Resilience Profile
BARCELONA

UN-HABITAT
FOR A BETTER URBAN FUTURE

Ajuntament de Barcelona

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BARCELONA

With the collaboration of

RESILIENT CITIES NETWORK

Contents

Acronyms and Abbreviations

A4R	Actions for Resilience
BRW	Barcelona Resilience Week
CREAL	Environmental Epidemiology Research Center
CRGP	City Resilience Global Programme
CPRT	City Resilience Profiling Tool
DRR	Disaster Risk Reduction
EEA	European Environment Agency
GDP	Gross Domestic Product
GIS	Geographic Information System
MCRC	Making Cities Resilient Campaign
NGO	Non-Governmental Organization
NUA	New Urban Agenda
100RC	100 Resilient Cities
OHB	Metropolitan Housing Observatory of Barcelona
PM	Particulate Matter
PRA	Preliminary Resilience Assessment
RAR-S	Recommendations of Actions for Resilience and Sustainability
RCN	Resilient Cities Network
RESCCUE	RESilience to cope with Climate Change in Urban arEas
SDG	Sustainable Development Goals
GMW	Guaranteed Minimum Wage
UCLG	United Cities and Local Governments
UN-Habitat	United Nations Human Settlements Programme
UNDRR	United Nations Office for Disaster Risk Reduction
VLR	Voluntary Local Review
WMO	World Meteorological Organization

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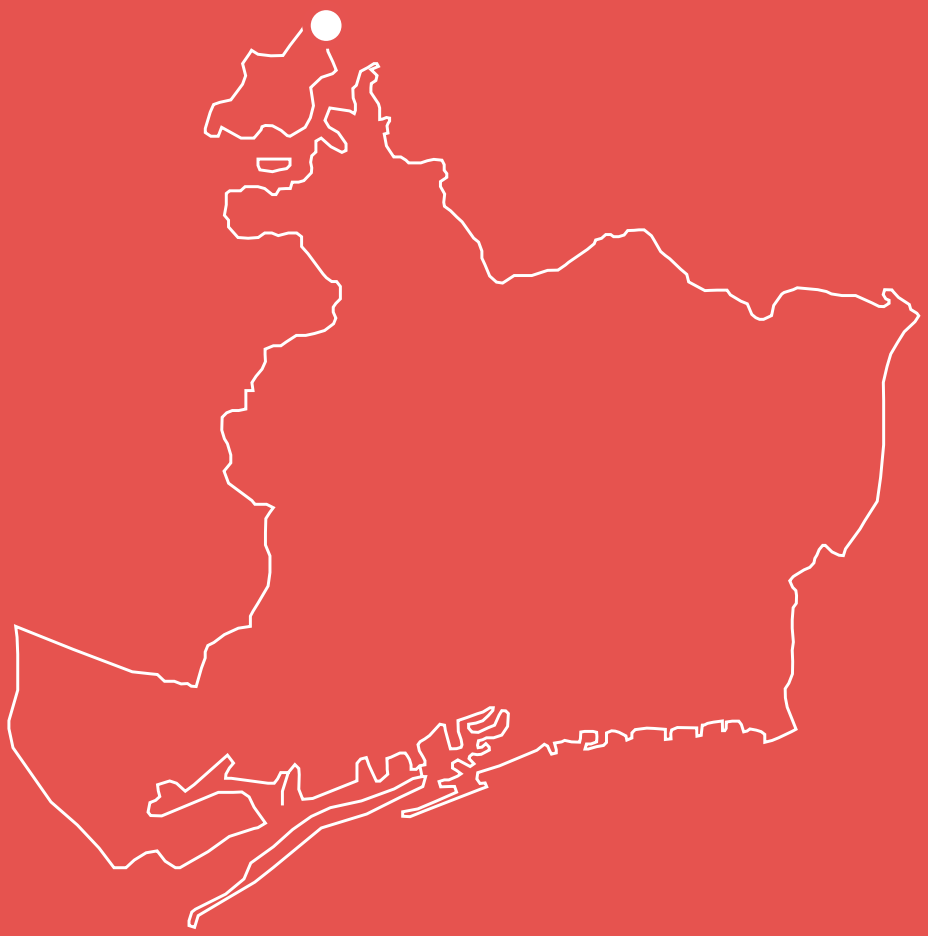
Executive Summary



Executive Summary

The municipality of Barcelona and UN-Habitat, through the City Resilience Global Programme (CRGP), have been working closely over the past years to promote and implement Actions for Resilience at both the local level in Barcelona and in other cities across the world.

UN-Habitat is grateful to Barcelona City Council for its commitment to being a pilot city for the City Resilience Profiling Tool. Barcelona not only played an essential role in the pioneering initiative to develop the complete CRPT methodology, but also contributed to the calibration of the tool by supporting other cities (i.e. Maputo, Mozambique, Dakar, Senegal) through peer-to-peer collaboration during the implementation process.

Barcelona has a solid track record in addressing urban resilience dating back to 2009. This rich history has had many milestones, from the stakeholder engagement working methodology launched in 2009 to promote risk reduction projects implementation and governance– evolving from the Municipal Infrastructure and Services Boards to the current Barcelona Municipal Resilience Committee-, to the establishment of a formal collaboration with UN-Habitat's City Resilience Global Programme (former City Resilience Profiling Programme), joining UNDRR's 'Making Cities Resilient Campaign' as a role model city in infrastructures and services in 2013, and joining 100 Resilient Cities (now relaunched as the Resilience City Network, RCN) in 2015. The approval of an Urban Resilience Government Measure in the city and the launching of the Climate Plan have also been important milestones in the Barcelona Resilience Journey.

The Barcelona Resilience Framework, working hand in hand with the CRPT implementation process in the city - sequenced in two stages (first CRPT inception and second CRPT Lite) - have identified several Priority Matters in the evaluation of the resilience profile. Urban system risks, challenges, and opportunities converge on these Priority Matters, where the maximum impact of resilience actions can be achieved. The primary outcomes of this in-depth profiling exercise are the three Priority Matters detailed, which stand to be further diagnosed and synthesized:

Right to Adequate Housing and Access to Basic Services (considering both Access and Coverage)

The city is analyzed as an urban system in which the services provided are interlinked and influence each other. Adequate housing and related basic services are crucial for the city, and well-designed affordable and accessible housing schemes protect people from poverty and exclusion. Housing needs to be built and/or renovated following quality criteria aligned with the new thresholds proposed for modern cities to guarantee urban inclusiveness and equity. The city's urban fabric connects buildings with public and green spaces, networks and infrastructure and should allow citizens to enjoy high levels of urban comfort to foster positive social relations, economic dimensions, health and well-being.

Public Spaces (Accessibility, Health, Uses and Social Cohesion)

Public spaces play a central role in achieving resilience-based sustainable development. Their social and political dimension encompasses the need for proximity, accessibility, and versatility, integrating the human scale and open opportunities for conflict resolution, cohabitation, and governance. In terms of economics, public spaces and green distribution are balancers for integrated and circular schemes, and responsible consumption. In terms of mobility, such spaces support visions of a post-car city shift, with proactive mobility and public transport network systems.
Public spaces are interdependent of the urban housing and built environment, focusing on people in vulnerable situations, potential social exclusion, and health. People aged 65 and over in Barcelona deserve tailored public spaces, housing and care assessments.

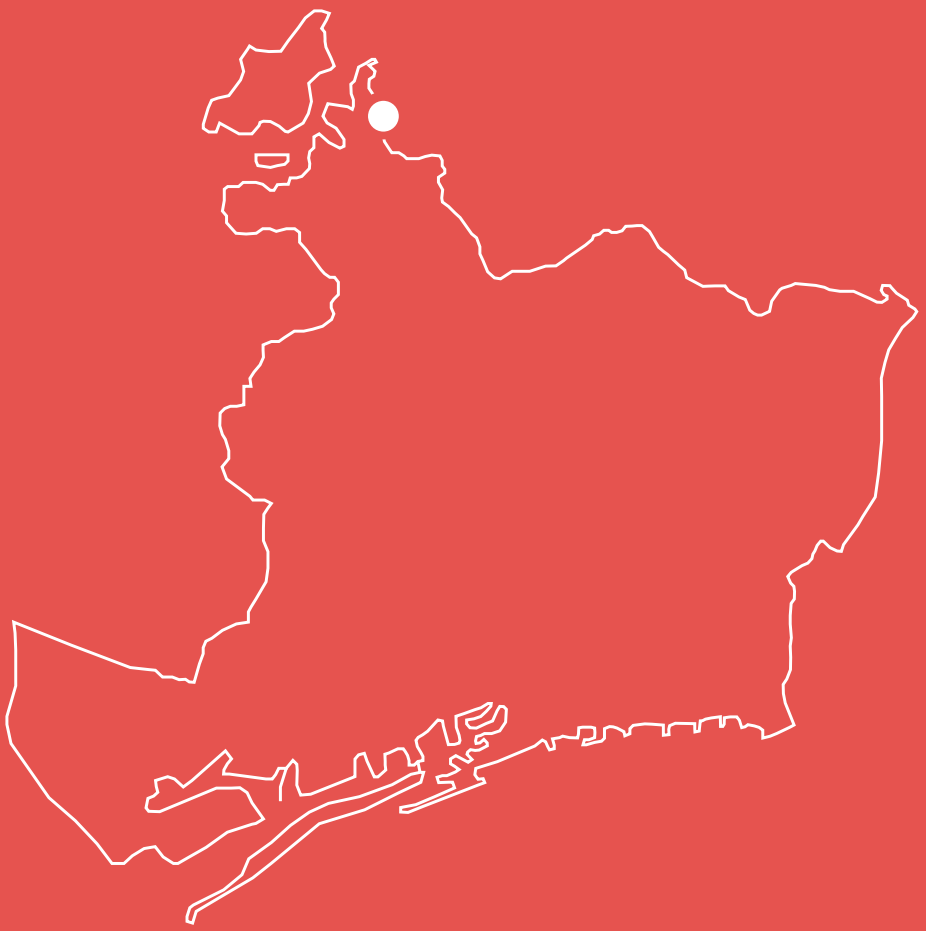
Ageing Population and Demographic Shift

Older urban residents experience economic vulnerability, poverty, and lack of social inclusion. Their opportunities for civic participation, and access to communication and information, and their options for employment are derived, specifically in the case of people in vulnerable situations, from the options offered by mobility, housing, and urban public spaces. Their health and community support are underpinned by public space networks and housing adequacy.
Recommendations of Actions for Resilience and Sustainability (RAR-S) based on the outcomes of the assessment

have not been released but some key outputs can be singled out, namely: the Barcelona Resilience Atlas; the Barcelona Resilience Department methodology and the Impact analysis of critical events; the interlinkages between the resilience profile and the Localization of Sustainable Development Goals in the Barcelona SDGs strategy for VLR; and the Barcelona Municipal Resilience Committee.

The transformative work pioneered in the city of Barcelona, is essential to promoting a shift from a reactive urban culture to a proactive one. The resilience process in the city has resulted in calibration and progressive adjustments of the CRGP methodology and the Tool to make them more efficient and effective to apply. It has also provided findings, discoveries, and recommendations to the city of Barcelona that are of global interest. The Barcelona Resilience Profile and the city's SDG voluntary local review (VLRs) are now interconnected, underpinning the resilience diagnostic-planning process while allowing resilience policies and the impact of actions to be measured through local indicators and data. The insightful experience of Barcelona is shared within this report, and it should pave the way for other cities to explore and lead their own urban resilience journey.

Introduction



Introduction

The municipality of Barcelona and UN-Habitat, through the City Resilience Global Programme (CRGP), have been working closely over the past years to promote and implement Actions for Resilience at both the local level in Barcelona and in other cities across the world.

In 2013, Barcelona and UN-Habitat joined efforts to develop the City Resilience Profiling Tool (CRPT), a universal framework that utilises verifiable and contextualised data on cities to establish their resilience profile and formulate an analysis and diagnosis of their most pressing challenges. The profile and diagnosis provide a base for the creation of Recommendations of Actions for Resilience and Sustainability (RAR-S) that can then be incorporated into urban development strategies and existing management processes.

The first stages of the collaboration were crucial for both parties. For Barcelona City Council, the collaboration contributed to the development of the city's resilience methodology and conceptual framework, which were endorsed by UN-Habitat's international standards. For UN-Habitat, the city provided an ideal ground to create and test the first versions of the tool, which resulted in the initial urban elements and indicators of the CRPT.

The early work, carried out between 2013-2017, set the stage and enabled for a second phase of collaboration that has been more oriented to developing Barcelona's Resilience Profile, enhancing cooperation, and capturing and exporting lessons learned for other partner cities, including the city's model and working methodology.

UN-Habitat is grateful to Barcelona City Council for its commitment to being a pilot city for the City Resilience Profiling Tool. Barcelona not only played an essential role in this pioneering initiative to develop the complete CRPT methodology, but also contributed to the calibration of the tool by supporting other cities (i.e., Maputo, Mozambique, Dakar, Senegal) through peer-to-peer collaboration during the implementation process.

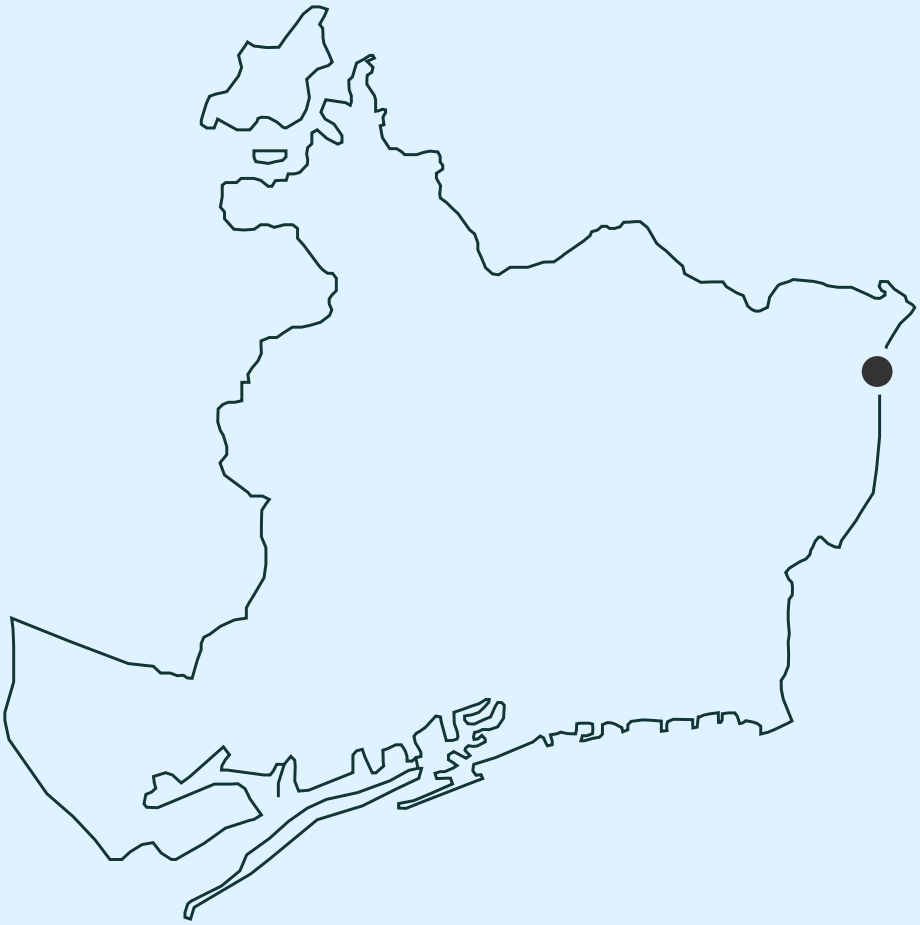
Furthermore, this latter period ran parallel to the development of the city's own resilience strategy, more specifically its diagnosis. The strategy development influenced the approach and use of the CRPT, with the results from Barcelona being integrated into and shaping the risks and vulnerabilities assessment. In this joint effort to update Barcelona's resilience roadmap and working methodology, it is also worth mentioning the contribution of the Resilient Cities Network (former 100 Resilient Cities), of which Barcelona has been a member since 2015. Both programs have supported the city complementarily to achieve the outputs outlined in this document as part of a co-production process.

> Urban resilience is the measurable ability of any urban system with its inhabitants to maintain continuity through all shocks and stresses while positively adapting and transforming toward sustainability.
>
> A resilient city assesses plans and acts to prepare for and respond to hazards – natural and human-made sudden and slow-onset expected and unexpected – in order to protect and enhance people's lives secure development gains foster an investable environment and drive positive change.
>
> UN-Habitat

This document compiles the resilience diagnosis work carried out by Barcelona City Council and its main partners, notably UN-Habitat's City Resilience Global Programme (CRGP) and the Resilient Cities Network (RCN) - between September 2018 and January 2020.

Chapter 1

The Barcelona Resilience Journey



Chapter 1:
The Barcelona Resilience Journey

Barcelona has a solid track record in addressing urban resilience dating back to 2009. The city began to spearhead the urban resilience approach through risk reduction projects in its infrastructure and services with the aim of reducing the vulnerabilities revealed by a series of critical episodes between 2006 and 2008: extreme drought, interruptions in railway services, electric blackout, among the most significant. Pre-2009, plans and projects to reduce risks were mostly addressed by sector without an interdependent methodology or a cross-cutting approach, often with limited – or challenging – coordination among internal and external partners.

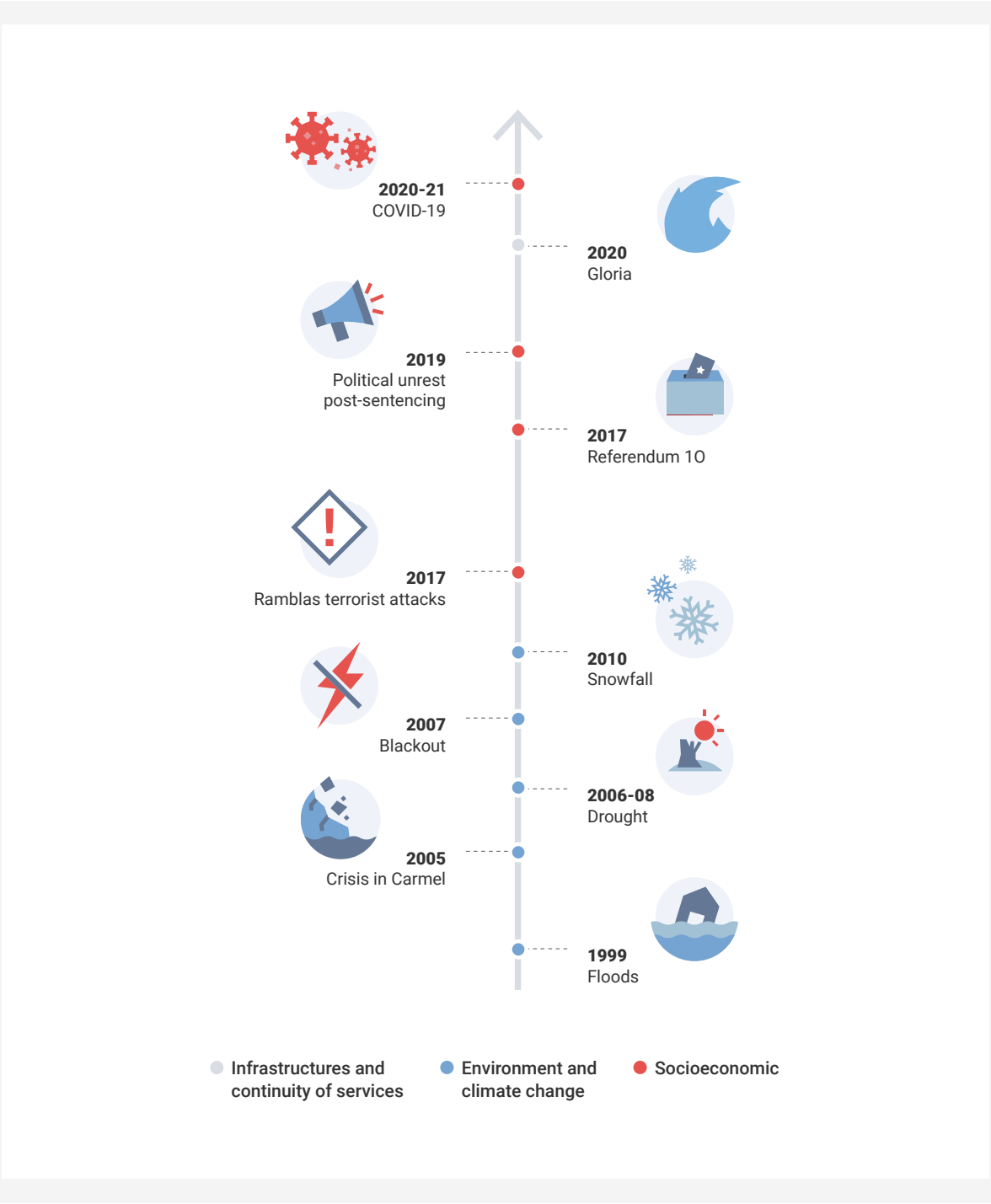


Figure 1: Barcelona Risks timeline.Source: Barcelona Resilience Department (2021).

In 2009, Barcelona launched the Municipal Infrastructure and Services Boards to promote stakeholder engagement and facilitate coordination with all actors that engaged in infrastructure and service transformation and management processes. The need to build this task force arose from the recognition that municipal competences were limited, and collaboration with the private sector and other levels of administration was essential to reduce vulnerabilities, and guarantee and improve the performance standards of the city in terms of functional continuity and quality.

2013 was a turning point to escalate the scope and dimension of the municipal programme on Urban Resilience through the establishment of a formal collaboration with UN-Habitat's City Resilience Global Programme (former City Resilience Profiling Programme) and the hosting of its office in Barcelona. This is also the year Barcelona joined UNDRR's 'Making Cities Resilient Campaign'[1] as a role model city in infrastructures and services.

Since then, building on the concept of urban resilience, and influenced by the conceptual frameworks provided by the United Nations, the work started by the Municipal Infrastructure and Services Boards evolved into a broader programme aimed at covering a wider spectrum of vulnerabilities. The new scope of work considered not only infrastructure vulnerability, but also climate-related hazards, the socioeconomic dimension of risks and also how they interplay in the city. At this point, the Municipal Infrastructure and Services Resilience Boards were renamed Resilience Boards. This shift took place in parallel to the development of various resilience tools and a broader evolution of the resilience building model in Barcelona. These changes were subsequently consolidated with the creation of the Resilience Department in early 2014.

