

HUMAN & RESILIENT SANTIAGO



Metropolitan Governor

Claudio Orrego Larraín

Resilience Director

Gabriela Elgueta Poblete

Produced by

Resilience Team. Resilient Santiago

Gabriela Elgueta
 Cristián Robertson
 Cristina Huidobro
 Adriana Chavez
 Diego Durán
 Paula Reyes

In collaboration with

Resilience Advisory Council
 Regional Metropolitan Government
 Universities
 ARUP

General Edition and Coordination

Cristián Robertson

Graphic Design

Adriana Chavez
 Cristián Robertson

Contact

santiagoresiliente@gobiernosantiago.cl

Cover Photo

Guy Wenborne

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**HUMAN &
RESILIENT
SANTIAGO**

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RESILIENT & HUMAN SANTIAGO

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Claudio Orrego Larraín

Santiago Metropolitan Area Governor



There are several challenges that the Metropolitan Region needs to address in order to meet the expectations of its citizens. Although the majority of its inhabitants believe that the region is progressing and holds many benefits in teSMR of accessibility to services, work opportunities and connectivity, they also willingly admit the existence of problems that significantly affect their daily lives. These problems can be traced in areas such as security, transport and pollution, where social inequality is a factor that transcends all of these stresses.

Likewise, phenomena such as climate change and greater citizen empowerment make it increasingly complex for the city to face critical, social and nature-related events, illustrating the need to generate prevention and mitigation plans.

Whilst these urban problems are shared with most of the world's major metropolises, Santiago still has a long way to go before it can become a global city, with proper governance and an improved quality of life for its inhabitants.

This Resilience Strategy is the first step in addressing these challenges, as it transfoSMR the dreams and aspirations of the city into concrete, implementable actions that may truly impact people's lives.

This comes at a period of transition in the country. The constitutional reform that created governors-elect in regions (including Santiago), and that established the metropolitan areas, has only recently been approved. Although all of its powers, financing and the election date of these governors are yet to be established, this will happen sooner or later, and moving from the current marked centralism towards an effective decentralization stage, is undoubtedly necessary.

By developing this strategy, progress has been made for Santiago to become a fairer, more humane and inclusive city, providing all of its inhabitants with the opportunity to live and enjoy the city's benefits under the same conditions. We want to build a human scale city, where development is focused on the people. We want to improve the city's ability to face the stresses and shocks that threaten it, and implement actions that allow us to become a Human and Resilient Santiago.

This resilience strategy has been prepared with the citizens' needs at the forefront of its mind, in a participatory public-private agenda, which has managed to generate a comprehensive plan for the Metropolitan Region of Santiago. It includes actions that are consistent with the expectations of institutions: the capacity to strongly lead the changes that are required to achieve the desired standard of living in the city, five hundred years after the foundation of Santiago, in 2041.

We must improve collaborative work with the different stakeholders of society. The Rockefeller Foundation's 100RC network has been an essential support system and, together with the Strategy-making process, it has allowed for articulating public stakeholders, companies, academics and social organizations, whose specialized counseling have made it possible for all knowledge in this document to be at the city's service.

Metropolitan governance can provide a major contribution to developing a Resilient Santiago. Strengthening regional and local decision-making powers, as well as a territorial development approach, can improve resource allocation efficiency, policy-making and implementation quality, as well as the legitimacy of collective decision-making, bringing itself closer to inhabitants.

But above all, resilience requires an adequate leadership that recognizes the interdependence between organizations and network interactions that run through the city, where dialogue, negotiation, trust building and the construction of shared agreements and horizons must meet.

At present, the relative lag of Santiago's regional level makes it difficult to act on those areas where coordination and institutional fragmentation problems must be faced, to maximize the advantages related to agglomeration economies that occur in cities, to identify groups or areas with lags, and the capacity to generate specific public policies of the territorial reality.

In this sense, regional governance appears as an emerging challenge in a country with a centralist tradition, and whose decentralization process has been mainly focused on strengthening municipal governments, over the regional and metropolitan scale. Hence why this strategy is aimed at putting an end to institutional fragmentation, where municipalities act as 34 islands and where an autarkic operation from ministries and services is imposed.

The Resilience Strategy for the Metropolitan Region acts as a commitment to a sustainable, fair and resilient city; one that is also able to face future challenges in an effective manner.

