinsic element that binds the European urban experience together. Public space is the universal feature of the European city” (Gray, 2015, pp. 18–21). The possibility of extending this methodology to different urban traditions,

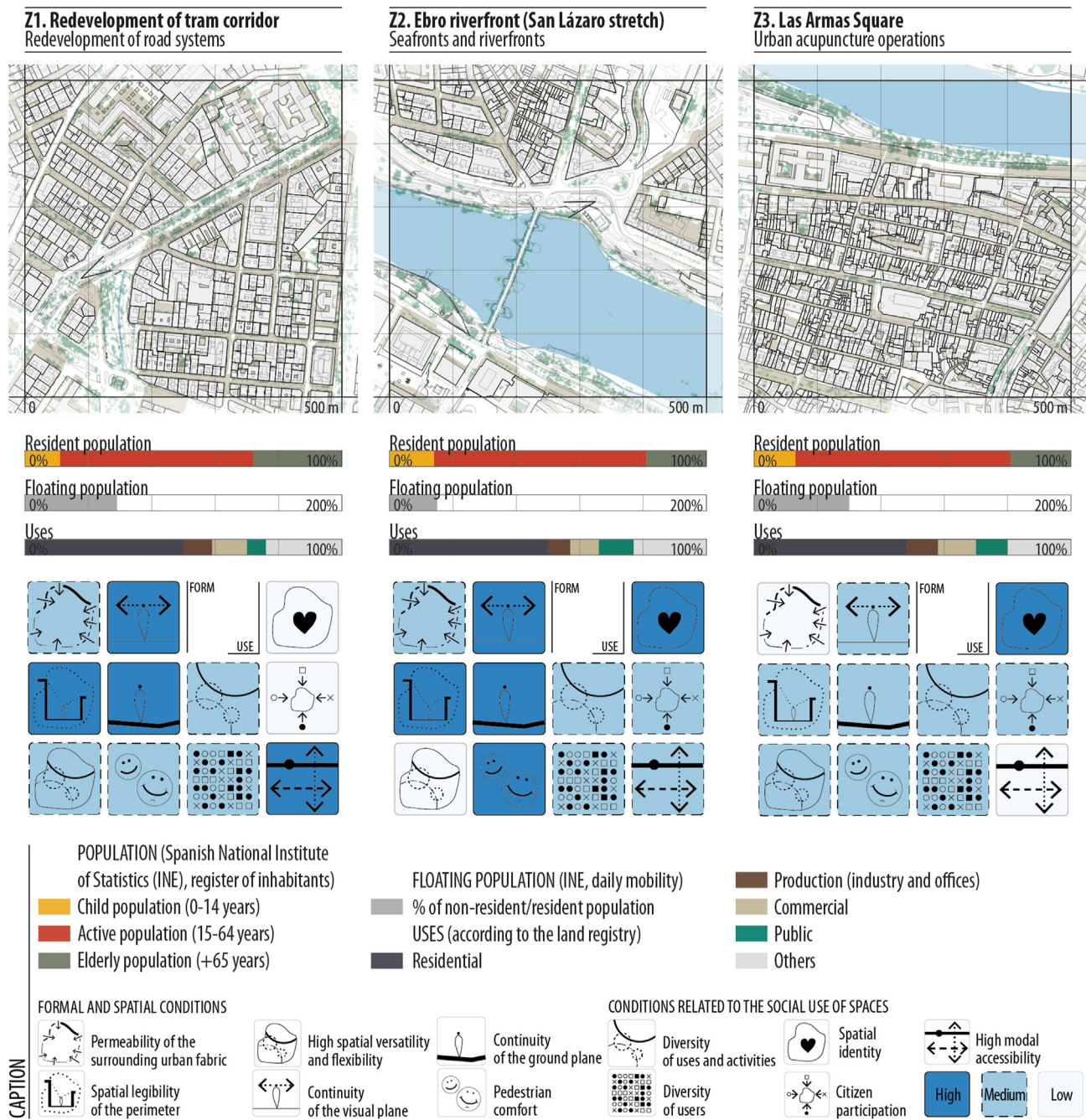


Fig. 15 Analysis and evaluation of the urban quality of three public space projects in Zaragoza. Source: Own elaboration.

for example, Latin American cities, implies revising the typologies and the criteria related to design strategies, adapting them to their specificities (Caldeira, 2015). Similarly, a project database similar to that of the EPUPS may be adopted to obtain significant results.