Another important milestone that reinforced Barcelona's resilience model was joining 100 Resilient Cities (now relaunched as the Resilience City Network, RCN) in 2015. Adding to the work initiated by UN-Habitat, RCN has also been a key promoter of local resilience agendas across the globe. For Barcelona City Council, the opportunity to work closely with both programmes and benefit from the networking possibilities they offer, has significantly contributed to shaping the city's resilience roadmap and achievements.

Also worth highlighting in this journey was the approval of an Urban Resilience Government Measure[2] in 2016, with the consensus of all municipal political parties. This document incorporated the principles of Barcelona's resilience model and the main work streams to be implemented.

Two years later, in 2018, the city launched its Climate Plan[3], a road map to deal with climate change and achieve the objectives of the Covenant of Mayors for Energy and Climate, an initiative undersigned by Barcelona City Council that seeks to address both mitigation and adaptation. The Climate Plan pursues a comprehensive transformation of the city by embedding resilience building and outlining short-, medium- (2025), and long-term (2030) actions that will make the city less vulnerable to climate change impacts, while also guaranteeing the rights of the most vulnerable people and promoting citizen action and engagement.

In parallel to the Climate Plan, a process to complete a holistic resilience strategy for the city was also initiated, with a focus on the social and economic vulnerabilities. This process has been developed in close collaboration with UN-Habitat's City Resilience Global Programme and the Resilient Cities Network, most notably through the use of various tools offered by both programmes.

The main outputs of this diagnose process constitute the core of the current document and are explained in detail in Chapter 4. Priority Matters: Synthesis and Diagnosis, whilst the contribution and interlinkages with UN-Habitat's City Profiling Tool are described in Chapter 3. The CRPT process in Barcelona. Lastly, since 2021 and as a reaction to the growing demand to address impacts and stresses that have become critical over the previous few years – and in the wake of the vulnerability situations exacerbated by Covid-19 – the Resilience Boards have been reformulated into the Resilience Municipal Committee. This latest evolution of the model responds to the need to position the municipal task

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[1] www.mcr2030.undrr.org

[2] Barcelona City Council (2016). Mesura de govern: Resiliència Urbana - Comissió Ecologia, Urbanisme i Mobilitat -.

[3] Barcelona City Council (2018). Climate Plan 2018-2030 - Tinència d'Alcaldia d'Ecologia, Urbanisme i Mobilitat, Àrea d'Ecologia, Urbanisme i Mobilitat, Gerència d'Ecologia Urbana.

force at the highest executive level in order to foster analysis and learning from the critical events the city is facing – or those foreseen in the future. The Committee allows for improvement projects from across different sectors to be identified and prioritised, and complements the city's immediate emergency response instruments by creating an analogue space to advance a proactive resilience and risk management approach.

The long-lasting collaboration between UN-Habitat's City Resilience Global Programme and the City of Barcelona, endorsed under the current agreement until 2024, provides an excellent framework to continue pioneering resilience building with reach and impact at both the city and global scale.

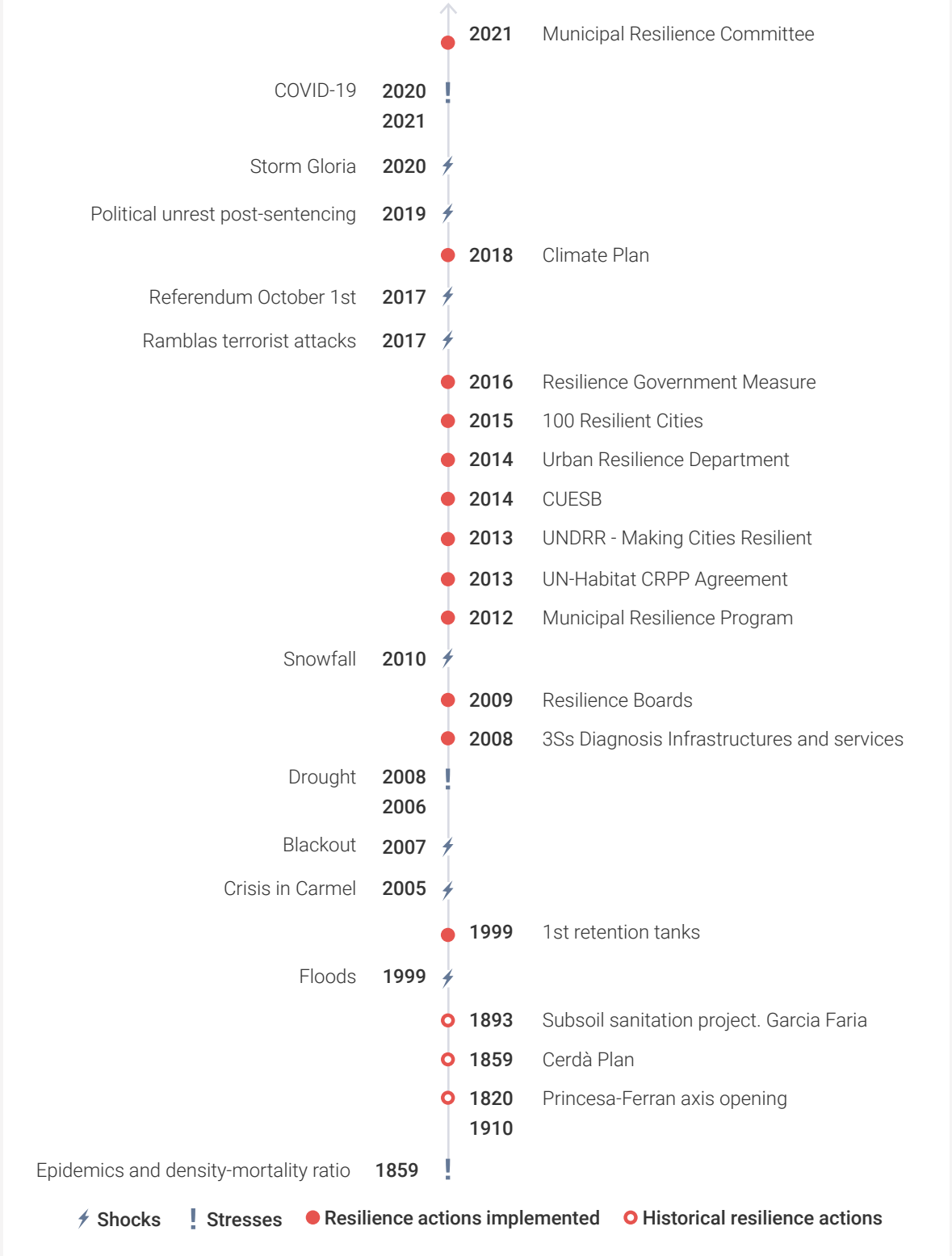
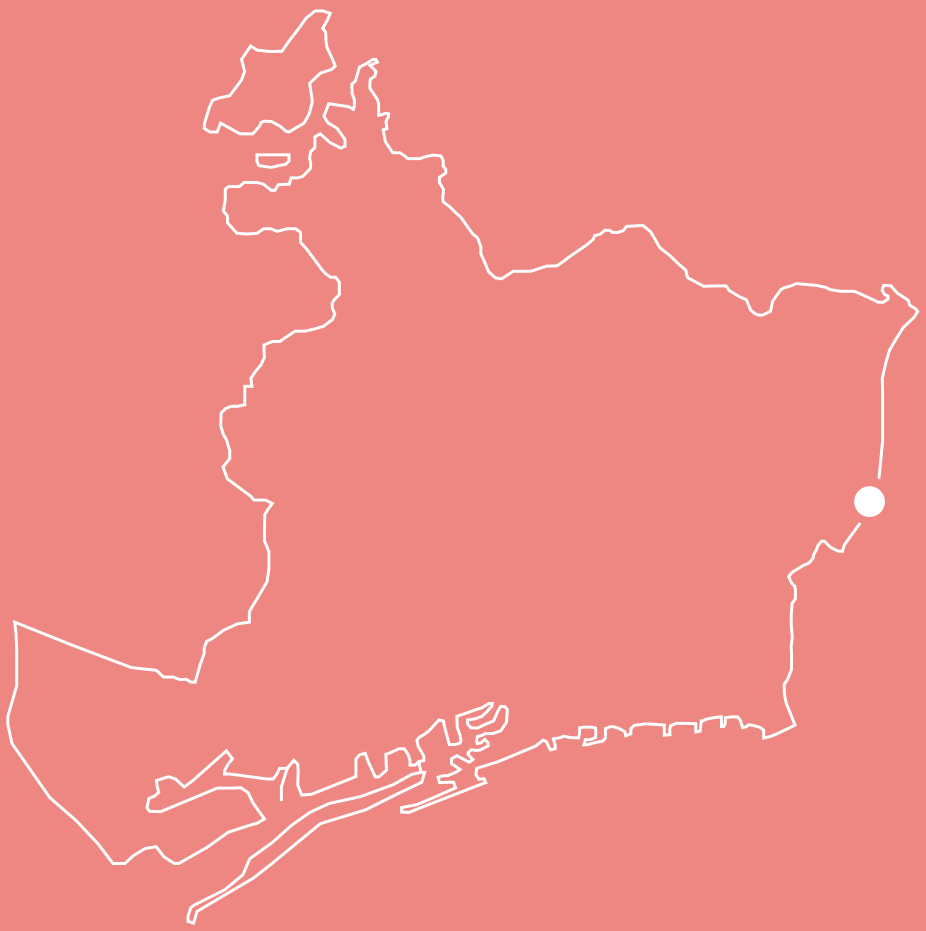


Figure 2: Barcelona Resilience timeline. Source: Barcelona Resilience Department (2021).

Chapter 2
The Barcelona Resilience Framework



Chapter 2
The Barcelona Resilience Framework

As illustrated in the previous section, the Barcelona City Council has a long track record in the institutionalization of resilience-thinking and programming across different policy areas.

Urban resilience is defined by the City Council as the capacity of its urban systems and services to prevent or – in the case it is inevitable – minimise critical events' impact, both rapid and slow onset, whether they be provoked by natural, technological or social causes. Not only do these three thematic areas of risk reflect different stages of maturation in the city's resilience journey, they also provide a framework for hazardous events to be classified and diagnosed based on their origin, as well as on whether they feature as current hazards whose impact has to be evaluated ex-post or as protracted stresses to be diagnosed over time and anticipated proactively.

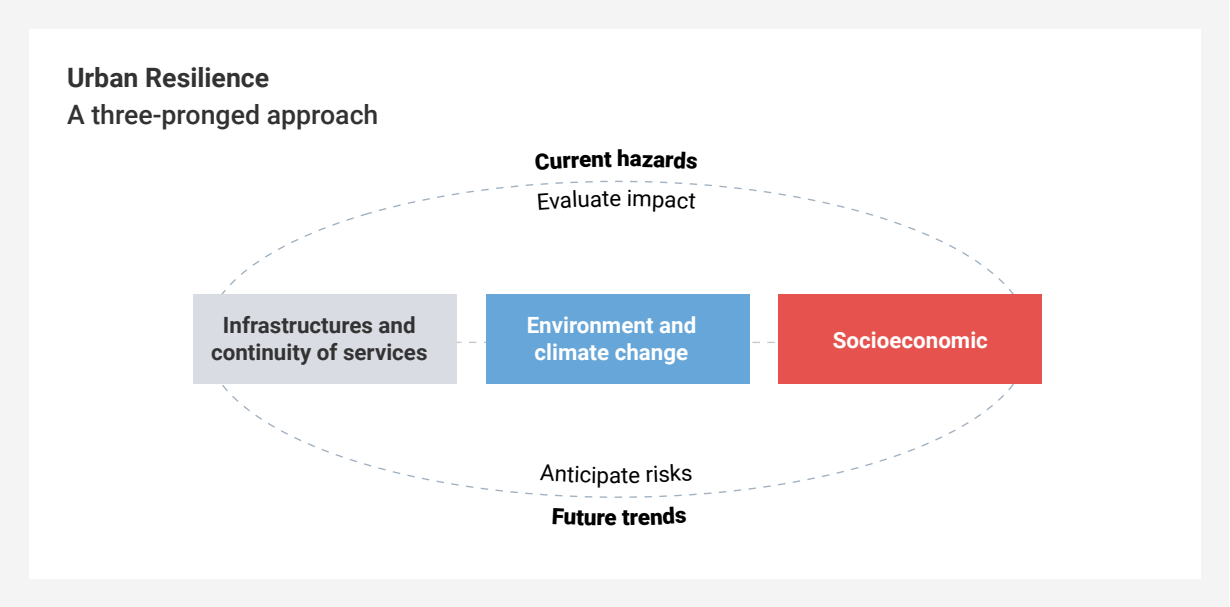


Figure 3: Barcelona City Council's three-pronged approach to urban resilience. Source: Barcelona Resilience Department (2021).

While the resilience institutionalization in Barcelona City Council was initiated with a sectorial approach and a prominent focus on different urban infrastructure systems' security, efficiency and continuity of services (Municipal Governance Measure, Barcelona City Council, 2016)[4], the Resilience Department has been progressively broadening the scope of its transversal work, encompassing additional aspects of public services, notably environmental and climate action (Pla Clima, Ajuntament de Barcelona, 2018)[5], and social determinants of health and wellbeing.

By defining the city as a service provider, in which the quality, adequacy and efficiency of service delivery standards depend on the provider's capacity to attend population demand (City Resilience Profiling Tool Guide, UN-Habitat,

[4] Barcelona City Council (2016). Mesura de govern: Resiliència Urbana - Comissió Ecologia, Urbanisme i Mobilitat -.

[5] Barcelona City Council (2018). Climate Plan 2018-2030 - Tinència d'Alcaldia d'Ecologia, Urbanisme i Mobilitat, Àrea d'Ecologia, Urbanisme i Mobilitat, Gerència d'Ecologia Urbana.

2018)[6], the impact of hazardous events can be presented as the incongruence between supply and demand of a given service. The magnitude of the incongruence reveals the city's failure to cushion the impacts of hazards and will therefore vary considerably depending on the intensity of the hazard and the delivery mechanisms specific to each service. The following infographic illustrates different impact scenarios based on the range and scale of incongruences between supply and demand.

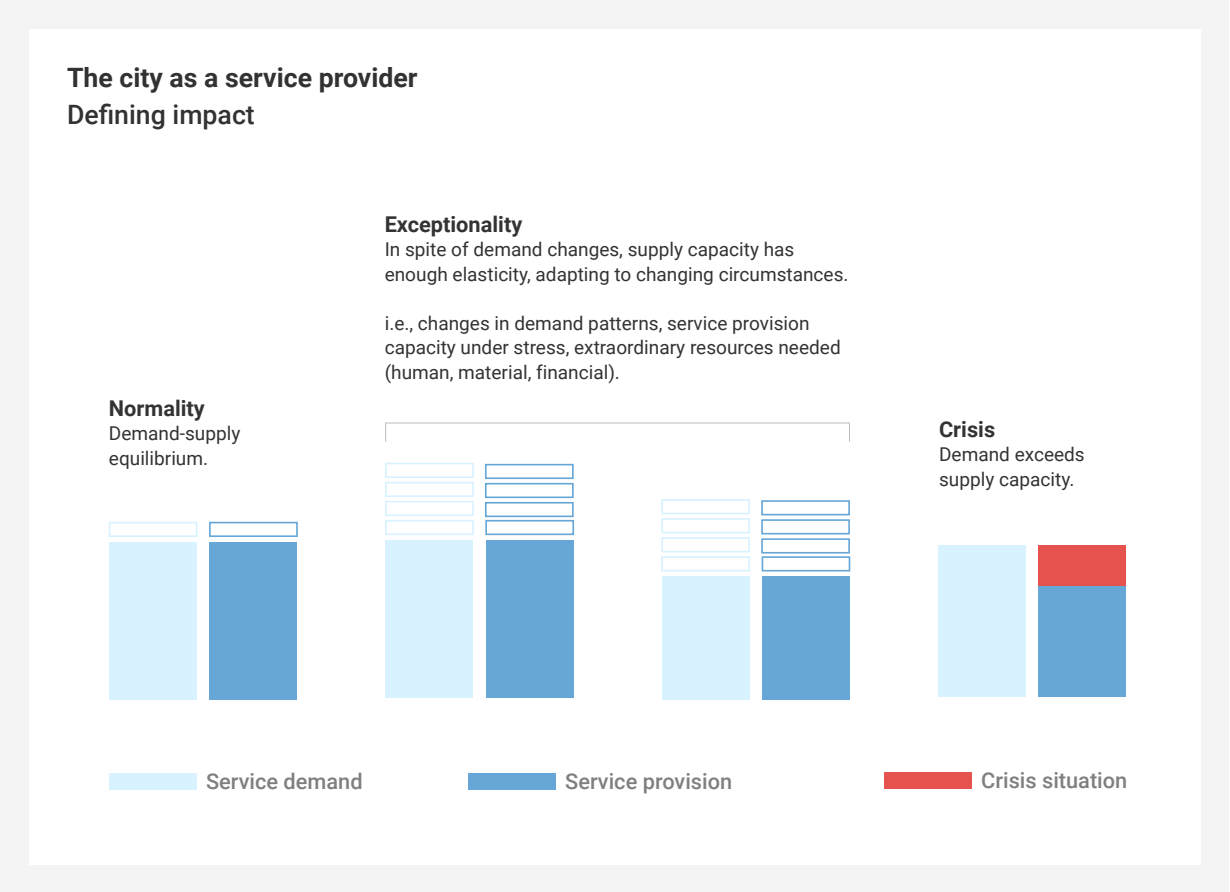


Figure 4: Barcelona City Council. The city as a service provider – defining impact. Source: Barcelona Resilience Department (2021).

It should be acknowledged that concepts of supply and demand, as well as of continuity of functions, risk and vulnerability, have different meanings and ramifications depending on the type of service analysed. For instance, when analysing a given hazard's impact on urban infrastructure resilience, the criteria prioritized are the physical and spatial coverage of infrastructure networks, and potential accessibility barriers, i.e. affordability (Infrastructure Improvement Enhancer, UN-Habitat, 2018)[7]. When assessing resilience to environmental and climate-related risk, the focus of analysis shifts more towards potential impacts of climate-related events on different urban systems and services, as well as gathering evidence on demographic groups that are more vulnerable to specific climate and environmental hazards (Climate Action Enhancer, UN-Habitat, 2018)[8]. Finally, when addressing social resilience challenges, the analysis focuses on both the city's capacity to provide basic social services to its population as a whole – taking into account the socio-economic conditions of different demographics – and on mapping social risks determined by objective and subjective vulnerability: age, gender, origin and disability, among others (Social Resilience Guide, UN-Habitat, 2018)[9].

Against this backdrop, the Resilience Department works on these three workstreams: 1) infrastructure and continuity of services, 2) environmental and climate action, 3) socio-economic. Each workstream considers a) impact analysis of sudden and rapid onset shocks and b) diagnosis of protracted and slow onset stresses affecting the city's systems and services in the medium-to-long run.

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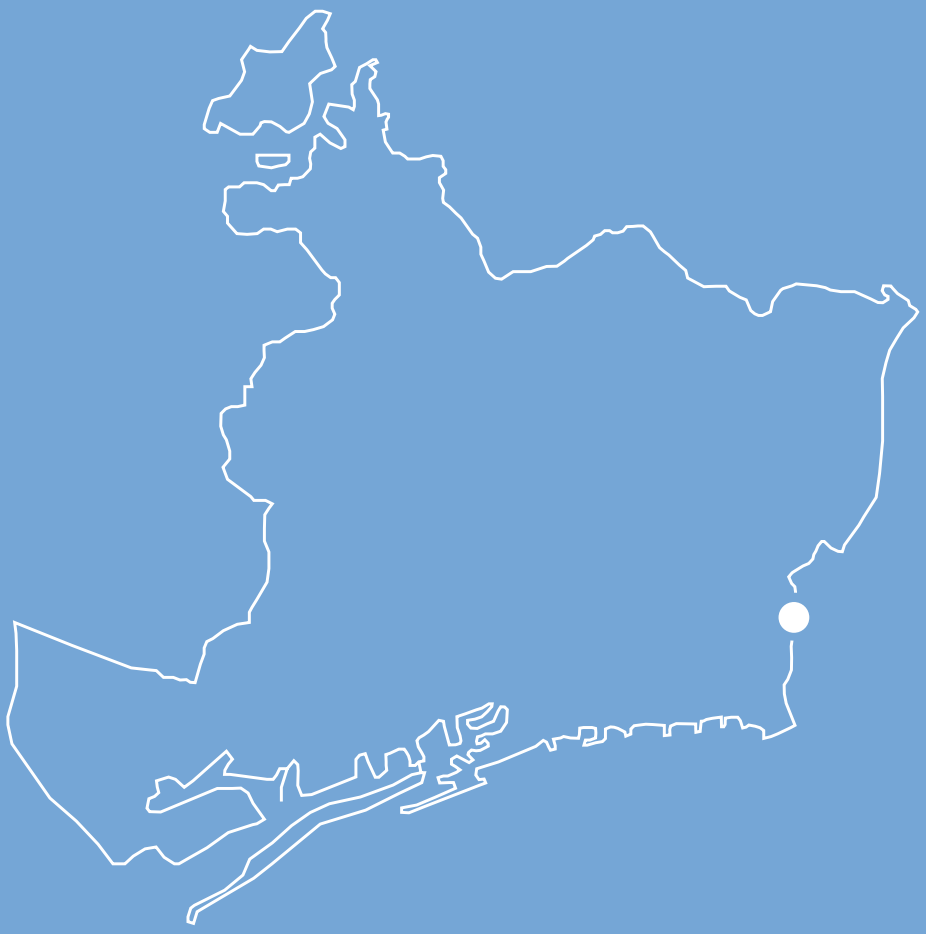
[6] UN-Habitat / CRGP (2018). City Resilience Profiling Guide.

[7] UN-Habitat / CRGP (2018). Infrastructure Improvement Enhancer.

[8] UN-Habitat / CRGP (2018). Climate Action Enhancer.

[9] UN-Habitat / CRGP (2018). Social Resilience Guide.

Chapter 3
The CRPT process in Barcelona



Chapter 3
The CRPT process in Barcelona

First phase (2013-2017)

Since 2012/2013, Barcelona has been a pioneer of the holistic resilience model, which is not widely applied in other cities. The approach was based on the practical and operational experiences of the Resilience Boards to reduce risk and address long-term vulnerabilities (at that time still mostly focused on Infrastructures and Urban Services) and shift towards a more comprehensive risk approach.

The first phase of the piloting and calibration iterative process for the initial version of the City Resilience Profiling Tool (V1.0) began in 2016 while generating the Barcelona Resilience Preliminary Profile. The methodology was designed to obtain quantitative results by evaluating each of the indicators related to elements defined in the Urban System. The methodology provided aggregated results and used simple averages to provide a picture of the city's resilience using the CRP Tool's indicators.

The CRPT V1.0 assessment involved the compilation of data on almost 400 indicators related to the urban system model, designed to cover the following main aspects of each component: Population access and coverage, Local government jurisdiction, Continuity of functions, and Development and contingency plans existence and status. Furthermore, a list of stakeholders involved in management and service operations in the city (almost 100 in the case of Barcelona) was built.

The main challenge of the process was the management of the information gathered to build the profile (multiple sources, different scales, different times, reliability, specificity, needs of GIS systems, availability, among others). An exploratory mapping exercise was carried out using GIS, co-directed by UN-Habitat and the Resilience Department.
Finally, data on 83% of the tool's indicators were collected, with the following distribution of data source types: Official Documents (60,63%), Public Knowledge (35,19%), and Media sources (4,18%).

From this first data collection process, a number of preliminary conclusions on the positive added value for the city were derived:

- City managers' capacity and knowledge of procedures, operations, and service maintenance (data discovery, data quality, and data analysis) increased.
- Communication between city managers and stakeholders, as well as collaboration and coordination between city departments, were enhanced.
- Opportunities to support city projects and improve the knowledge base for the management of city services was raised.

Even though Recommendations of Actions for Resilience and Sustainability were not proposed in this phase, the CRPT process triggered some impact in the city management. The most critical was the genesis of the Resilience Atlas, an initiative that seeks to reveal the potential and need for a space to share and explain territorialized studies of risk results and make them accessible to internal and external agents. Several studies have already been published on the Atlas including some Climate Plan vulnerability studies, the diagnosis of the Resilience Strategy, and the results of the RESCCUE project (RESilience to cope with Climate Change in Urban arEas).

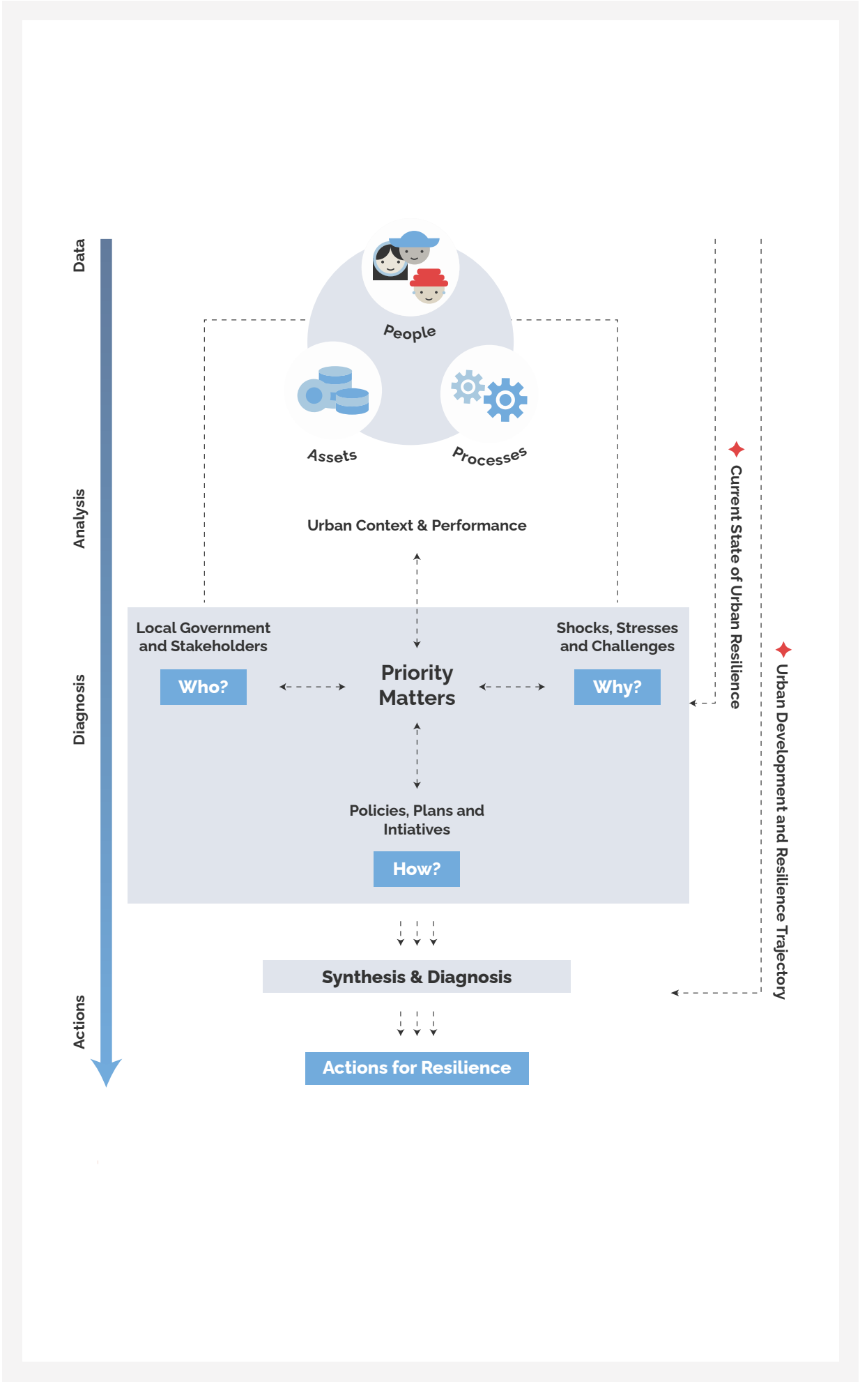


Figure 5: CRPT methodology. Source: CRGP (2018).

Second phase (2017-2020)

In 2017, supported by UN-Habitat City Resilience Global Programme and the Resilient Cities Network, Barcelona initiated the development of its City Resilience Strategy. The second resilience profile of the city was co-developed by these three institutions from 2018 onwards with the Preliminary Resilience Assessment (PRA)[10], as a starting point.

Going beyond the analysed infrastructure and climate-related shocks and stresses identified in prior urban risk and vulnerability studies, the second profile focused on the socio-economic challenges – intensified since 2007 – in line with a strong commitment of the local authorities to address social vulnerability. Specifically, the Barcelona Resilience Department identified four main areas of concern for the city: Housing Affordability, Accessibility to Basic Services, Risk of Poverty and Economic Exclusion and Gender Equality.

The second profile followed a modular approach by collecting data and developing transversal lines of analysis specific to the main areas of concern. For each topic, the urban-system model of the CRPT was used but selecting only the urban elements and indicators closest to the issue of focus – following interlinkages and cascading effects – and leaving aside the rest of the data and indicators. The purpose was to avoid a new iteration of the full data collection process and instead integrate the extensive work previously developed with different stakeholders. This streamlining of the data collection and analysis process shifted the methodology from deductive to inductive, gaining greater efficiency and effectiveness and enabling the team to disaggregate and localize data. The derived profile compares, re-organizes, and diagnoses locally-available data related specifically to the areas of concern. This new logic for a lighter and more concise implementation methodology is known as CRPT Light. Through this approach, the process becomes more versatile, time- and resource-efficient, as well as better integrated into the long-term development of a Resilience Profile and Strategy of the city.

Along with the modular data collection, an exhaustive mapping of current and planned actions was carried out to complete the analysis. Specific resilience issues in Policies, Plans and Initiatives (PPIs) within the local legal framework were mapped, an exercise spearheaded by RCN. The appraisal took into consideration the local governance structure and stakeholder competences and processes to evaluate the current trends in resilience action development and implementation.

In applying this new approach, several domains of opportunity for building resilience were identified for the city, namely: Stages of Life, Living conditions, Public spaces, Social and Economic Prosperity, and a City of Refugees and Immigration. After analysing the associated barriers for these domains of opportunity, as well as tactically recognizing how these could be harnessed to reinforce Barcelona's resilience, the Barcelona Resilience Team decided on Priority Matters to be further diagnosed and synthesized in the evaluation of the resilience profile. Urban system risks, challenges, and opportunities converge on these Priority Matters, where the maximum impact of resilience actions could be achieved. The first three Priority Matters to be analysed are: 1. Right to Adequate Housing and Access to Basic Services (considering both access and coverage), 2. Public Spaces (Accessibility, Health, Uses and Social Cohesion) and 3. Ageing Population and Demographic Shift.

Following this process helped allocate the right resources to the analysis of the primary needs of the city to improve its resilience. The main outcomes of this in-depth profiling exercise are explained in more detail in Chapter 4.

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[10] Departament de Resiliència Urbana Gerència d'Ecologia Urbana, 100 Resilient Cities (Associació) (2018). Resilience Preliminary Assessment (PRA).

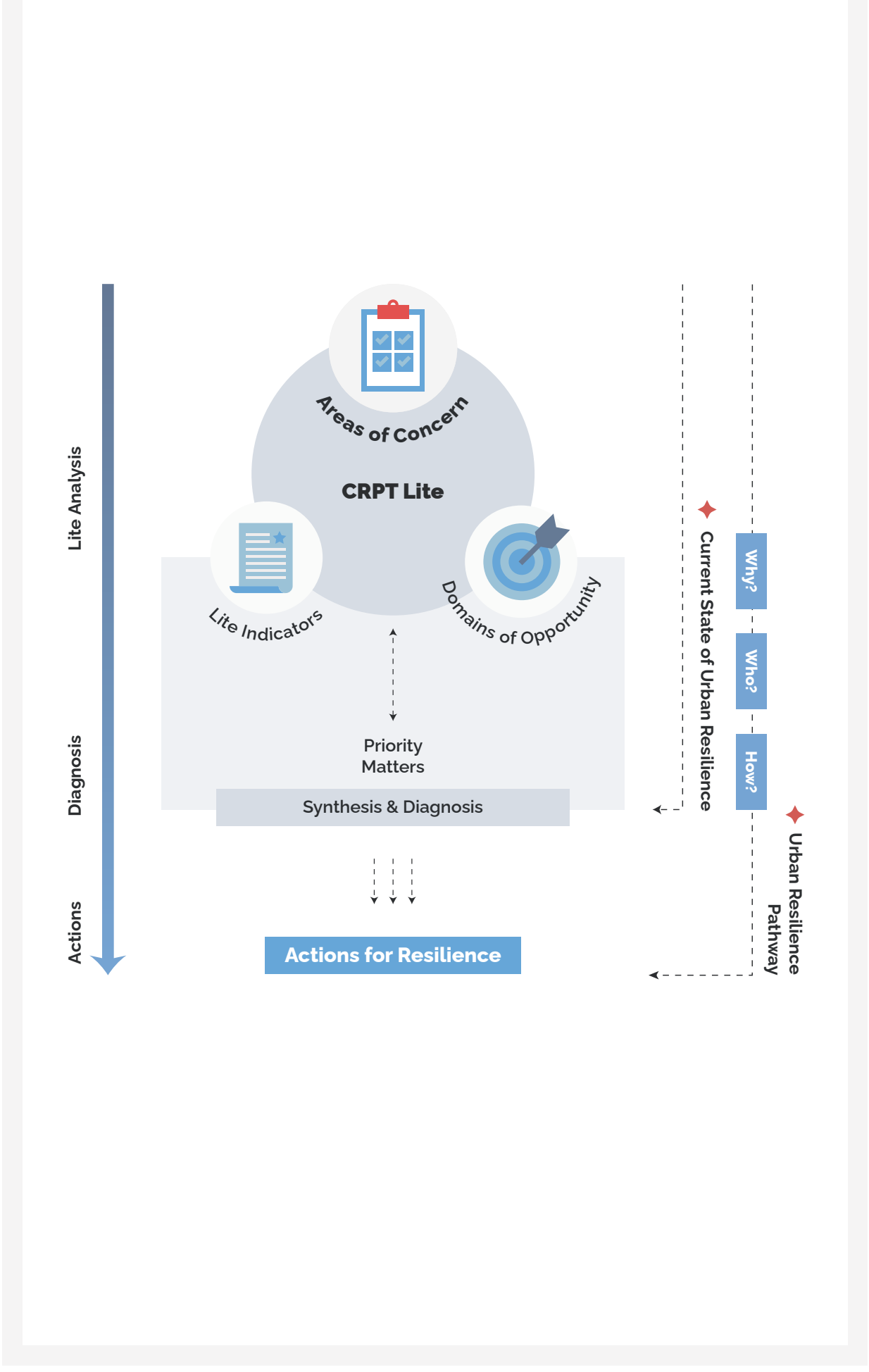

Figure 6: CRPT Lite in Barcelona. Source: CRGP (2021).

Chapter 4

Priority Matters: Synthesis and Diagnosis

Chapter 4
Priority Matters: Synthesis and Diagnosis

As detailed in the preceding chapter, the conclusions of the diagnosis presented in the following sections are the result of a co-production process that began in 2018 with the Preliminary Resilience Assessment (PRA).

The working methodology was initially guided by UN-Habitat's resilience standards and conceptual framework, as well as those provided by the Resilient Cities Network (RCN) and has leaned on the tools and resources provided by both organizations. However, and acknowledging the high value of both programmes' contributions, it is worth mentioning that these results are a product of efforts over 2 years and benefited from an organic approach to the use of the frameworks and tools, and a natural growth of knowledge over the period.

Over this 2-year time frame, the resilience profile has been influenced by other elements and processes developed as part of the resilience strategy – workshops, meetings with stakeholders, municipal programs and policies review, etc. – which have run in parallel to its development and have contributed to shape the final outputs.

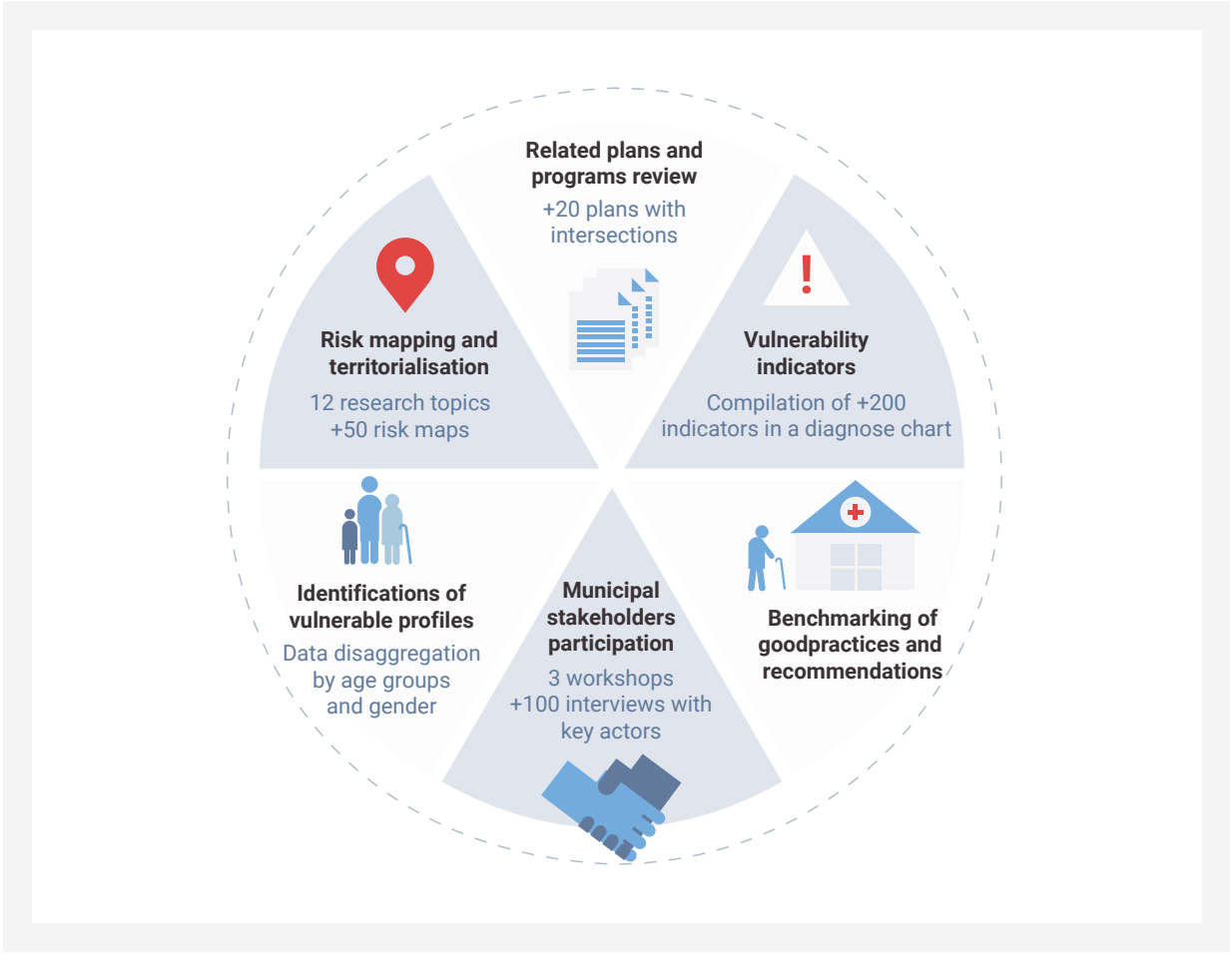

Figure 7: Resilience Strategy diagnoses working methodology. Source: Barcelona Resilience Department (2021).

4.1. Right to Adequate Housing and Access to Basic Services

Adequate housing as a human right

The Right to adequate housing was established as a human right by the United Nations.[11] It is guaranteed by the International Covenant on Economic, Social and Cultural Rights (Spain is a signatory). It informs the Catalan Right to Housing Law 18/2007 and the 2016 Municipal Right to Housing Plan. From an international standpoint, the city of Barcelona signed the Municipal Declaration of Local Governments for the Right to Housing and the Right to the City[12] in New York in 2018. Within this Declaration, the city is understood as an urban system that provides different services, not only those linked to basic infrastructures, but also those fundamental to guarantee the fulfilment of Human Rights[13] for all people, as well as the humanitarian principles of Social Protection.

The housing sector in Spain has historically been conceived more as an investment than a human right and is hereby characterised by a lack of a common legal framework across levels of governance and a long-term policy vision.

Competencies in housing matters come mainly from the central and regional governments. The State's lack of investment falls directly on the autonomous regions and municipalities, affecting their ability to deal with residential exclusion and a lack of affordable housing in the most stressed territories. As a result of limited and erratic investments in the supply of social and affordable housing over decades, coupled with the coterminous disqualification of the pre-existing social housing stock, Barcelona suffers from insufficient public housing stock (1.5% of the total)[14], which limits the municipality's ability to influence the real estate market in a systemic way.

Added to this shortage of social and affordable housing – particularly in the rental segment – a lack of unbuilt public land considerably restricts the prospects for increasing the affordable stock through new public developments in a high-density urban context.

Access to housing and housing maintenance

The affordability threshold is calculated as 30% of household income, excluding the cost of basic supplies. (1) Indicator 7.1.5.3 (Urban Element: Economy / Component: Local Economic Structure - Real Estate to Income Ratio[15] (City Resilience Profiling Tool and SDGs).

The Metropolitan Housing Observatory[16] estimates that a household with a salary equivalent to 3.5 times the minimum salary (3,005 net € per month) could access a home in 4 out of the 10 districts of Barcelona, or in 24 out of the 33 metropolitan municipalities, if they saved what corresponds to 2.3 years of income. The possibilities are narrowed down to 1 district and 12 metropolitan municipalities for a household with 2.5 times the minimum wage (2,146 net € per month) with savings from 3.2 years of income.

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[11] Office of the United Nations High Commissioner for Human Rights, UN-Habitat (2009). The Right to Adequate Housing.

[12] Cities for Adequate Housing (2018). Municipalist Declaration of Local Governments for the Right to Housing and the Right to the City.

[13] UN-Habitat (2015) Housing at the Centre of the New Urban Agenda.

[14] Barcelona City Council (2018). Barcelona Right to Housing Plan 2016-2025.

[15] UN-Habitat / CRGP (2019). CRPT Implementation Manual V2.0.

[16] Observatorio Metropolitano de la Vivienda - OHB- (2018). Informe Anual 2018.

Comparing the same salary levels with the rental market, the OHB estimates that a household with an income equivalent to 2.5 and 3.5 times the minimum wage could access affordable rent in 1 and 4 districts of Barcelona or 5 and 30 metropolitan municipalities, respectively, considering the above-mentioned affordability thresholds (30% of household income).