Our research has revealed that urban forms are generally well defined in projects for public space, but these aspects always concern inherited situations with significant initial determining factors (different preexisting urban conditions, such as infrastructural, morphological, socio-economic, and cultural aspects, among others). The results of the comparative approach applied in this study, which considers the processes used in the implementation of the

analyzed projects, have enabled an assessment by considering different variables throughout these processes. The conclusion is that the quality of these spaces depends not only on public space projects but also on other more general parameters. This situation has led us to identify six formal and spatial conditions and another five conditions of social use by inductive reasoning, allowing us to influence the achievement of the aforementioned SDGs.

This approach has enabled us to confirm that while form or spatial conditions are directly responsible for the success of the projects, other aspects, such as permeability with the surrounding fabric, are also essential. Our research has revealed that the main design strategies, which we have

grouped into four categories even if they differ in terms of project type—recovery of obsolete urban spaces, redevelopment of road systems and reversion to public spaces, seafronts and riverfronts, and urban acupuncture operations—have certain common elements: removal of barriers, search for new urban connections, and addition of new uses to public spaces, among others. We have also detected that the logics of each urban context, with its own obsolescence processes, require specific responses.

This work has shown that urban forms have a direct influence on the quality of public spaces by improving—or hindering—the conditions of safety, inclusiveness, and accessibility they offer. Obviously, a list of formal solutions to guarantee the achievement of these objectives is impossible to present as traditional manuals do, as it would be dangerous—and perhaps excessive—to venture value judgments that run the risk of ultimately being dogmatic. The objective of our research is rather to check to what extent in the analyzed projects certain conditions have been fulfilled to allow for learning and compiling good practices for public spaces. The comparative study has confirmed the initial hypothesis: different formal and social use conditions of public spaces are closely related to urban quality.

However, this research concludes that a good public space project is capable of correctly integrating those formal conditions that improve urban quality. Conditions that are related to some key concepts of urban design include continuity of the ground plane, continuity of the visual plane, spatial legibility of the perimeter, and pedestrian comfort, among others. Of course, these conditions are essential but not sufficient in themselves. Favorable public use conditions must be further created, including diversity of uses and activities, public participation, or high modal accessibility.

This kind of reflection and analysis shows that the improvement of the quality of public spaces requires urban planning paradigms to be rethought and revised, thus promoting responsible, quality urban planning. Therefore, responsible urban planning must consider the three stated objectives (safety, inclusiveness, and accessibility). In addition, quality urban planning must be committed to “good urban form” and promote the quality of public spaces. Both aspects must be integrated into all the stages of an intervention in a public space, something that does not always occur, being often left to the final stages. The analysis conducted in this research shows that inclusive views offer the best guarantees for urban quality.

Evaluating the quality of projects for public space is not the same as evaluating the quality of existing public spaces that are in use. However, projects must be qualitatively evaluated for decision making. As this research addresses relatively recent projects, the focus is on the nature of the urban strategies and the characteristics of the projects for public space from the perspective of their formal and spatial conditions. Therefore, the “key test” concerns their functioning and later use, which should also be monitored and evaluated. Since the use of public spaces is important, evaluating them without considering their evolution over time may prove dangerous. This exploration can be conducted through complementary deeper analyses that consider the urban processes that have occurred in the various spaces and the use that is made of them, which allows for a more comprehensive evaluation of projects in future interventions.

In any case, it is essential to highlight that the condition of “endless process” (not “incomplete”) means building public spaces as open systems, as R. Sennett states in his reflections on and proposals for an “open city” (Sennett, 2018; Sennett and Sendra, 2020). This situation can only be achieved by designing strategies and urban forms that, being a long way from the rigidity of static and mono-functional approaches, are based on a deep understanding of urban situations and trust in their ability to activate and enable interaction in truly democratic urban spaces.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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