According to the OHB, households that already have access to a home spend an average of 26% of their income on basic supplies, rent or mortgage payments, and property fees. The greatest vulnerability is concentrated in the rental system, where this ratio corresponds to 42.7% of the monthly income of renter households.[17] This value is 3% above the affordability threshold defined by Eurostat[18] and 13% above the parameters recommended by the United Nations (SDG 11).[19]

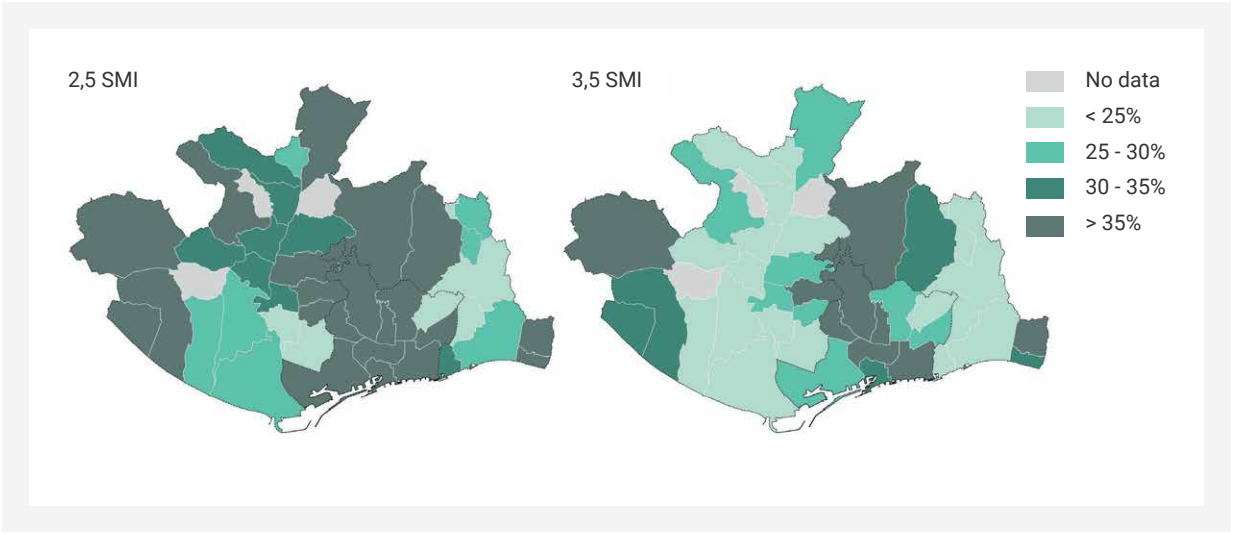

Figure 8: Theoretical projection of relative cost to access second-hand housing according to household incomes. Municipalities and districts of the metropolitan area of Barcelona. Third quarter 2018. Source: Metropolitan Housing Observatory – OHB – Annual Report (2018).

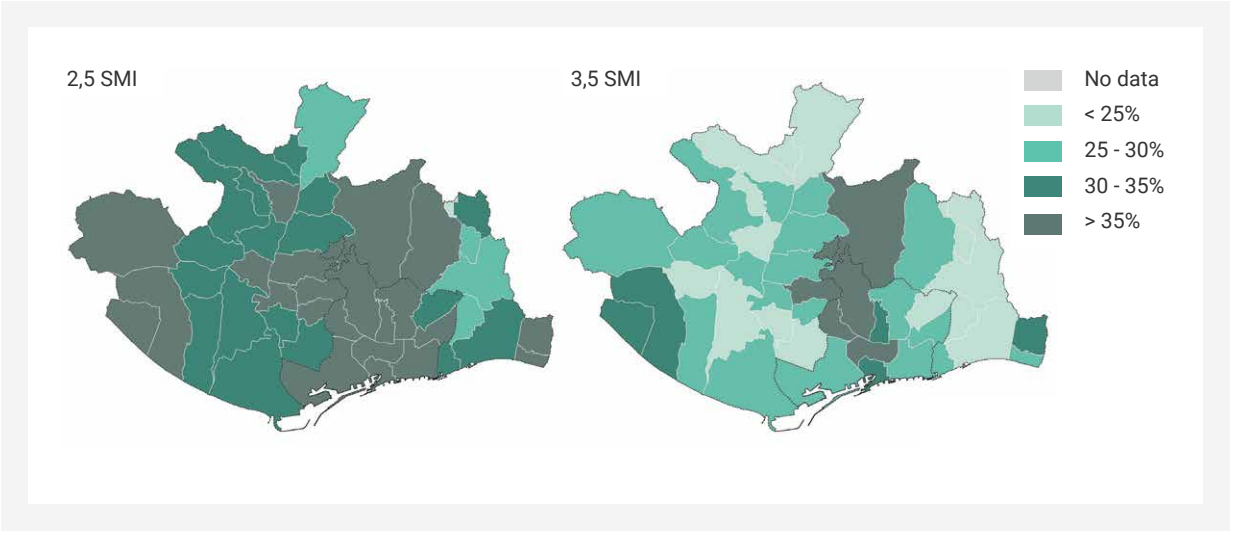

Figure 9: Relative cost to access rental housing with incomes of 2.5 and 3.5 times the minimum wage in municipalities across municipalities and districts of the metropolitan area of Barcelona. Third quarter 2018. Source: Metropolitan Housing Observatory – OHB – Annual Report (2018).

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[17] Ibid.

[18] Eurostat (2019). El umbral de sobreesfuerzo económico corresponde al 40% de la Renta Familiar Disponible.

[19] Sustainable Development Goal 11. The affordability threshold defined by UN-Habitat corresponds to 30% of the Available Household Income, including all expenses related to housing (rent / mortgage, property fees, cost of basic supplies).

The gap between household income and the cost of housing

From an affordability standpoint, the slow recovery of wages due to the financial crisis, and the progressive increase in rental and purchase prices from 2014, have fuelled a growing gap between household income and the cost of housing.[20] This gap shows serious access, permanence, and maintenance barriers, with significant territorial, demographic, and tenure inequalities. If during the real estate boom years (1996-2007), favourable credit conditions facilitated access to a home owning through mortgages – transferring the problem of affordability to household debt – the current less favourable interest on mortgages contributes to shift affordability barriers to the rental sector.

The maps show the evolution of the rental affordability for 2016 and 2017 and the difference over two years, using data on average household income per district[21] and average rental prices per district.[22] The average household expenditure on basic utilities (water, gas, electricity) is also added to the household income figures.[23]

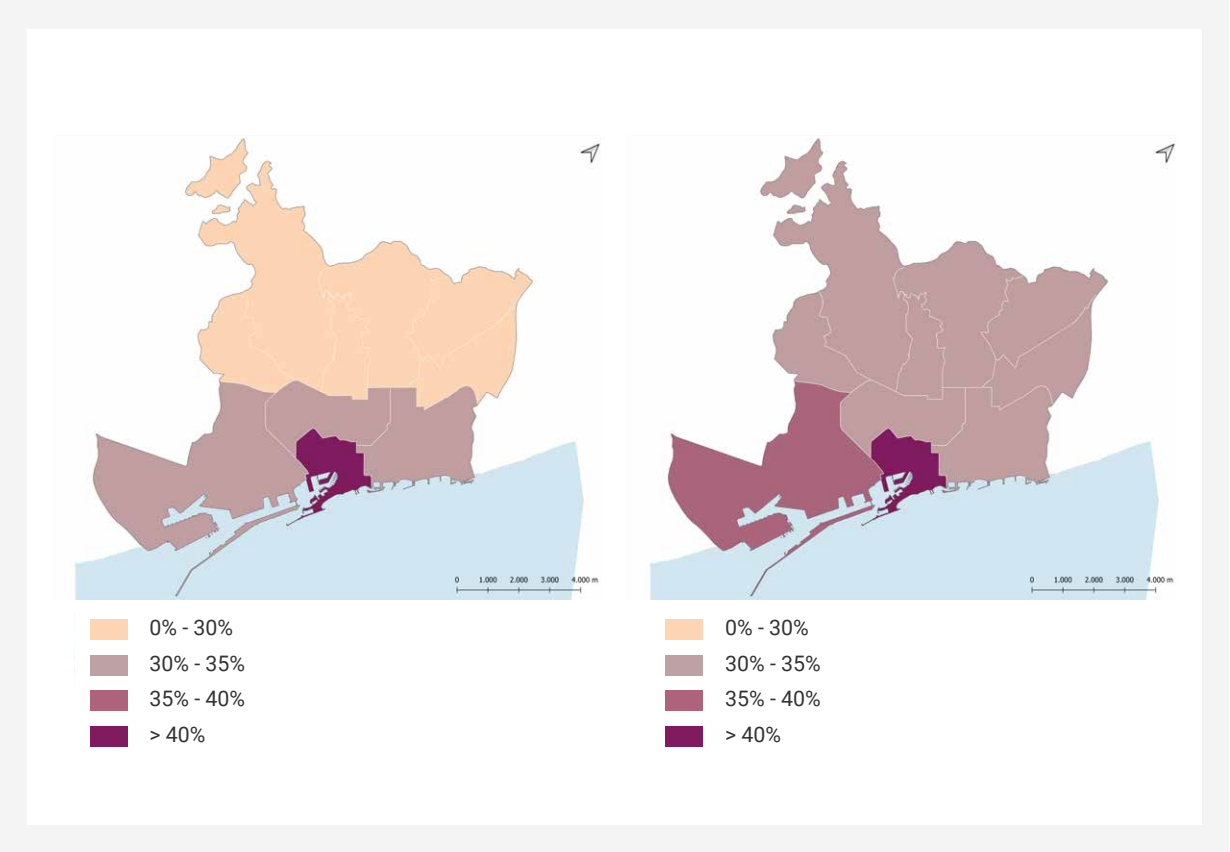

Figure 10: Differential of economic cost – housing maintenance for rent – including the average expenditure on basic supplies, in 2016 (map on the left) and 2017 (map on the right). Source: Barcelona Resilience Department. Resilience Plan Diagnosis. Where is housing unaffordability concentrated? (2020).

[20] Observatori Metropolità de l'Habitatge - OHB- (2018). Informe Anual 2018.

[21] Atlas of household income, INE – 2016; and the Barcelona Sociodemographic Survey 2017.

[22] Average deposit according to INCASOL for 2016 and 2017.

[23] The calculation of average utility expenditure (€1,476/year) was obtained from a study carried out by the private consultancy firm DALEPH on behalf of the Barcelona City Council (2016).

In a labour market characterized by severe job insecurity, temporary contracts, and intermittent unemployment, access to housing (both property and rental) is increasingly difficult. Renting is often the only viable option, generating a progressive increase in market demand in a context of historical property ownership. People in vulnerable situations (especially young and single-mother households) seek more affordable housing options in the peripheral metropolitan area. This situation results in the expulsion of vulnerable groups from the central urban areas and the change in the social fabric of the most gentrified neighbourhoods.

The rental crisis and the economic overburden[24] for paying rent

Barcelona is the city with the highest volume of rental housing in Spain (38% of the total stock)[25]. However, the incongruence between demand and supply is aggravated by structural factors that create an added layer of stress: foreign real estate investment, Barcelona's attractiveness as a permanent or temporary residence, and the proliferation of tourist apartments in the city's central areas are the primary factors.

The excessive economic burden of paying rent limits renter household's savings capacity and further limits their prospects of access to a mortgage in the medium and long term. The percentage of income allocated monthly to housing also impacts household economies, resilience, and quality of life, especially in single-parent households with dependent minors.

The risk of residential exclusion in renter households is higher - 85% of evictions recorded in 2016 a result of the difficulty to pay rent[26] – compared to evictions triggered by the inability to pay the mortgage - only 14%.

Despite the efforts and increased budgets allocated to social services to tackle vulnerable situations and leave no one behind, the number of evictions in the city exceeds the municipal capacity and the emergency housing resource availability. A further layer of vulnerability is the number of households experiencing evictions with dependent minors, which in turn raises the risk of poverty induced by housing expenses: the moderate risk of poverty rate – after deducting the living expenses – is 44% in households with dependent minors.[27]

The city as a service provider: coverage and access

With regards to the city as a service provider, the CRPT proposes two critical types of stakeholders: the right-holders (all the inhabitants of the city who, as humans, have inherent rights to services, goods, utilities, etc) and the duty-bearers (the actors (governmental, non-governmental, private, etc.) responsible for services, goods, utilities, etc).

The concept of coverage of services is usually understood as the basic physical and organizational structures and facilities, e.g. buildings, roads, power supplies that are needed for the city's operations. Service coverage evaluates the capacities of the duty-bearers to carry out effective services delivery (e.g. provide services, goods, utilities, etc.) across the city[28] and Barcelona as a city holds a high level of coverage. According to the data collected through the CRPT V1.0 assessment in 2016, the infrastructural level of coverage is close to 100%, whereas there is an estimate of around 10% of the population with trouble paying for basic services, based on information from third sector organizations.

The concept of population access to services assesses the ability of rights-holders to effectively benefit from the operations of a service (e.g. access a service, goods, or utilities, etc.), as well as the potential barriers that may hinder them (e.g. energy poverty). It must ensure a comprehensive view of different realities and perspectives, based on gender, age, and people in vulnerable situations.

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[24] Eurostat (2020). Statistics explained. Glossary.

[25] Observatori Metropolità de l'Habitatge - OHB- (2018). Informe Anual 2018.

[26] Institut Municipal de l'Habitatge i Rehabilitació de Barcelona.

[27] Institut d' Infancia i Adolescència de Barcelona (2017). Dades clau d'infància i adolescència a Barcelona 2018 – Informe Anual

[28] Urban Resilience Hub (2018).

Housing exclusion, energy poverty and gender

Energy poverty is a multifaceted challenge that refers to the inability of a household to bear the cost of basic supplies. It is characterized by poor energy efficiency in the housing stock, low household income, and the cost of energy supply (Spain has the fifth highest prices in Europe in terms of electricity).[29]

In 2016, it was estimated that around 170,000 people were unable to keep their homes at an adequate temperature during the coldest months of the year in Barcelona.[30]

This situation contributes directly to inadequate living conditions, tenure security, and health determinants for the most vulnerable population including more severe exposure to extreme temperatures – both hot and cold – for older people (15% in women versus 8% in men).[31] Several studies conclude that energy poverty in Barcelona has a marked gender connotation,[32] with greater vulnerability concentrated in the profile of single-mother households and women over 65 who live alone.

In 2016 and 2017, 13,000 power supply cut offs in vulnerable households due to non-payment of bills were avoided by the City Council of Barcelona,[33] within the framework of the Autonomous Law for the Prevention of Residential Exclusion 24/2015.[34]

For the assessment of residential exclusion, an index was built in order to analyse the areas of the city where the highest risk was concentrated. The analysis calculated the total number of support mechanisms and/or actions registered per building block divided by the number of homes registered in the building block. All the support mechanisms registered on a building block during the biennium 2017-18 were added and it was divided by the number of households registered on that building block. The result is one ratio ranging from 0 to 18 that shows the degree of vulnerability due to residential exclusion in each building. The value is represented on the map.

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[29] Eurostat (2019).

[30] Tirado Herrero, S. (2018). Indicadors municipals de pobresa energètica a la ciutat de Barcelona - RMIT Europe -.

[31] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018, Monogràfic: Condicions de vida i salut de les persones grans de Barcelona.

[32] Observatorio ESC (2018). Perspectiva de género sobre el Derecho a la Vivienda y la Pobreza Energética a Barcelona.

[33] Departamento por la Cobertura de Necesidades Básicas del Instituto Municipal de Servicios Sociales (2017-18).

[34] Boletín Oficial de Estado – Comunidad Autónoma de Cataluña - Ley 24/2015, de 29 julio, de medidas urgentes para afrontar la emergencia en el ámbito de la vivienda y la pobreza energética.

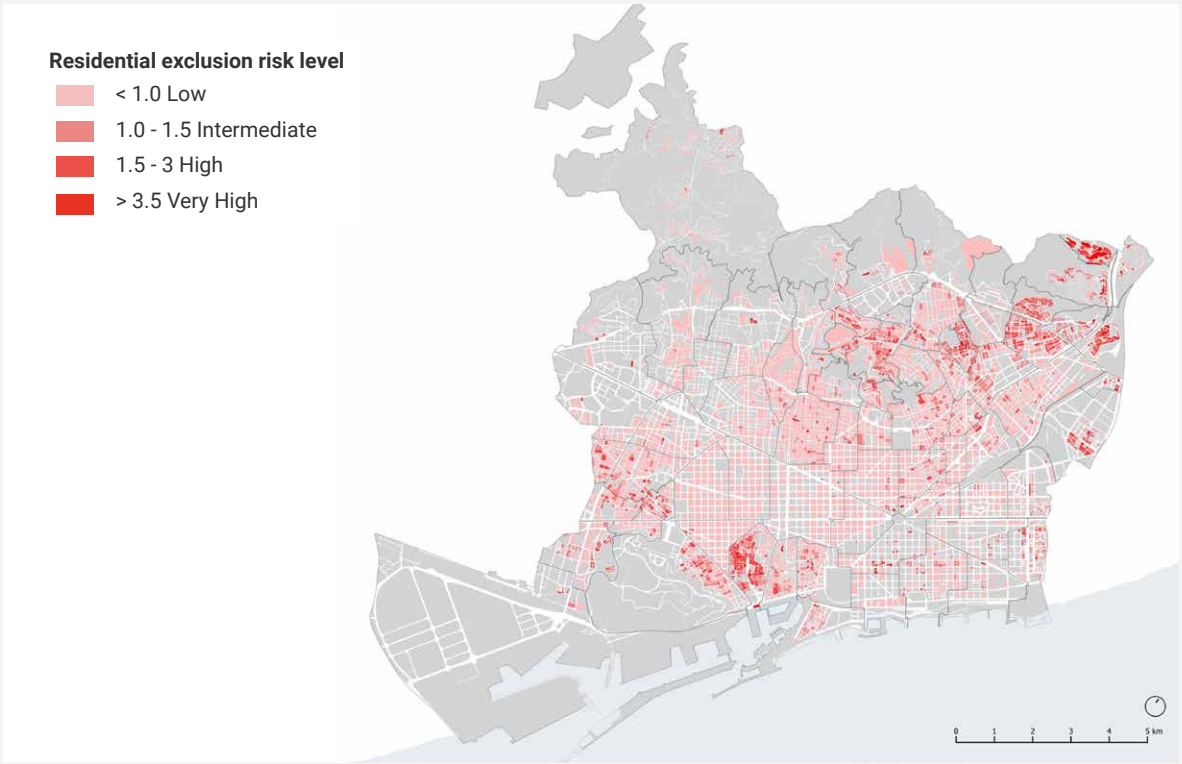

Figure 11: Map of the Residential exclusion risk level. Source: Barcelona Resilience Department Resilience Plan Diagnosis. Where is housing unaffordability concentrated? (2020).

Extreme housing exclusion and homelessness

The number of people and families in a condition of residential exclusion remains a minority group of the wider population. However, the progressive increase in homeless people and the diversification of their profiles present an alarming trend in recent years.

Homeless Care Network's (XAPSLL) latest statistics reveal a 20% increase in two years of the number of people living in the streets, in slums, in informal settlements or municipal structures (3,600 people in 2019), as well as an increase in young people, unaccompanied minors, ex-ward and single-mother homes with dependent minors in charge.[35]

As previously explained, the city is analyzed as an urban system in which the services provided are interlinked and influence each other. Adequate housing and related basic services are crucial for the city, and well-designed affordable and accessible housing schemes protect people from poverty and exclusion. Housing needs to be built and/or renovated following quality criteria aligned with the new thresholds proposed for modern cities to guarantee urban inclusiveness and equity.

The city's urban fabric connects buildings with public and green spaces, networks and infrastructure and should allow citizens to enjoy high levels of urban comfort to foster positive social relations, economic dimensions, health and well-being.

The Barcelona Housing Rights Plan (2016-2025) and the political commitment derived from it, offer an ambitious strategic framework to address the challenges that are currently facing the city. Through the plan, the City Council is seeking to implement a wide range of measures, projects, actions and regulations – both to support demand and supply of new housing – that have a key role to play in guaranteeing the universal right to housing throughout the different stages of life.

[35] Red de Atención a Personas Sin Hogar - XAPSLL- (2019). El sensellarisme a Barcelona. Evolució i joves en situació de sensellarisme.

4.2. Public Spaces (Green Infrastructure, Accessibility, Health, Uses and Social Cohesion)

Barcelona Declaration on public spaces

> The Barcelona Declaration (Outcome document of the Habitat III thematic meeting on public spaces)[36] acknowledges the importance of public spaces to achieve sustainable development and advocates for public spaces to hold a central role in the New Urban Agenda. The purpose of public space is understood to be a public service and should be tackled from an integrative perspective following four dimensions: social and political (agora), economy, mobility, and housing.

Barcelona is internationally recognised for its public-space model, however, new environmental and social phenomena such as climate change, lack of green spaces, noise pollution and social segregation require new solutions to build a more integrated and fairer city for everyone.

The city has launched a series of urban-transformation processes since the end of the 1980s, including its Olympic transformation, and put considerable emphasis on improving the quality of public space and promoting a mixed and compact city model that has made it a world benchmark. However, this successful model requires periodic revisions to ensure that it is meeting new needs and challenges faced by the city, be they environmental or social.

Understanding the social and environmental determinants that enable improvements to be made to the quality of public spaces is essential. Minimising noise and air pollution, maximising the provision of social and environmental services, green infrastructure and the social function of public space to generate social cohesion, whilst preparing them to tackle the effects of climate change and other sorts of risks, is a key piece of the resilience building process.

Public space proximity and accessibility

According to the thresholds set by the European Environment Agency (EEA), people should have access to a green space within 15 minutes on foot, which is approximately 900-1,000m.[37]

Assessing the level of coverage of green public spaces in Barcelona – the analysis considers only the public access spaces with green infrastructure and an area greater than 0.5 hectares (190 in total in the city) – and taking into account groups by age with different conditions (e.g. the mobility speed or potential barriers), the results show that almost 50% of the population aged 5 to 74 has a public green space of more than 0.5 hectares less than 5 minutes on foot. In contrast, for the population considered vulnerable – below 5 years old and over 74 – the proportion decreases to 20%. The analysis considers the reduced mobility for these groups and considers that they may move at a slower pace. Around 50% of the vulnerable population has the nearest green space more than 10 minutes away.

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[36] United Nations (2016). Barcelona Declaration. Outcome document of the Habitat III thematic meeting on public spaces.

[37] Stanners D. and Bourdeau P. (1995) . Europe's Environment: The Dobris Assessment. European Commission, 1995. ISBN:9789282654095.

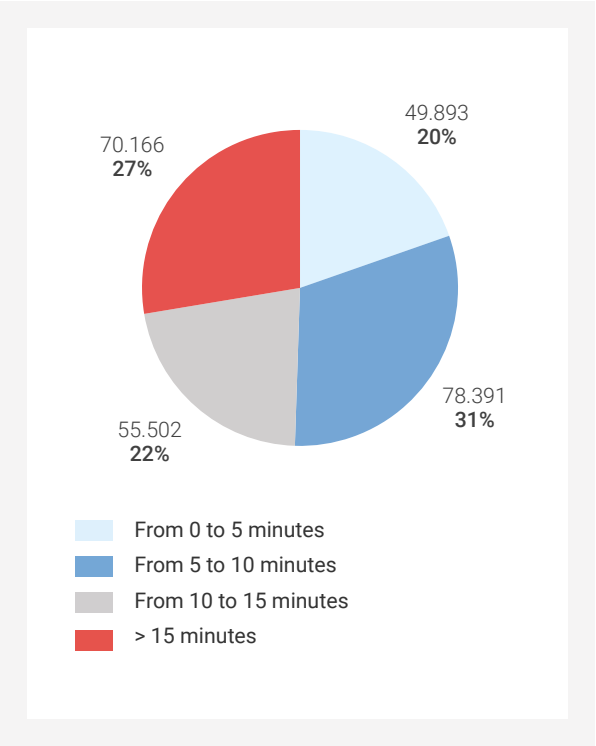

Figure 12: Vulnerable population (age groups 0 to 4 and 75 years and over) based on their proximity to the nearest public green space (> 5 ha). Minutes on foot. Source: Barcelona Regional from Barcelona City Council census data (2018).

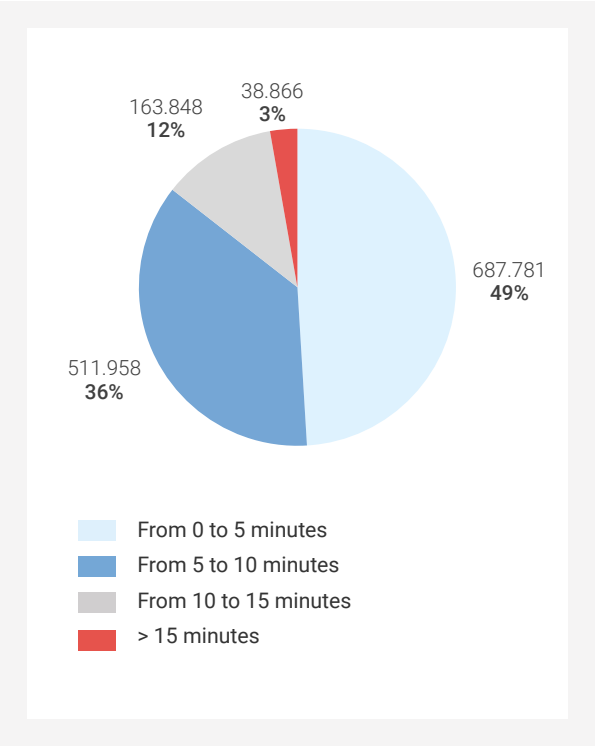

Figure 13: Vulnerable population (age group 5 to 74) based on their proximity to the nearest public green space (> 5 ha). Minutes on foot. Source: Barcelona Regional from Barcelona City Council census data (2018).

The neighbourhoods where the vulnerable population (age groups 0 to 4 and 75 years and older) have lower proximity to green spaces have been identified. The graph shows the top 10 neighbourhoods in terms of population in this group that do not have any green space within 15 minutes.

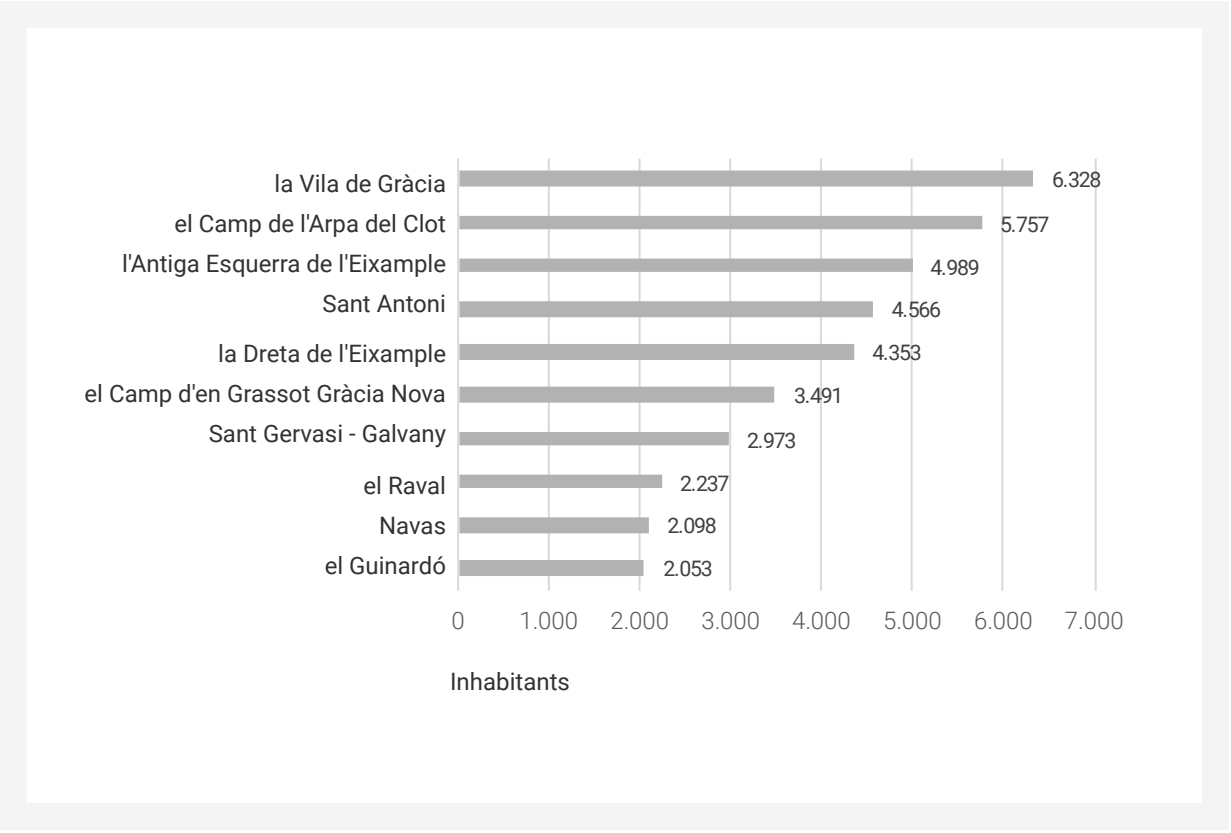

Figure 14: Neighbourhoods with a vulnerable population without any green space nearer than 15 minutes on foot. Source: Barcelona Regional from Barcelona City Council census data (2018).

Green distribution

Excluding Collserola, the urban area includes 7m² of urban green area per inhabitant.[38] The Nature Plan (2021-2030) and the Climate Plan (2018-2030) seek to enhance this number by an additional 1m² green space per resident, adding 160 hectares to the city's green areas. By 2030, according to the World Health Organisation (WHO), every city is recommended to provide a minimum of 9 square metres[39] of urban green space (accessible and safe) for each person, although the ideal amount of urban green space provided should be around 50 square meters per person.

The high percentage of built-up areas, coupled with limited space for new developments obliges the municipality to explore more creative ways to provide green infrastructure, for instance within residential blocks, empty lots, roofs, and green walls to improve the quality of the city through its naturalization. Thus, it is essential to conceive the new green infrastructure as composed of many elements – both in the public and private space. These spaces must be inter-connected and also connect to the areas of the surrounding natural environment to create a complex green inclusive network within the urban fabric.[40]

The distribution of public greenery per district is quite uneven. It is deficient mainly in the Eixample, Gràcia, Camp de l'Arpa and 22@ area.

In the case of the vulnerable population, the areas with the most significant deficit of green spaces are found in the Camp d'en Grassot and Gràcia Nova neighborhoods, the Camp de l'Arpa and Navas, Poble Sec, Sant Antoni and the Raval, Sants and the Carmel.

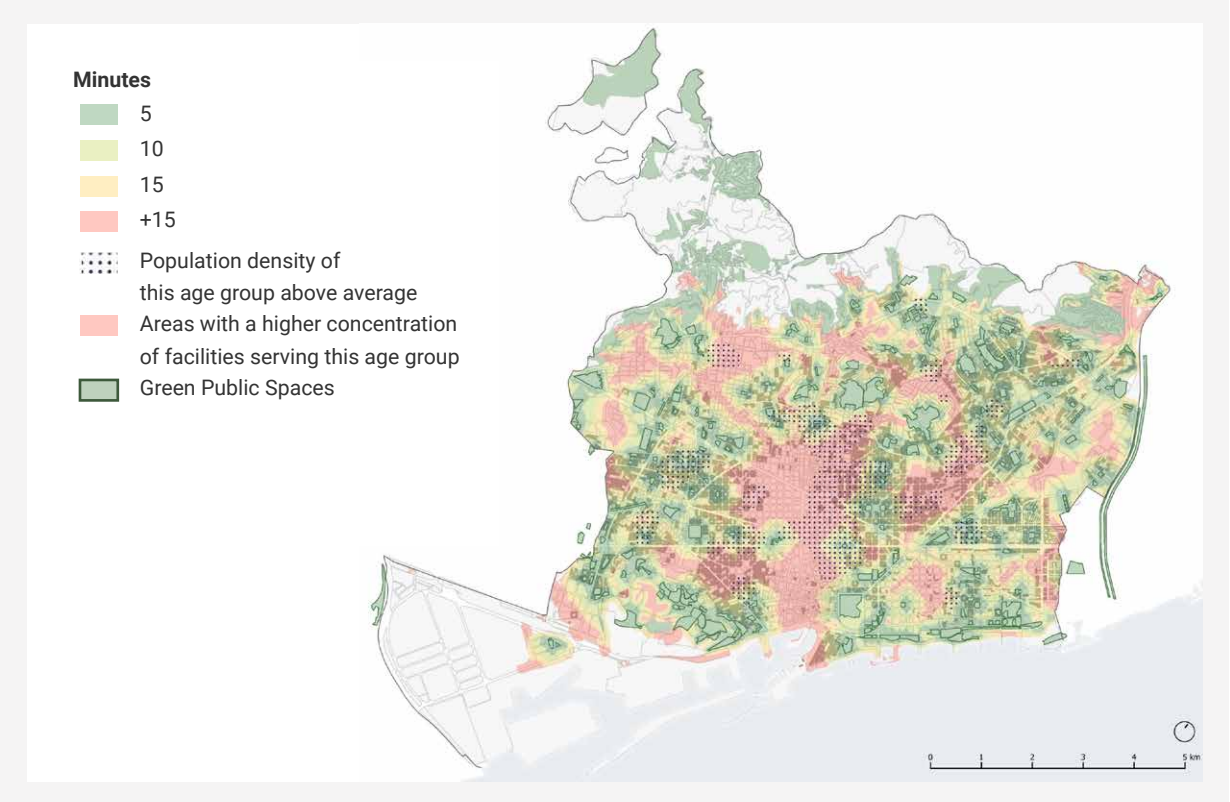

Figure 15: Proximity to public green spaces larger than 0.5 hectares, calculated on the basis of a walking speed of 2 Km / hour. Source: Barcelona City Council census data (2017).

[38] Barcelona City Council (2017). Programa d'Impuls a la Infraestructura Verda Urbana.

[39] Russo A. and Cirella G.T. (2018). Modern Compact Cities: How Much Greenery Do We Need? Int J Environ Res Public Health.

[40] Barcelona City Council (2018). Barcelona, ciutat compromesa amb el medi ambient. Informe Ambiental.

Walkability in the city

People need to easily access different social spaces, autonomously and safely. Daily mobility plays a crucial role in the vitality and resilience of the social fabric of an urban context. For people with reduced mobility, especially those with physical disability, and the elderly, access to shared spaces close to their residence is essential for their emotional and physical wellbeing.

Barcelona is currently a walkable city; about 35% of commuting is done on foot. However, more than half of the street space is occupied by motorized vehicles (moving and parking). Extrapolating on the use of public roads in Barcelona, each citizen has approximately 4m² of a sidewalk, while each vehicle has 12m² of road space.[41]

Barcelona is a reference for public space accessibility owing both to the intervention of the city's governments, and the participation of diverse people. Universal accessibility is an element of intervention in any urban activity that promotes personal autonomy and the wellbeing of all citizens.[42]

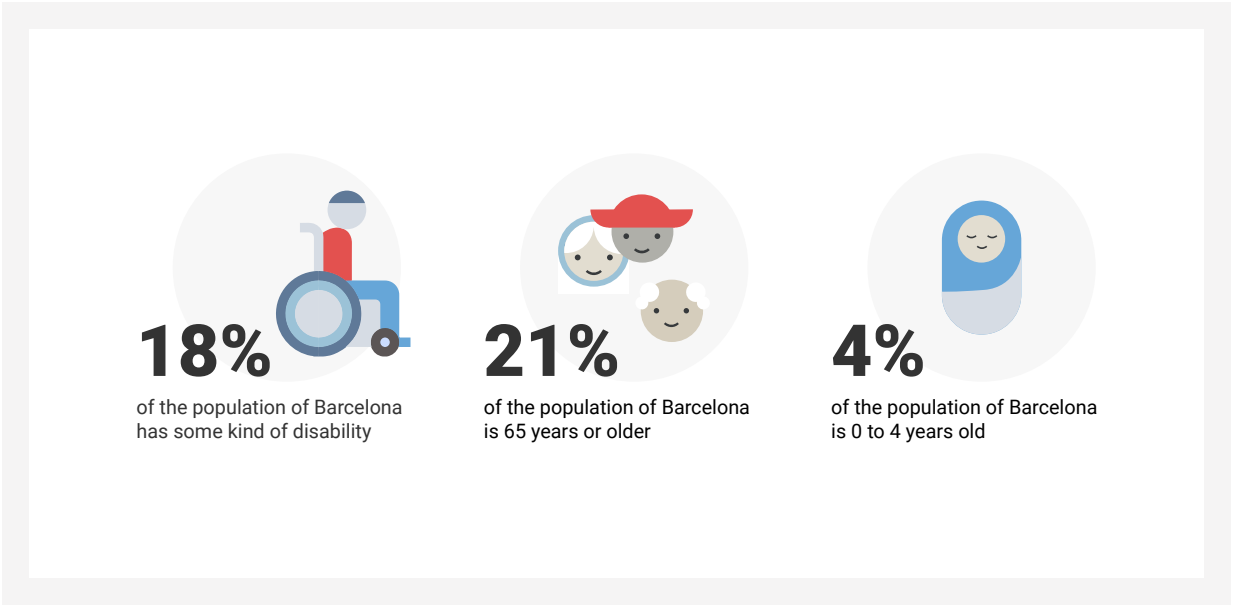

Figure 16: People more sensitive to daily mobility barriers. Source: Barcelona City Council census data (2017).

According to the data on children and families in Barcelona, close to 80% of children live in a conventional two-parent home (mother-father). Therefore, it is most likely that mothers accompany one or two children and a pram. Mothers spend 19 hours more a week caring for their children under six than fathers, and in the case of single-parent family units, 86% are women. For children, especially the youngest (between 0 and 4 years old), the conditions for daily mobility are important. For example, the needs to make a journey on foot include, among others, the presence of caregivers and strollers.

The assessment related to barriers for walking mobility considers aspects related to sidewalk widths, road widths, topographic slopes, and highly frequented areas (where overcrowding of the sidewalk can be presumed), as well as other factors especially relevant for people who suffer from mobility difficulties such as:

- Percentage of housing buildings without elevators
- Metro and railway stations that are not yet adapted for people with reduced mobility.

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[41] Barcelona Resilience Department (2020). Resilience Plan Diagnosis. On es troben les persones amb més condicionants per a la seva mobilitat quotidiana a peu?

[42] Barcelona City Council (2017) Mesura de Govern per l'elaboració del Pla d'Accessibilitat Universal de Barcelona 2018-2026.

Children from 0 to 4 are a population exposed to an intermediate level of daily mobility barriers on foot in the neighbourhoods of the Raval, Sant Gervasi-Galvany, Sagrada Família, Baix Guinardó, Guinardó, Carmel, Guineueta, Prosperitat, Sarrià, and Trinitat Nova.

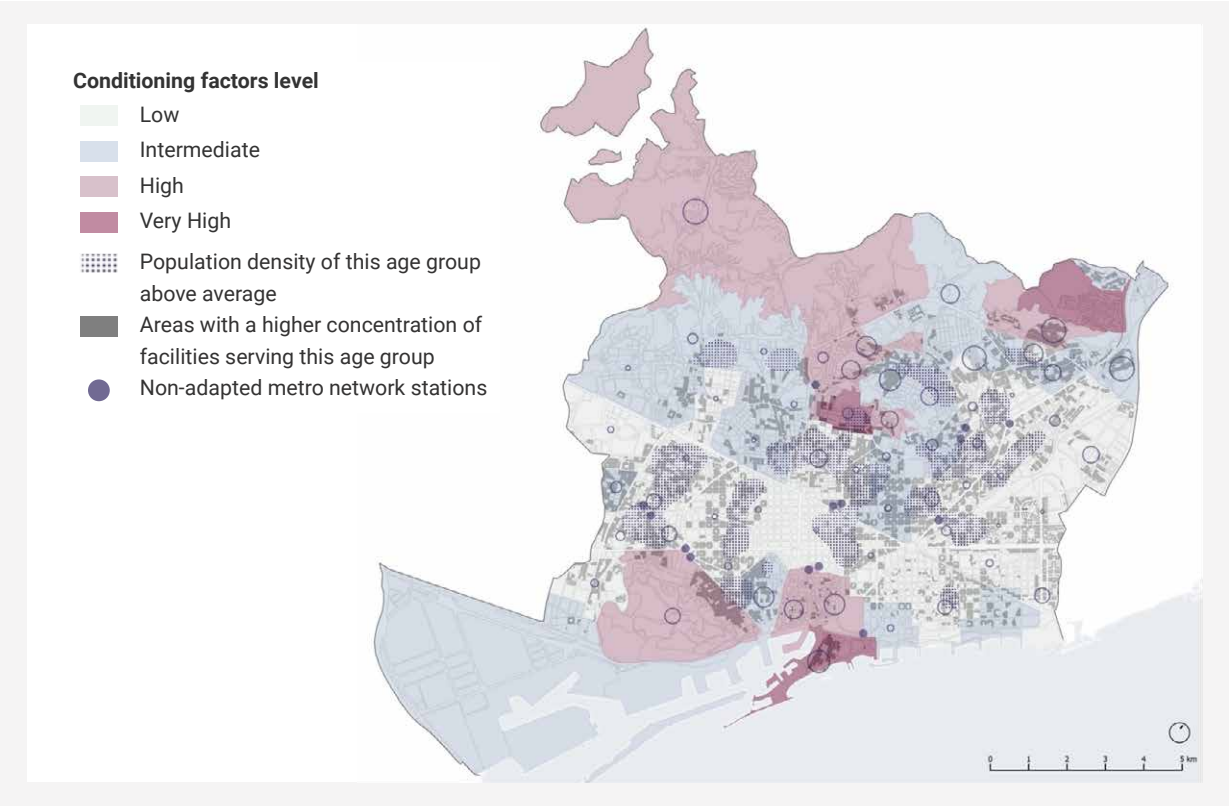

Figure 17: Map of the level of conditioning factors for daily mobility on foot. Population group 0-4 years old. Source: Barcelona Resilience Department. Resilience Plan Diagnosis. Where are the people with the highest level of daily mobility barriers? (2020).

Public space in relation to social dynamics

Efforts are underway in the city to improve the management of Highly Frequented Spaces.[43] These spaces suffer from high use intensity, and can be found in areas such as the surroundings of the Sagrada Família and Park Güell or most parts of Ciutat Vella. It leads to saturation and high pressure to sustain the daily life of citizens. The intensity of use triggers services, activities, and uses of an exceptional nature, often focused on the needs of visitors. Tourist activities are not ubiquitous since they occur in specific urban spaces, adding a higher complexity and intensified use to these areas.

Tourism activities create an overlap of uses (the city's own and the tourist's), which generates problems of saturation, stress, and overexploitation of concrete spaces, highlighting the need to manage them in a specific way.[44] Even if tourism is not the unique cause, it is the primary driver of this type of urban stress.

[43] High Affluence Spaces are those areas of very different scales where a large number of people congregate, regardless of whether it is a floating population, in all its forms, or resident population. These are desirable areas, and therefore, a large number of people potentially converge at the space with very different motivations and use expectations, which often causes urban stress.

[44] Barcelona City Council (2019) Gestió d'espais de gran afluència (EGA). Informe elaborat per les direccions de Turisme i Model Urbà.

According to the Map showing the impact of the intensity of tourist activities on urban green spaces,[45] the spots with the highest intensity of urban tourist activities coincide with about 30% of the total green spaces, equivalent to approximately 144ha. Six urban green spaces are totally or partially under the spot of high-intensity tourist activities. This adds up to about 3.2ha and represents 0.6% of the total urban green spaces.

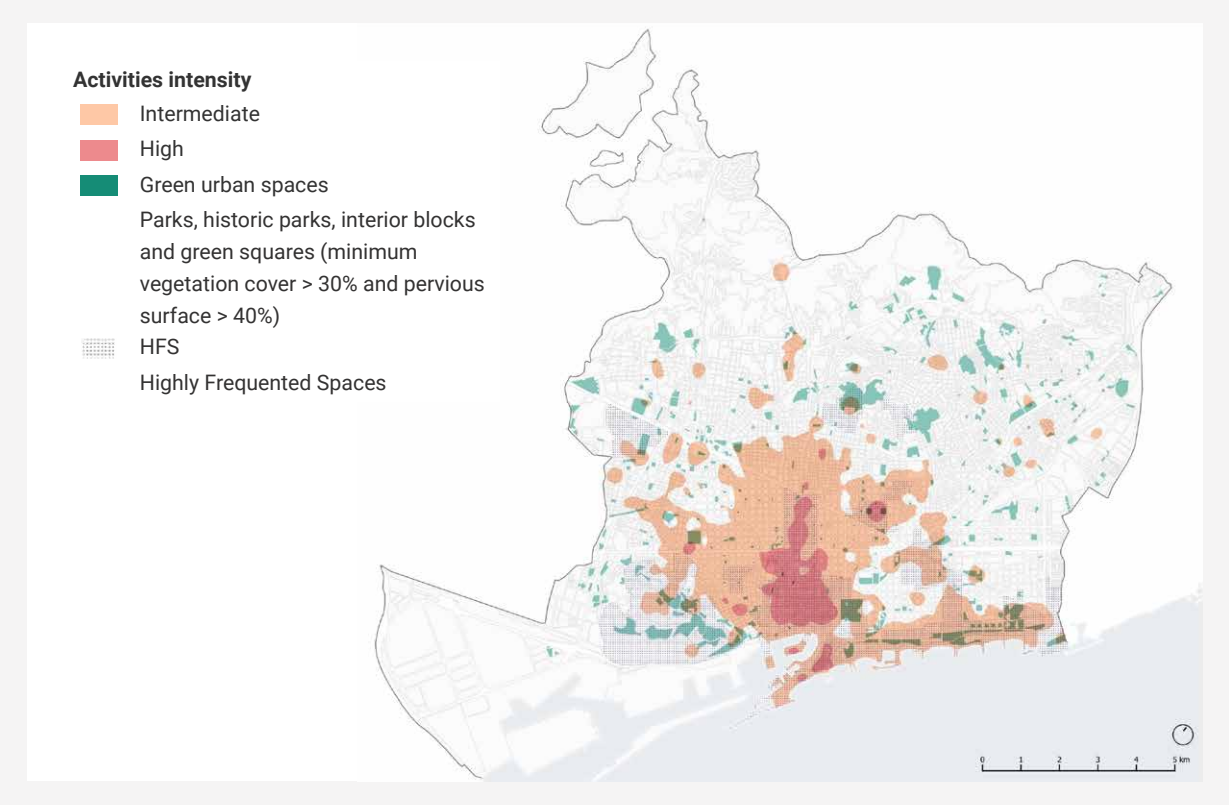

Figure 18: Impact of the intensity of tourist activities on urban green space. Source: Barcelona Resilience Department. Resilience Plan Diagnosis. Where does the intensity of touristic activity most affect population, public transport and green urban areas in the city? (2020).

It is also crucial to evaluate the type of activities that take place in the public space and its social function. Public space activities were mapped through the city's agenda with a twofold consideration of: highly-frequented events to capture the risk of activity saturation, and local activities – taking into consideration the number of civic and neighbourhood associations present in the territory- to capture the potential social cohesion in neighbourhood fabrics.

[45] Barcelona Resilience Department (2020). Resilience Plan Diagnosis. On afecta la intensitat d'activitats turístiques a la població, al transport públic i als espais verds urbans de la ciutat?

The comparison between the two maps is enlightening. The overlap of the areas with high activity concentrations, with the areas featuring more potential cohesion, shows that one is practically the negative of the other. The evaluation reveals that the planned activities in the 'overcrowded' spaces do not contribute to enriching the social fabric of the area.

Figure 19: Density of large-scale planned activities. Source: Barcelona Resilience Department. Resilience Plan Diagnosis. What is the impact of planned activities in public spaces on the social interactions of resident population? (2020).

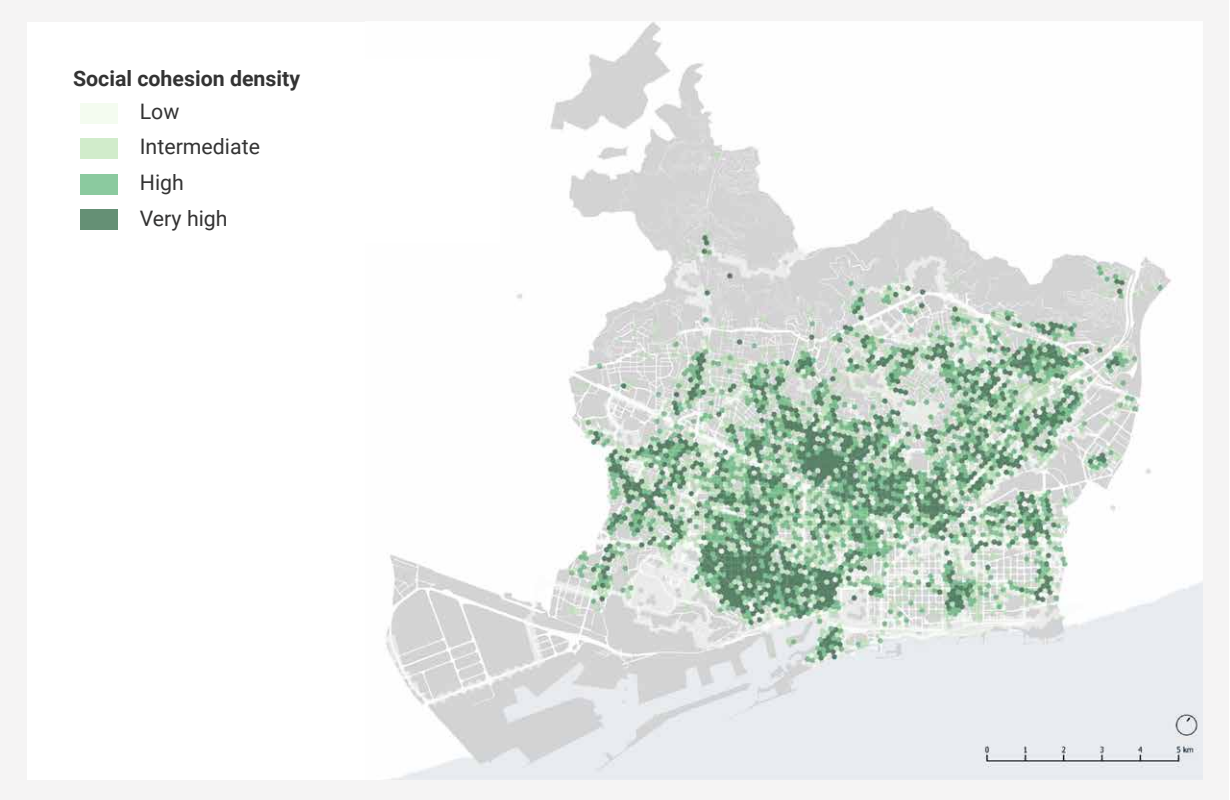

Figure 20: Areas with potential for activities that generate social cohesion. Source: Barcelona Resilience Department. Resilience Plan Diagnosis. What is the impact of planned activities in public spaces on the social interactions of resident population? (2020).

Public space and health

In terms of environmental determinants, pollution levels continue to be elevated. While a decrease in the exposed population has been observed, the attributable mortality due to fine particle pollution remains unchanged. Noise pollution and heat associated risks are also areas of concern based on the detailed analysis.

Concerning air pollution, in 2018, the reference levels for NO2, particles (PM10 and PM2.5), benzene, ozone, and benzo(a)pyrene, set by the World Health Organization (WHO), were exceeded: 48% for NO2 and 95% for PM10 particles. The EU annual limit value for NO2 at transit stations also exceeded the acceptable threshold.

Despite the trend towards improvements, air quality measurements in recent years show air pollution at high levels in Barcelona and its neighbouring municipalities. Sometimes, they exceed the maximum thresholds set by current legislation and the WHO.[46] The mortality attributable to chronic exposure to the existing urban air pollution was estimated in 2018 to be at least 351 deaths (equal to levels in 2017).[47]

Concerning noise pollution, it comes mainly from traffic. The occupation of public space and leisure activities around tourism also cause a very high percentage of the population to be exposed to excessive noise levels both day and night.[48] In all the city's districts, most of the population is exposed to night-time noise levels above those recommended.

The noise pollution map during the day reveals that most of the city's streets are above the 60 dB (A) noise limit. Poor acoustic quality is one of the most critical environmental problems in Barcelona. However, this problem is more relevant in some areas than in others. The neighbourhoods of the Eixample have the highest values owing to their centrality and the typology of their streets (wide and with several traffic lanes), which favour the attraction and absorption of road traffic. The same goes for the city's primary high capacity road axes, which are used to access and enter the city.

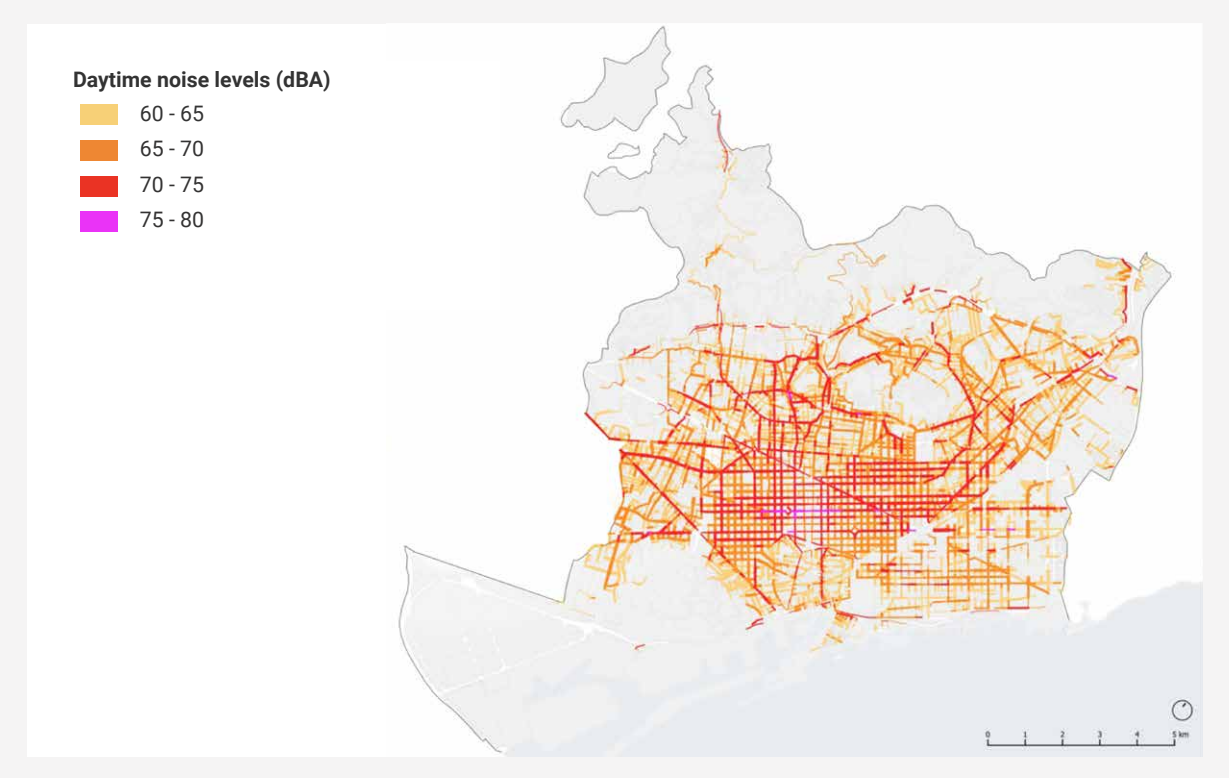

Figure 21: Risk map with daytime noise levels and relative population by street length. Source: Barcelona Regional from Barcelona City Council data – Mapa Estratègic de Soroll – (2017).

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[46] Centre de recerca d'epidemiologia ambiental - CREAL- (2007). Els beneficis per a la salut pública de la reducció de la contaminació atmosfèrica a l'àrea metropolitana de Barcelona.

[47] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018 - Monogràfic: Condicions de vida i salut de les persones grans de Barcelona.

[48] Barcelona City Council (2018). Barcelona, ciutat compromesa amb el medi ambient. Informe Ambiental.

As in the daytime, the map of noise pollution during the night period reflects the correlation between traffic volume and noise level. However, the nightlife sector also has a significant impact in several parts of the city. The Eixample, as in the daytime, is the area with the most significant noise pollution, as the traffic factor continues to govern the spatial distribution of noise. However, if we look closely at the neighbourhoods and streets with a strong presence of nightlife, we can identify other critical points that are not present in the day map.

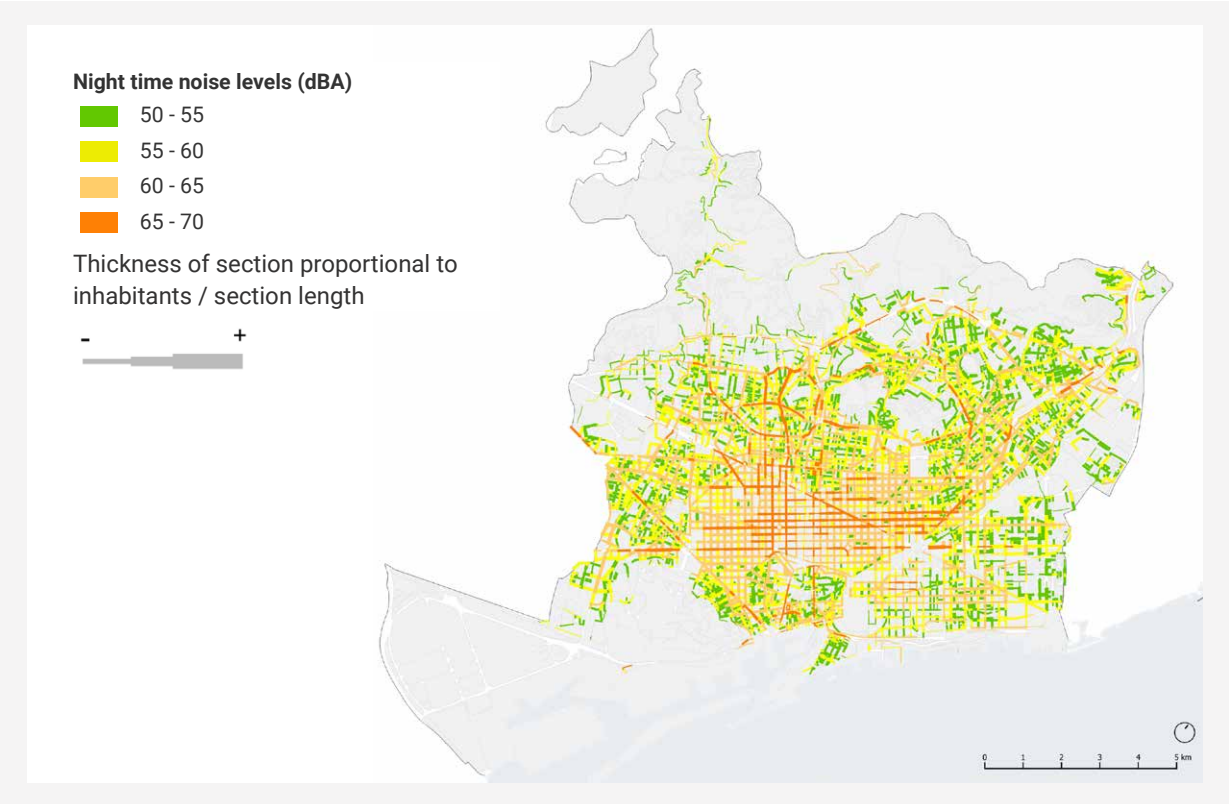

Figure 22: Risk map with night ime noise levels and relative population by street length. Source: Barcelona Regional from Barcelona City Council data - Mapa Estratègic de Soroll - (2017).

As previously discussed, heat is a crucial factor related to space with an impact on people's health and wellbeing. The heat island effect causes temperature differences between the city center and its surroundings of up to 3ºC and can reach 7ºC or 8ºC in episodes of maximum intensity.[49]

Due to its geographical location, Barcelona has a significantly high level of risk of surface heat accumulation. The two primary effects that aggravate this risk are temperature increase – intensified by the urban heat island effect[50] - and the rise in heatwave episodes – more frequent and prolonged over time. Both phenomena directly impact resource consumption and people's health, especially vulnerable groups such as the elderly, women, babies, and people with chronic diseases being the most disadvantaged. Homeless groups are also especially vulnerable to the impact of these conditions. According to the World Meteorological Organization (WMO), the extreme weather events that have caused the most deaths in recent years in Europe are heat related.

The appraisal of the Map of potential surface heat accumulation differentiates areas of the city according to their characteristics for albedo, vegetation, and solar radiation. High thermal comfort values can be found in large parks, such as the La Ciutadella and Tres Turons. High differences can be observed between residential neighbourhoods with a high proportion of vegetation such as Pedralbes and areas with a lower proportion of greenery, such as the Eixample, or industrial districts, such as the Bon Pastor. There is also evidence of a very low comfort index in areas with more reflective roofs such as the Zona Franca or the Port, hot infrastructures such as Sants station or Fira II, and large road infrastructures devoid of vegetation, such as Ronda Litoral and Dalt.

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[49] Barcelona City Council (2018). Climate Plan 2018-2030. En què som vulnerables.

[50] Barcelona City Council (2018). Climate Plan 2018-2030. Com ens afecta el canvi climatic.

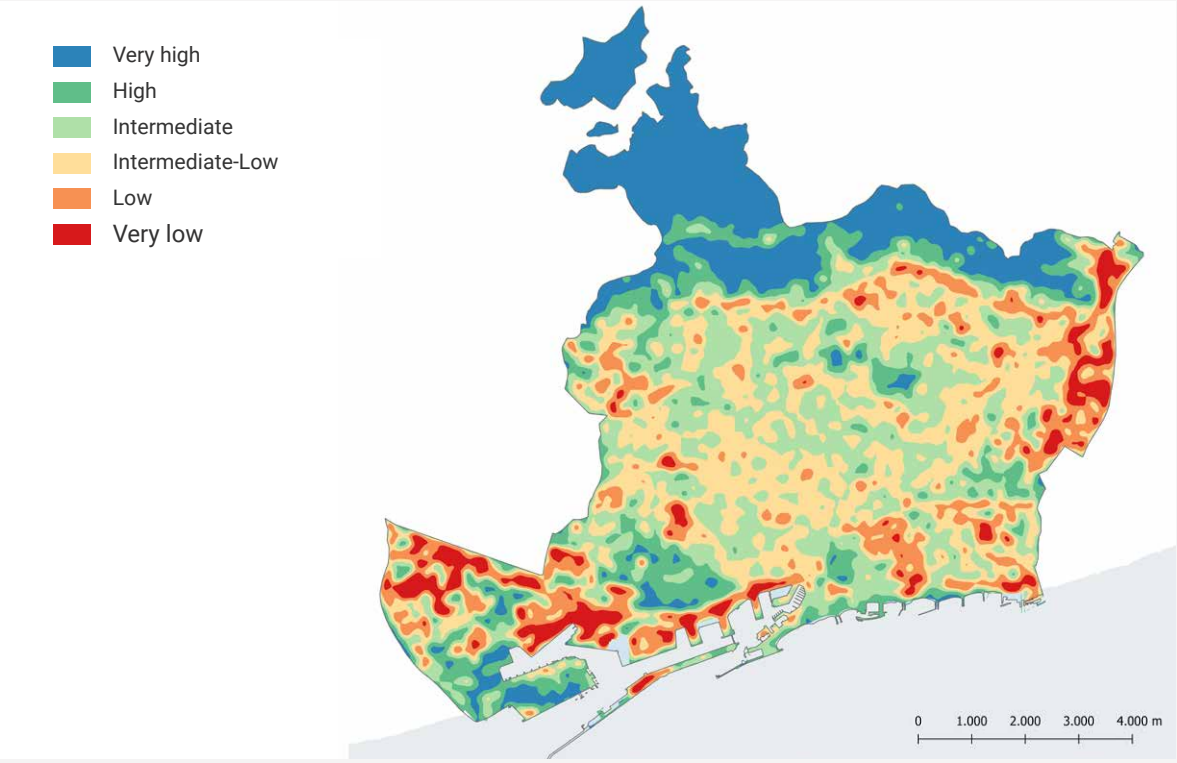

Figure 23: Map of potential surface heat accumulation. Source: Barcelona Regional from Landsat-8 (2017).

Public spaces play a central role in achieving resilience-based sustainable development. Their social and political dimension encompasses the need for proximity, accessibility, and versatility, integrating the human scale and open opportunities for conflict resolution, cohabitation, and governance. In terms of economics, public spaces and green distribution are balancers for integrated and circular schemes, and responsible consumption. In terms of mobility, such spaces support visions of a post-car city shift, with proactive mobility and public transport network systems.

Public spaces are interdependent of the urban housing and built environment, focusing on people in vulnerable situations, potential social exclusion, and health. People aged 65 and over in Barcelona deserve a specific public space, housing, and care assessment.

Barcelona City Council has a long history of making Barcelona a walkable city. In recent years large, pacified spaces where priority is given to pedestrians have been created – as is the case of the superblocks in the neighbourhoods of Poble Nou and Sant Antoni. The new Urban Mobility Plan also proposes a change of model promoting journeys on foot, generating safe, comfortable, and sustainable spaces for pedestrians. The city is equally promoting a series of measures to make Barcelona a greener city, all of which pursue the increase of urban greenery and will be key to achieving the goal of gaining 1m² more greenery per resident by 2030.

The increase in green infrastructure and its improvement for urban biodiversity conservation are essential factors for improving the quality of life. Citizens can enjoy nature first-hand in a way that contributes to well-being and health.

4.3. Ageing Population and Demographic Shift

Age friendly cities

The WHO developed the Global Age Friendly Cities guide which encompasses several topic areas: transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, community support and health services, outdoor spaces, and buildings. To further advance on this topic, UN-Habitat and the Basque Country Government launched an Expert Group Meeting in 2020: Cities for all: Ageing and Inclusion. The outcome report, underpinned by the New Urban Agenda, states four main discussion points: Safe Public Space, Housing, Mobility, Health and Care.

The latest Eurostat population projections for the period 2020-2030 indicate that, while the population of the 65+ age group is expected to grow by 18%, the younger population – 4-18-year-olds – is expected to shrink by 5%.[51] In Barcelona, projections indicate that if the current trend is followed, by 2030, 25% of the total population will be over 65, compared to the current 21.5%.[52]

The population over the age of 64 is growing progressively. According to the Barcelona municipal census in 2018, 349,922 people over the age of 64 lived in the city – around a fifth of the city's population – of which 60% were women.[53] The proportion of women gradually increases with age. Among men, the proportion of those over 64 is 18.2%, and among women, it rises to 24.3%.[54] It should also be noted that aging is unevenly distributed in the city. Horta-Guinardó, followed by Les Corts, part of Nou Barris and part of Gràcia, are the districts with the highest population over the age of 65 among the total population of the neighbourhoods.[55]

In the period 2015-2017, there was a difference in life expectancy between neighbourhoods with more and less favourable socioeconomic levels of 5.2 years in men and 0.7 years in women. For both men and women a similar pattern is observed in which Les Corts and Sarrià-Sant Gervasi districts have the highest life expectancy, and Ciutat Vella the lowest.[56]

The COVID-19 crisis has demonstrated that both physical and mental health are critical considerations, especially for elderly people who are more vulnerable to isolation and loneliness. Elderly urban inhabitants can experience economic vulnerability, poverty, and a lack of social inclusion. Furthermore, they are highly exposed to extreme climate events (e.g., heat and cold), and urban infrastructure and housing are not always adequate and accessible to them.

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[51] Eurostat (2019). EU population projections reveal growing gaps between young and old.

[52] Barcelona City Council (2018) Estratègia sobre canvi demogràfic i envelliment 2018-2030.

[53] Barcelona City Council (2017). Mesura de govern per a la promoció de les persones grans a la ciutat.

[54] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018, Monogràfic: Condicions de vida i salut de les persones grans de Barcelona.

[55] Barcelona City Council (2018) Estratègia sobre canvi demogràfic i envelliment 2018-2030.

[56] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018, Monogràfic: Condicions de vida i salut de les persones grans de Barcelona.

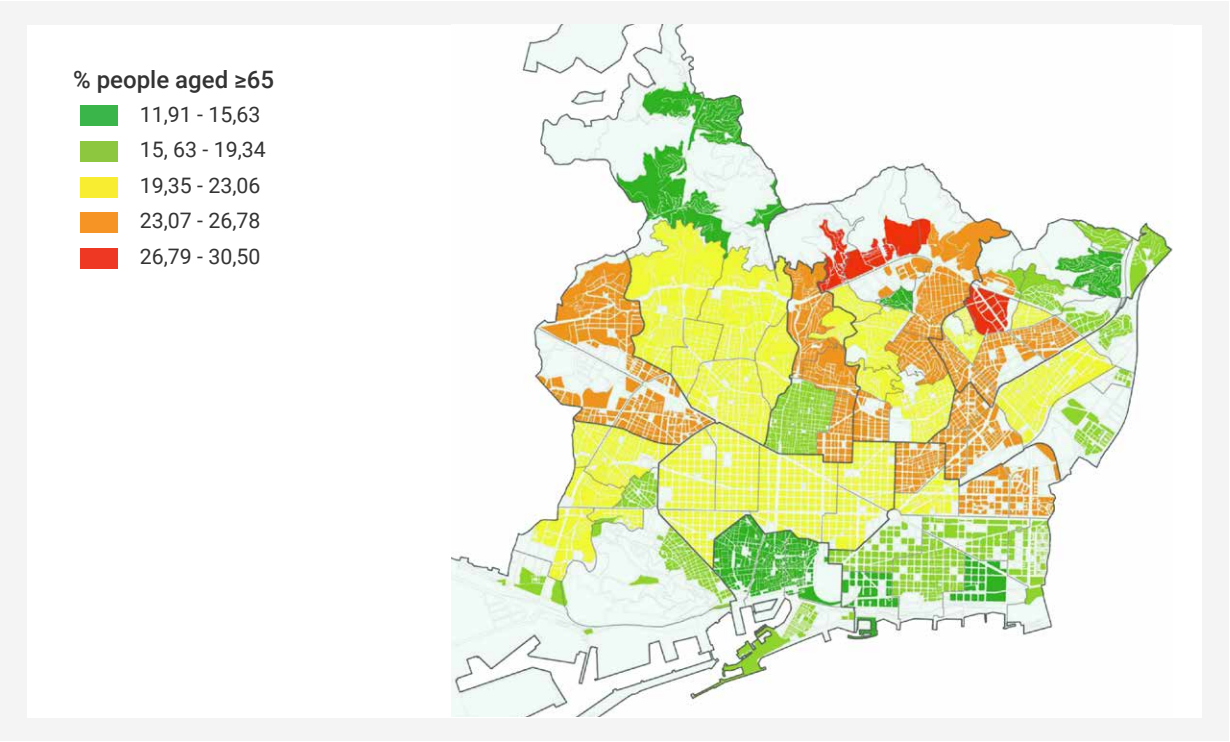

Figure 24: Percentage of people aged ≥65 as a proportion of the neighbourhood's total population Barcelona, 2017.
Source: Barcelona City Council Strategy for Demographic Shift and Ageing 20218-2030.

Ageing population, access to public space and relational networks

For the elderly, several losses, such as work or marriage, potentially lead to social isolation.[57] Social relationships are not only associated with good mental health, their absence is linked to a significant increase in morbidity and mortality.[58]

As reported in the document La salut a Barcelona (2018),[59] 16.6% of men and 30.5% of women over the age of 64 experienced loneliness in 2017. Also, in the same year, 46% of men and 40% of women over the age of 64 attended group activities. 30% of people over the age of 64 who live alone (primarily women) have difficulty walking down the street.

The barriers to accessing public space and urban networks often begin at home, especially if housing is not accessible due to a lack of elevators or ramps. An accessible city is an inclusive city for children, for the elderly, for people with disabilities, and all citizens who may have a disability at some point in their lives. Universal accessibility incorporates elements of personal autonomy in the city's life that, in short, can be used and enjoyed by the entire population of Barcelona.

Thus, the primary residential barriers for the elderly can be structured into difficulties of accessibility and mobility, substandard housing and renovation needs, and challenges in coping with housing costs. Support for access to adequate and affordable housing and the adaptation of the existing building is one of the main challenges of guaranteeing the right to housing and network access to this group. Despite the trend towards residential autonomy, the elderly suffer from difficulties related to accessibility, accentuated in the case of the Ciutat Vella district – although the Nou Barris,

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[57] Windle et al. (2014). Preventing loneliness and social isolation: interventions and outcomes.

[58] Agència de Salut Pública de Barcelona (2019) Escola de Salut de les Persones Grans. Protocol
Holt-Lundstad et al. (2010). Social relationships and mortality risk: a meta-analytic review.
Steptoe et al. (2013). Social isolation, loneliness, and all-cause mortality in older men and women.

[59] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018, Monogràfic: Condicions de vida i salut de les persones grans de Barcelona.

Horta-Guinardó and Gràcia districts also hold higher percentages than average.[60] It is concerning that these are the districts where more elderly people live and, more specifically, single older people. Three quarters of elderly people live in owner-occupied housing, and 17% do not have a lift.[61] These data show the existence of a large number of elderly people living in inadequate housing in the city.

The ease, autonomy and security that people need to access the different social spaces make daily mobility crucial for the vitality and resilience of the social fabric of an urban context. For people with reduced mobility and the elderly, especially those with physical limitations, accessing meeting and coexistence spaces near their place of residence is decisive for their emotional and physical well-being. For people aged 65 and over, walking safely and autonomously at the same time both allows them to participate in the neighbourhood social network, reducing possible situations of unwanted loneliness, as well as allowing them to age actively and healthily.

With this in mind, a mapping exercise was conducted in order to evaluate the presence of barriers that hinder daily life mobility on foot at a neighbourhood scale, including width of sidewalks, slopes, highly touristy areas, etc. In this study, data has been selected to define a series of conditioning factors for everyday mobility on foot, each of which has been assigned a score according to its impact. The analysis consisted of an evaluation of the presence of each conditioning factors per street section and extrapolated results to a neighbourhood scale in order to make a territorial evaluation.

Most of Barcelona's urban area has a low level of conditioning factors that limit everyday mobility on foot. Looking at where the population over 75 live, some areas of the city are highlighted as having a high level of daily mobility barriers, mainly the neighbourhoods of Poble Sec, la Font de la Guatlla, Vallcarca i els Penitents and Montbau, mostly due to their proximity to city slopes.

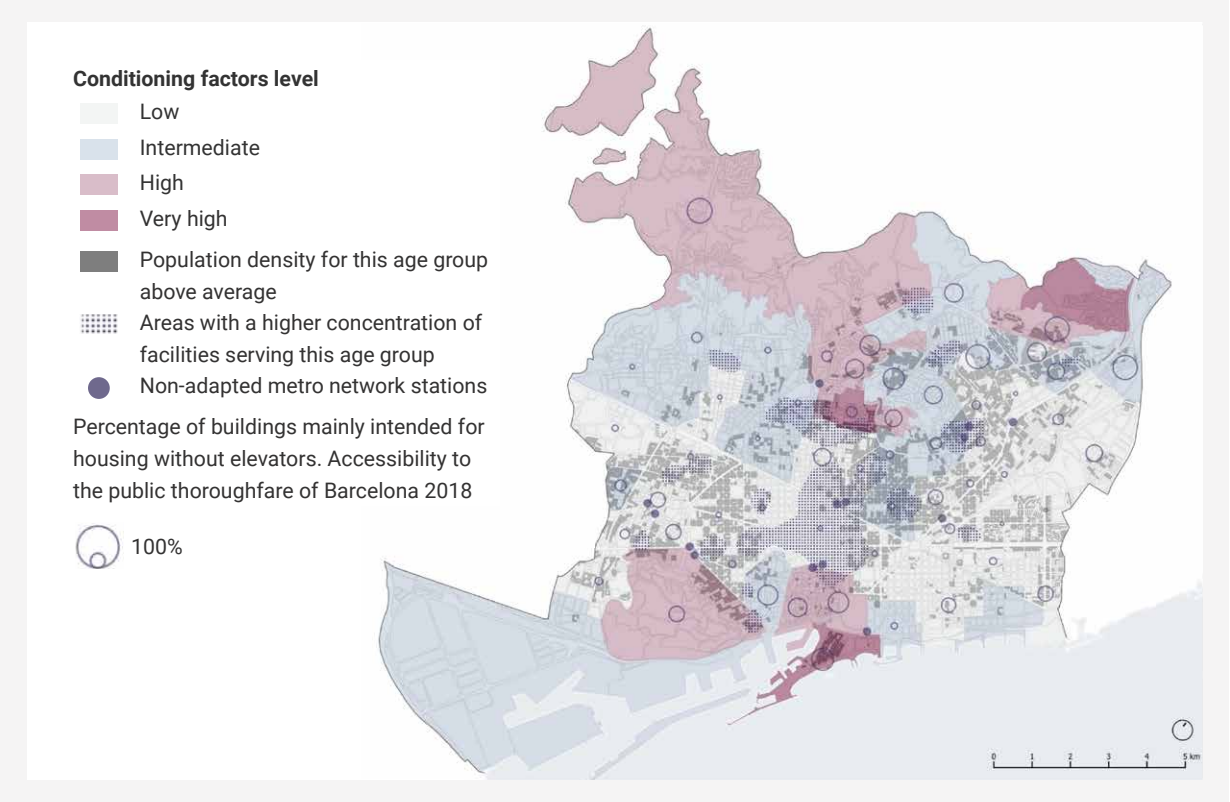

Figure 25: Map of the level of conditioning factors for daily life mobility on foot. Population group 75 years old and over. Source: Barcelona Resilience Department. Resilience Plan Diagnosis. Where are the people with the highest level of daily mobility barriers? (2020).

[60] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018. "Monogràfic: Condicions de vida i salut de les persones grans de Barcelona".

[61] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018. "Monogràfic: Condicions de vida i salut de les persones grans de Barcelona".

Poverty, housing security and risk of social exclusion

For the elderly, almost 80% of their income comes from their pensions, and 27.3% of the population over 75 in Barcelona is in a situation of poverty or social exclusion (following the lines of the AROPE rate),[62] almost three points above the city average.[63] Economic difficulties are more common among women and are associated with higher mortality and various health problems.[64]

Another significant aspect that should be noted is the high economic vulnerability of people aged 55 to 64. They suffered from a higher risk of poverty and long-term unemployment than the population average over the last decade. From the age of 64, the harmful effects inactivity are demonstrated.[65]

In recent years, there has been an increase in home ownership compared to rentals among senior citizens.[66] The explanation for this process are the demise of old-style rental agreements, the economic strain of renting in the free market and, above all, having prioritised ownership earlier in life. Consequently, there has been an increase in the number of senior citizens who own a property that is completely paid for, but there has also been a slight increase in the number of senior citizens with outstanding payments. In general terms, the security of ownership has improved for senior citizens and having a property asset allows them to deal with extraordinary expenses, such as entering an old people's residency. However, in the context of increased rental prices and the demise of old-style rental agreements, cases of separation or divorce (also increasingly common among the elderly) can lead to residential vulnerability or the need to change city.

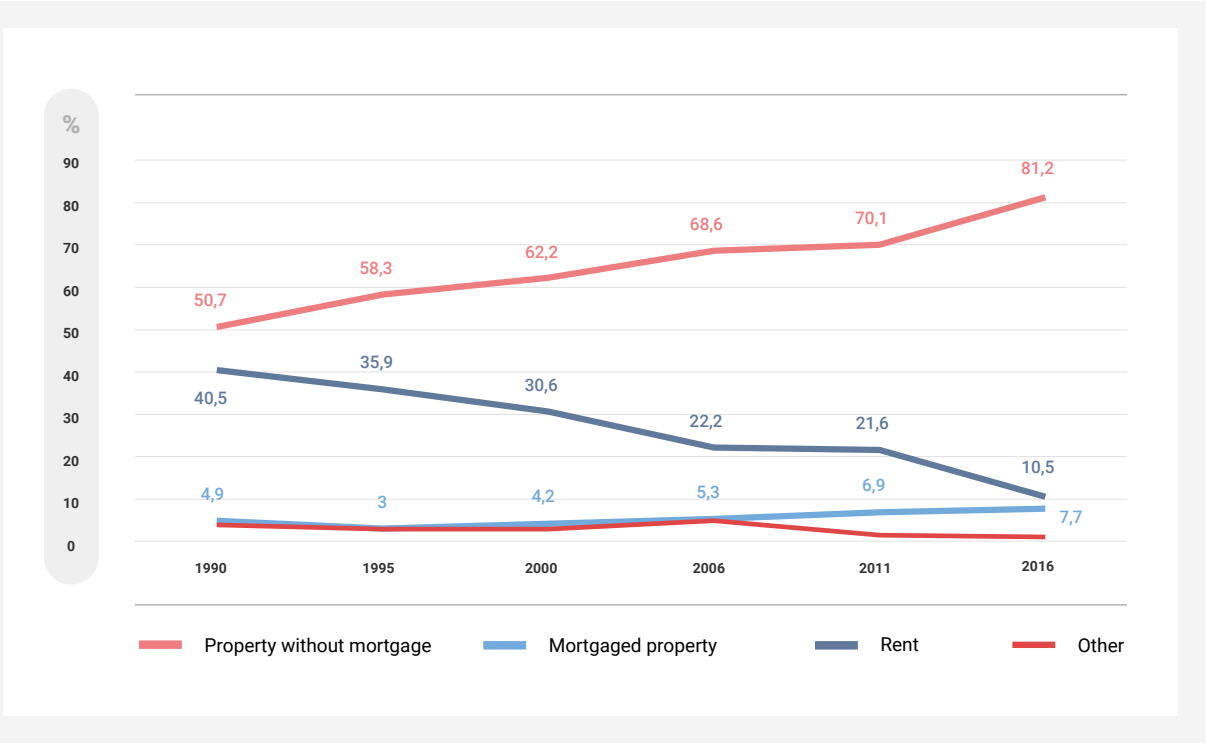

Figure 26: Evolution of ownership for people aged 65 or over. Barcelona 1990-2016. Source: Barcelona City Council Strategy for Demographic Shift and Ageing 20218-2030[67] (2018).

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[62] Indicates the% of people who are in at least one of these three situations: below the at-risk-of-poverty threshold, suffering from severe material deprivation (PMS) and in low-intensity work households (BITH).

[63] Barcelona City Council (2018). Enquesta Sociodemogràfica de Barcelona 2017.

[64] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018 - Monogràfic: Condicions de vida i salut de les persones grans de Barcelona -.

[65] Barcelona City Council (2018). Estratègia sobre canvi demogràfic i envelliment 2018-2030.

[66] Barcelona City Council (2018). Estratègia sobre canvi demogràfic i envelliment 2018-2030.

[67] Barcelona City Council (2018). Barcelona City Council Strategy for Demographic Shift and Ageing 20218-2030.

Energy poverty[68] is a primary factor to analyze among the elderly. Exposure to excessive cold and heat should be carefully considered in old age. In Barcelona, 7.1% of men and almost twice as many women (13.1%) cannot afford heating. In similar proportions (8.6% of men and 15.1% of women) cannot keep the house at a suitable temperature during the warmer months.[69] The inability to enjoy a proper temperature inside the home is an indirect indicator of the energy poverty that many older people suffer.

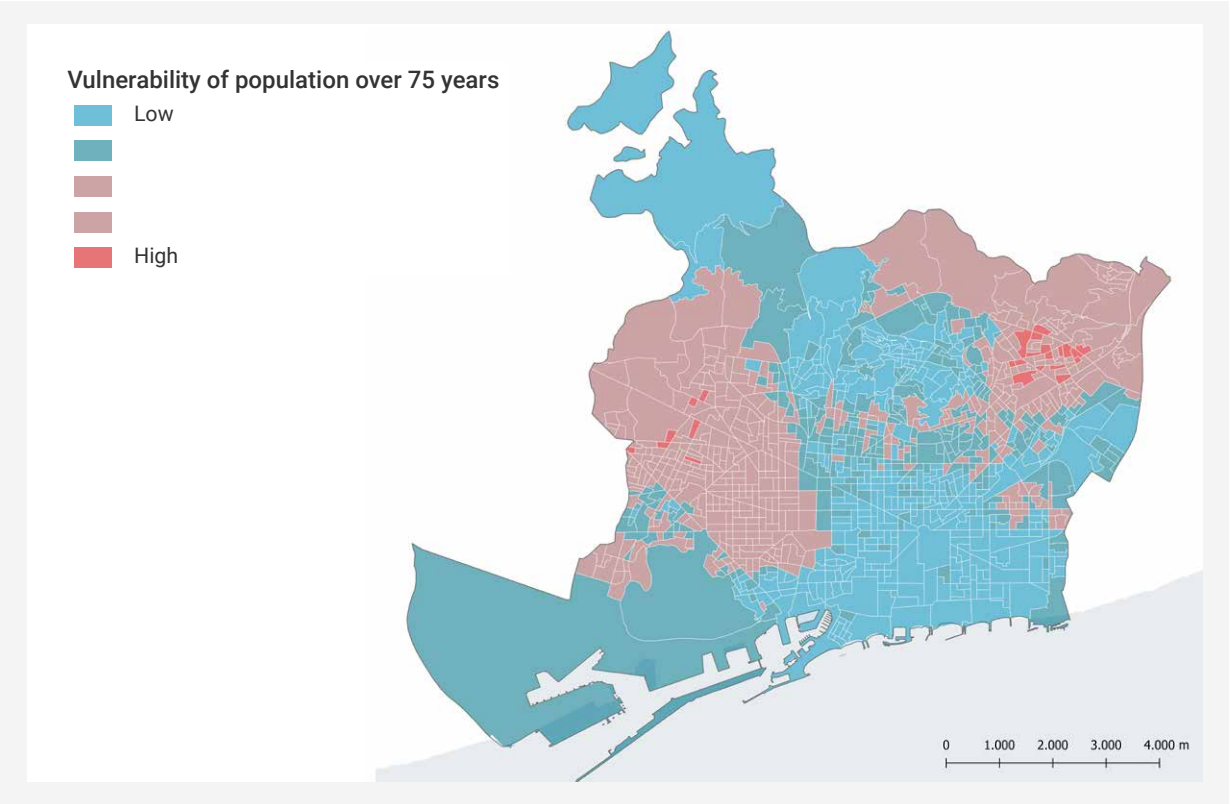

Figure 27: Map of vulnerability of the population over 75 years of age due to heat waves. Source: Study of climate change impacts on Barcelona. Barcelona Regional (2017).

[68] Energy poverty can be defined as the situation suffered by households that cannot afford a sufficient amount of energy services to meet their domestic needs and / or when they are forced to allocate an excessive part of their income to pay. the home energy bill. (Tirado et al., 2012).

[69] Agència de Salut Pública de Barcelona (2019). La salut a Barcelona 2018 - Monogràfic: Condicions de vida i salut de les persones grans de Barcelona -.

Ageing population and health

Chronic exposure to regular levels of air pollution has a significant impact on health. It causes the premature death of hundreds of people each year. In Barcelona, the areas with the highest levels of risk exposure (average annual NO2 emission levels above 40 µg / m3) are those crossed or delimited by metropolitan connecting roads, many of them in relatively developed neighbourhoods. It is estimated that about 50% of the population lives in these exposed areas in the city. With regards to vulnerable people, approximately 20,000 are over 65 years old.

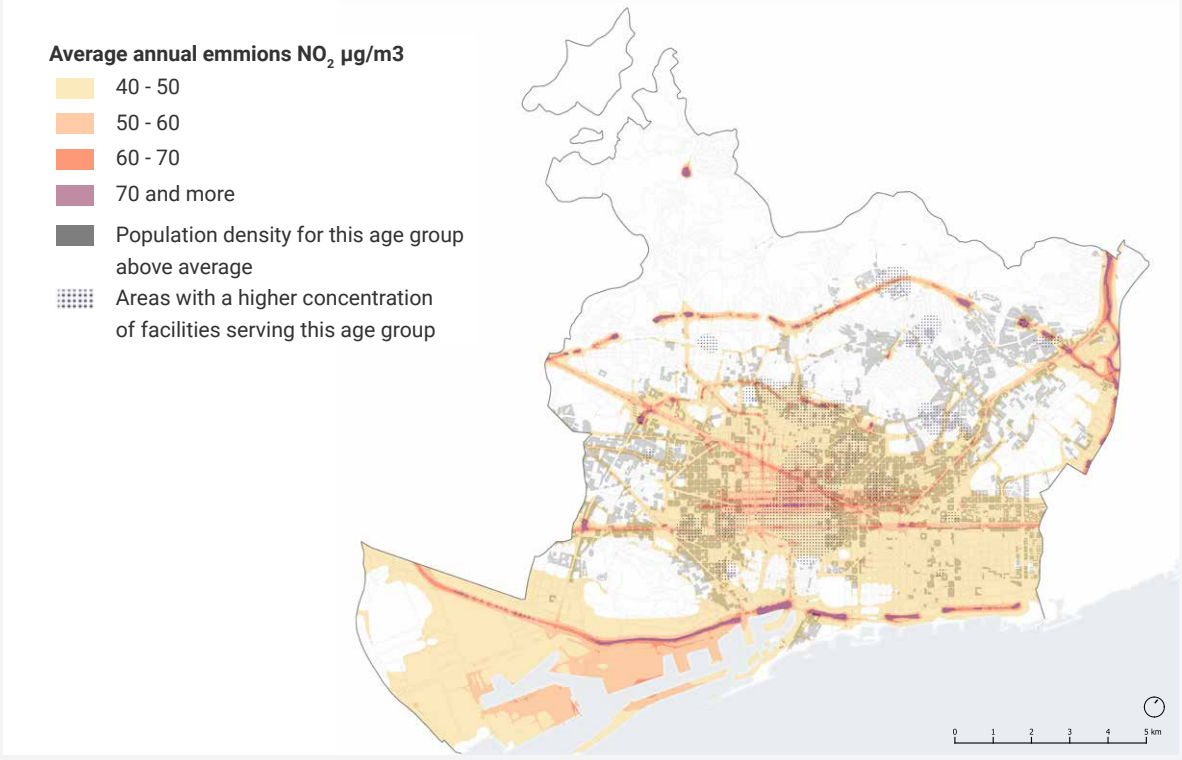

Figure 28: Map of pollution levels. Population group 65 years old and over. Source: Barcelona Resilience Department. Resilience Plan Diagnosis. Where are the most exposed people to atmospheric pollution? (2020).

As previously detailed, Barcelona has a significantly high level of risk of surface heat accumulation due to its geographical location. The thermic impact exposure maps' appraisal allows for an analysis of people in vulnerable situations by age exposed to low thermal comfort values. Heat islands were identified as a risk for the elderly, and the most critical risk was found in La Sagrera, around Plaça Lesseps, in La Salut, Camp d'en Grassot and Gràcia Nova, and the Vila of Gracia. To a lesser extent, we observe islands in the neighbourhoods of Sagrada Família, Congress, Indians, Prosperitat, Baix Guinardó, and Navas. In some of these neighbourhoods, islands affect close to 50% of the total district.

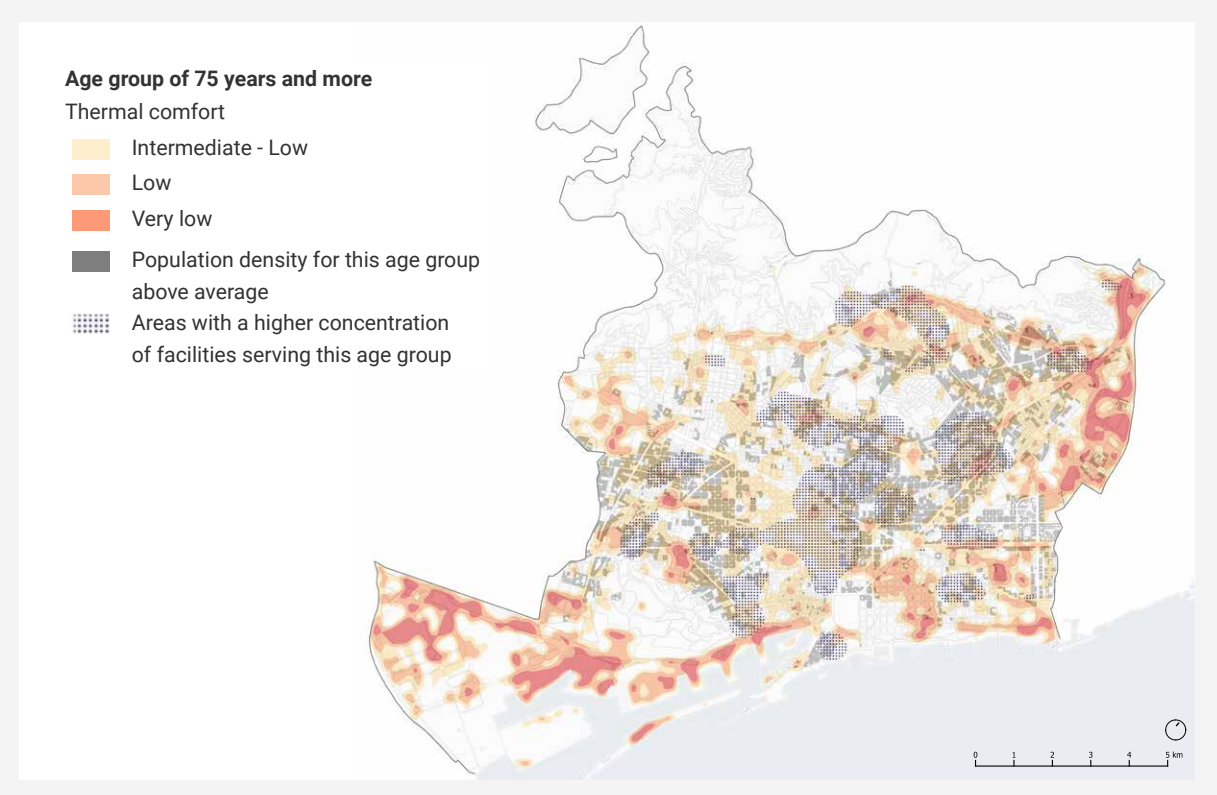

Figure 29: Map of surface heat accumulation. Population group 75 years old and over. Source: Barcelona Resilience Department. Resilience Plan Diagnosis. Where are the most exposed people to thermic impact? (2020).

The vulnerability maps show that the areas with the lowest thermal comfort in the city are also the areas where residents have the most financial difficulties, and coincide with the territories of the Neighbourhood Plan,[70] a municipal public policy and investment programme for low-income neighbourhoods to reverse current inequalities. In 2017, the neighbourhoods of Ciutat Meridiana, Les Roquetes, El Verdum, and La Trinitat Nova recorded a very low Disposable Family Income; and a low Disposable Family Income in the case of Sagrera, Vilapicina, and Torre Llobeta neighbourhoods.

The most vulnerable groups to heat (children below 4 years old and the elderly) are not only particularly affected by the conditions of their built environment but are also mainly in a situation of high economic vulnerability. Social determinants of health are better for those in an average or wealthy economic situation, and worse for those with lower incomes. The increase is even more significant among older women: 75% of women with material poverty report poor health.[71]

[70] Barcelona City Council (2021). Pla de Barris de Barcelona 2021-2024.

[71] Barcelona City Council (2018). Estratègia sobre canvi demogràfic i envelliment 2018-2030.

Dependence and care

The assessment of health status according to age groups in Barcelona shows that as the population ages, the perception of one's own health worsens.[72] As previously detailed, people with lower incomes tend to have worse health than those in better economic situations.

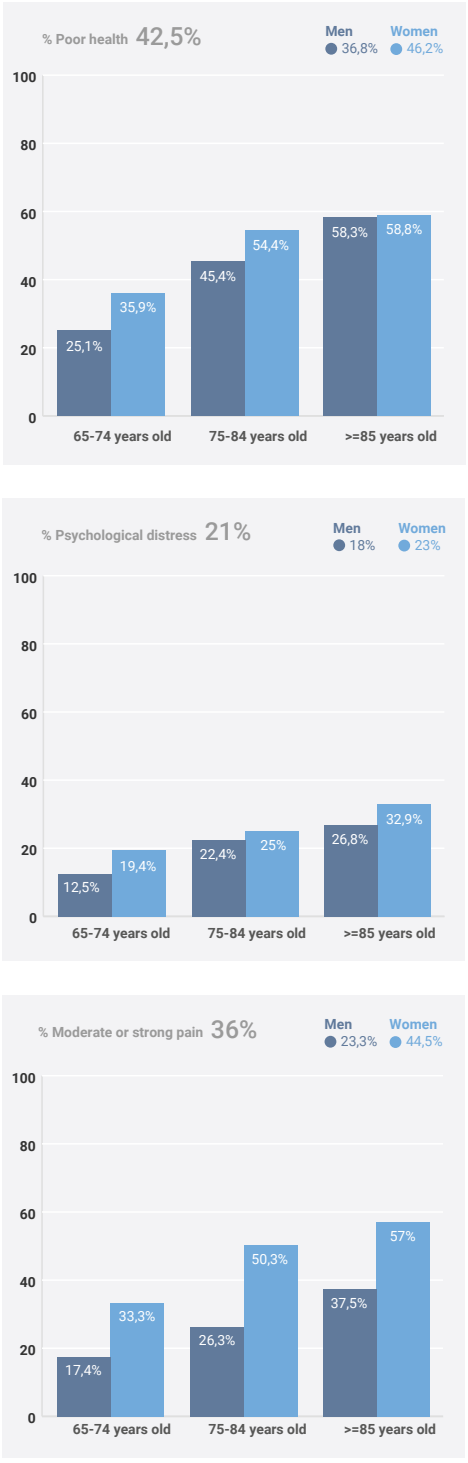

Figure 30: Health over 65. Source: La Salut a Barcelona (2018).

[72] Barcelona City Council (2018). Estratègia sobre canvi demogràfic i envelliment 2018-2030.

In Barcelona, 1 in 4 inhabitants over the age of 65 lives alone, most of whom are women.[73] 90% of people aged 80 or more state that if they could and wanted to change their residence, they would choose their current neighbourhood.

While old age does not imply dependency, from the age of 75, limitations on daily life and the need for help increase year after year, more intensely among women. The majority of the population (60% in the group of over 84 year olds) already has a severe disability that impacts daily living activities.[74]

50,000 people in the city have a recognized degree of dependency, of which 82% are 65 or older. Dependency care needs increase significantly and continuously from the age of 75 to 95, when almost half of the population of this age has a recognized dependency.[75]

As detailed, older urban residents experience economic vulnerability, poverty, and lack of social inclusion. Their opportunities for civic participation, and access to communication and information, and their options for employment are derived, specifically in the case of people in vulnerable situations, from the options offered by mobility, housing, and urban public spaces.

Their health and community support are underpinned by public space networks and housing adequacy. The 'Strategy on demographic shift and aging 2018-2010', or the 'Municipal strategy against loneliness 2020-2030', to name two of the municipal programmes most closely related to the aging of the population, set the goal of anticipating the demographic change process and planning the most appropriate public policies in the face of the challenges that are foreseen in the medium and long term.

Goals will include strengthening existing policies and services related to care, health, and housing, promoting quality relationships and supporting community building and outreach services while also opening new lines of action based on the needs identified to ensure the well-being of all citizens following the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda. Barcelona wants to face demographic shift by defending the right to the city for all ages, valuing contributions and social participation in all cycles of life with special attention given to the most vulnerable groups.

[73] Barcelona City Council (2017). Mesura de govern per a la promoció de les persones grans a la ciutat de Barcelona.

[74] Ibid.

[75] Barcelona City Council (2018). Estratègia sobre canvi demogràfic i envelliment 2018-2030.

Chapter 5
Outputs of the Process

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Outputs of the Process

While Recommendations of Actions for Resilience and Sustainability (RAR-S) based on the outcomes of the assessment have not been released yet in this phase, some key outputs can be singled out:

Evidence-based knowledge – Barcelona Resilience Atlas

The CRPT V1.0 assessment undertaken between 2016-17 ended with a compilation of almost 400 indicators related to the urban system model, and the generation of the Barcelona Resilience Preliminary Profile. More than 200 of these indicators were collected with disaggregated information detailed at district and/or neighbourhood level. The CRPT data collection and analysis process triggered some actions in a non-planned manner, that built the basis for the current Resilience Atlas:

- Production of 200 layers of new mapped information managed in GIS format.
- Systematic combination of layers of a geospatial analysis that enables overlaps of data sets not previously connected as they belonged to different sources (e.g.: emergency facilities, sociodemographic data, public transport systems and infrastructure,...)
- Findings highlighted not only the potential of exploiting the geospatial dimension of indicators for a more comprehensive assessment, but also the need for dissemination to make the results available for a wide range of stakeholders, including those involved (or not) in the data collection and information management processes.

As a result, the Barcelona Resilience Atlas was created. It is conceived as a consultation tool for municipal staff to disseminate and share the most relevant outcomes of the several vulnerability assessments carried out by the city, enhancing the use of territorial information and the cartography resulting from these analyses.

The information on the Resilience Atlas is periodically updated – so far it covers a variety of topics including climate change, housing and public spaces – and will eventually be publicly available.

Impact analysis of critical events - Barcelona Resilience Department methodology

Starting from early 2019 onwards, Barcelona Resilience Department has been working to develop a methodology to analyse critical events affecting the city and its systems, with the objective of measuring their impact on different urban services. Understanding the city as a service provider and defining impact as an alteration in the mechanisms of service demand and service provision (see more detailed explanation in Section 2), the Department has been carrying out post evaluations on how a diverse range of hazards affect the city's capacity to respond to and recover from critical events that compromise its service-delivery mechanisms. Building on both quantitative and qualitative evidence collected by different municipal departments, the hazardous events investigated in this framework include, civil unrest following the Supreme Court's judgement on the Catalonia process (10/19), storm Gloria (01/20), and the Covid-19 pandemic (2020-21), among others.

Evidence and knowledge produced during this process are iteratively compiled in a risk mapping through which different municipal departments and city officials can easily take stock of the main hazards affecting the city over previous years, the coping capacity in place, and the critical areas to be improved. Key findings defined through the methodology are presented to and discussed with different municipal actors through the recently relaunched Municipal Resilience Committee.

The methodology, which was co-developed with the Resilient Cities Network (former 100 Resilience Cities) and building upon UN-Habitat's system-based approach to urban programming, has a strong resilience value in terms of both measuring impact of hazardous events and detecting key opportunities for resilience building in the short, medium and long term.

Localization of Sustainable Development Goals – Barcelona SDGs strategy

Barcelona City Council has developed intense research around concepts and definitions of various urban goals and indicators linked to the SDGs. The indicators are aligned with the main international development agendas and frameworks. The last phase of this work was carried out in parallel to the second CRPT Lite implementation phase with the identification of several Priority Matters for the city. With the goal of promoting peer learning between cities, the CRGP is building on the experience in Barcelona to currently support the strategy to localise the Sustainable Development Goals in collaboration with city's Agenda 2030 Department. As part of the VLR, the Agenda 2030 in Barcelona takes into consideration the 3 matters of priority detailed in this report, considered as three important components of achieving sustainable development by 2030.

Priority Matter 1 (Right to Adequate Housing and Access to Basic Services) is covered in SDGs 1, 6, 7, 8 , 9, 10 and 11. The forthcoming post-COVID-19 strategy encompasses improvements in SDG7 (launch of a new renovation plan for the city's housing stock, improving comfort and energy efficiency while also installing renewable energies) and SDG 11 (Considering housing as an economic, social and environmental response to the crisis), among others.
Priority Matter 2 (Public Spaces – Accessibility, Health, Uses and Social Cohesion) is covered extensively in SDG 11. The forthcoming post-COVID-19 strategy encompasses improvements in SDG 11 (designing public areas that prioritise pedestrians and ensure universal accessibility from a metropolitan perspective), among others.

Priority Matter 3 (Ageing Population and Demographic Shift) is covered in SDGs 1, 3, 5, 10 and 13. The forthcoming post-COVD-19 strategy encompasses improvements in SDG 3 (Strengthening the city's Healthcare and Biomedical system, and consolidating Barcelona as a safe and advanced city that is a leader in the provision of healthcare) and in other SDGs that affect the elderly population in the city.

City stakeholder commitment and coordination for resilience - Barcelona Municipal Resilience Committee

In the wake of the start of the Covid-19 pandemic crisis and building upon the preliminary findings of the Barcelona resilience assessment and diagnosis, Barcelona City Council is relaunching its Municipal Resilience Boards,[76] as a cross-departmental space to identify the most pressing risks and vulnerabilities, and shape proactive policy actions in different municipal areas.

Building on the positive experience and capacity generated by the Technical Resilience Boards for Urban Infrastructure and Services (firstly created in 2009), the new Municipal Resilience Committee has been boosted by the Municipal Manager Area together with the Security and Prevention Management Areas and the Resilience Department, bringing together the highest-level representatives of all the sectors in the executive municipal structure: Urban Ecology; Mobility and Infrastructure; Head Architect; Security and Prevention; Social Rights; Global Justice, Feminism and LGBTI; Agenda 2030, Digital Transitions and Sport; Culture, Education, Science and Community; Economy, Resources and Economic Development. The process also integrates a territorial approach by incorporating the Proximity and Territorial Coordination Department as well as Departments of particularly complex districts of the City (such as Ciutat Vella District and Sants-Montjuïc).

Projects boosted through the Municipal Resilience Committee include both existing programmes to be accelerated and new initiatives to be launched with coordination among different departments. Final reflections relate to the continuous revision and update of this resilience model, in line with the iterative process described above.

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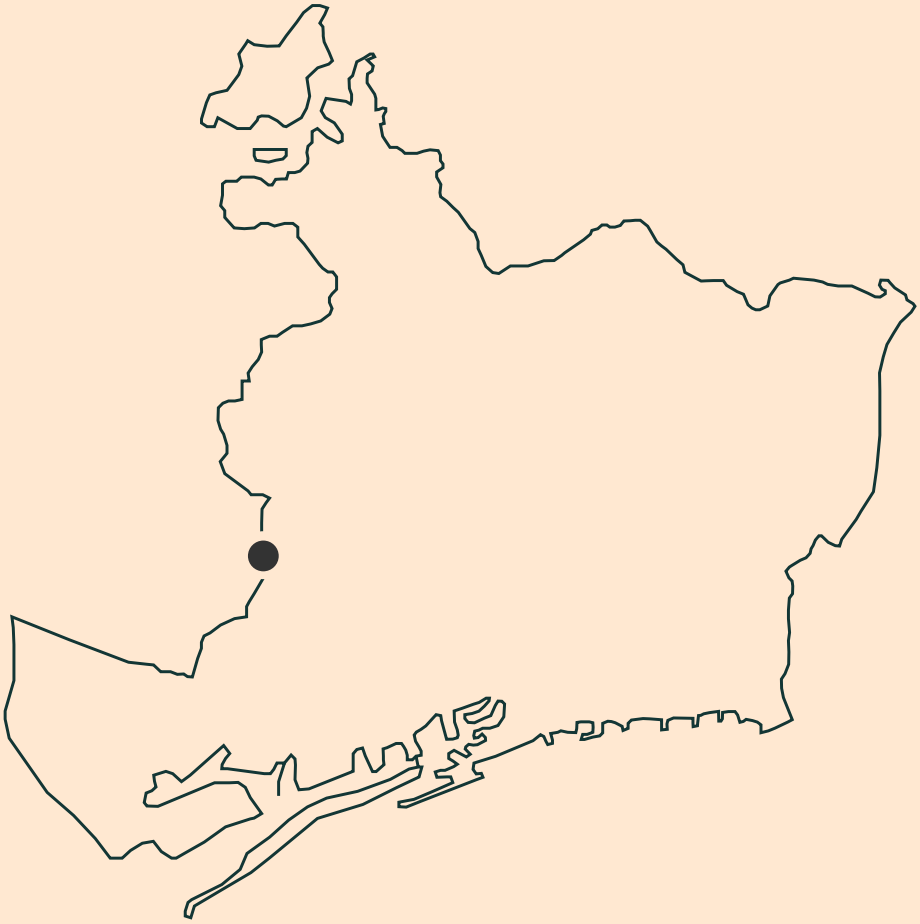
[76] Barcelona City Council (2021). Explanation of the Municipal Resilience Boards Doc:210419 Bones pràctiques ODS.

Conclusions



Conclusions

Critical urban situations should be considered enablers for resilience in cities. Given that local governments such as Barcelona City Council, are at the forefront of managing pressing urban risks and challenges, their role in addressing resilience while achieving sustainable development targets is essential. The severe impacts of the ongoing COVID-19 pandemic on cities have highlighted the need to proactively apply the resilience lens in urban decision-making and actions. The shifting paradigm from the logic of reaction/response and recovery to that of preparedness and reduction of vulnerabilities incorporates building resilience in 'peacetime'. Barcelona has, through this process, become a global reference in the field.

During the COVID-19 period, cities have developed better methodologies and tools to analyse, evaluate and plan for resilience. Local administrations need support to leverage new digital technologies and evidence-based urban resilience working approaches, and to integrate and implement resilience analysis and actions. The diagnoses that result from using analytical tools can orient actionable resilience policies – informed and underpinned by data – to support current and future decision-making. Working from the local level therefore has a significant impact on the global level.

As has been demonstrated in Barcelona, data collection and assessment are the first steps in the urban resilience roadmap journey. Many local governments are not starting from scratch and can use data and indicators to manage disaster and resilience risks effectively. They have access to consistent frameworks grounded on international standards to define resilience pathways in their cities (UNDRR, UCLG, RCN, and UN-Habitat frameworks, among others). The CRPT provides cities with a robust and tested tool (shaped through the seven years of implementation by UN-Habitat's Global Resilience Programme with Barcelona City Council as a voluntary end-user of the tool). The tool has evolved to integrate the adaptability necessary for different cities and the current version (the CRPT Lite or modular approach) offers various possibilities of use.

Resilience building is a multi-stakeholder process, and data collection, assessment, and action require the participation of a wide range of actors. The outcomes of the process itself – data discovery; knowledge increase about procedures, operations, and services; communication enhancement between city managers and city stakeholders; and collaboration and coordination between city departments – are just as substantial as the assessment's results. Even though the tool and methodology provide a framework and instruments to support cities in these tasks, implementation requires commitment and, where possible, a dedicated team in the city to maximize these benefits. Thus, the role of a local focal point endorsed by the municipality with the capacity and sufficient resources to undertake this mandate is essential.

This transformative work, pioneered in the city of Barcelona, is essential to provoke a shift from a reactive urban culture to a proactive one. The resilience process in the city has resulted in calibration and progressive adjustments of the CRGP methodology and the Tool to make them more efficient and effective to apply. It has also provided findings, discoveries, and recommendations to the city of Barcelona that can be useful for others. The Barcelona Resilience Profile and the city's SDG voluntary local review (VLRs) are now interconnected, underpinning the resilience diagnostic-planning process while allowing resilience policies and the impact of actions to be measured through local indicators and data. The insightful experience of Barcelona is shared within this report and it should pave the way for other cities to explore and lead their own urban resilience journey.

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Resilience Profile

BARCELONA

This report presents the results of data and information gathering on the urban resilience context of the City of **Barcelona**, with the purpose of picturing the city's panorama and most relevant sectoral information.