Michael Berkowitz
100 Resilient Cities President



100 Resilient Cities is honored to partner with Santiago, Chile, in supporting this important work and celebrating the presentation of this resilience strategy arising from the city's multiple shocks and stresses, as well as from the increasing need for better integrated regional planning and metropolitan coordination.

The political commitment and leadership of Intendant Orrego were crucial in developing this Strategy. The Resilience Office focused its efforts on ensuring that the city's different planning instruments were taken into account during the process to examine each of the issues. Local stakeholders' knowledge and experience was certainly a distinctive element of this strategy's development, including the participation of academics, public and private sectors, as well as civil society.

The Intendance is currently making progress in order to institutionalize the Resilience Office and to ensure that it is an organic part of the Regional Government, which will allow for achieving synergies with other areas of the institution that are being addressed by the new urban agenda, aimed at Santiago's sustainable development.

I would like to thank Claudio Orrego, since this would not have been possible without his leadership and support. I would also like to thank the City's Resilience Director, Gabriela Elgueta, her assistant, Cristián Robertson, and her whole team, who laid the groundwork for this forward-thinking Resiliency Strategy, and who were able to bring together and include the contributions of several stakeholders on resilience reflections.

The Resilience Strategy of Santiago, Chile, identifies six pillars and interrelated goals that guide citizen initiatives, which will thus make it possible to achieve a stronger, more resilient city. The strategy includes initiatives that identify and put forth a better metropolitan coordination for the integration of mobility options, including integrated public space and increased infrastructure for bicycles.

Santiago, Chile, has reached a historical moment in the redefinition of its regional government. This strategy outlines a set of opportunities that can further help define it. We are delighted to continue our work in Santiago, Chile, and we look forward to implementing the initiatives of this strategy with the support of an important and diverse set of stakeholders from municipal and regional agencies, local universities and organizations, to the 100RC Platform Partners who have all come together to help create this strategy.

Gabriela Elgueta Poblete

Regional Coordinator of the Metropolitan Regional Government.
Metropolitan Region Chief Resilience Officer



The current political, social and environmental conditions call for Santiago to face and resolve the effects of acute shocks and chronic stresses that tend to arise as a fact of present and future reality in a more organic manner.

The Resilience Strategy opens a new space for reflection and action, which integrates different points of view and possible solutions to the structural problems of the region, aimed at laying the foundations of a participatory city plan. A city that must be thought of in an integrated manner, where people should feel as though they live in a cohesive city; one that is able to respond readily to conflicts and be prepared for potential crises.

The Metropolitan Region of Santiago (SMR) must learn from the past but, above all, admit its vulnerabilities, by establishing a public-private collaborative work model for the future. Implementation should especially focus on strengthening the local and community capacity to address problems in a timely manner. Resilient Santiago must have a continuous learning process, whereby innovation is essential in effectively and efficiently responding to the changes that will affect the city.

In order to achieve economic, social and cultural development in the SMR, fulfilling the goals proposed in the Strategy is essential. Although these actions are expected to materialize in 2041, they have been structured in short, medium and long-term periods, aimed at making determined and steady progress. We fully believe that these actions are integral to overcoming development barriers that can arise from the lack of planning in the Metropolitan Region, due to the existence of weak subnational institutions.

The strategy-making process has made apparent the need to provide common institutionalism to the challenges of the urban agenda, since they can no longer be classed as surfacing themes of the city: the effects of Climate change, urban sustainability, smart cities and resilience. Whilst there are multiple individual efforts by organizations being made to combat these issues, they do tend to address the same areas, simply duplicating actions.

A combined workforce must be put into action and this must be made to last. This has certainly been the best asset of the strategy-making process, which, far from being completed, is only just beginning. There are many stakeholders to be added in the future, generating new relationships and spaces for dialogue around the needs of an ever-changing city.

Santiago has all of the talents required to move forward on the resilience agenda. To this end, it also requires a system of governance that validates and encourages collaborative instances allowing it to face hazards and stresses in a harmonious and comprehensive manner

Executive Summary

HUMAN & RESILIENT SANTIAGO



Santiago is at a turning point in which it could reverse its shortcomings and capitalize on its advantages if appropriate measures are taken today. In recent years, the region and its inhabitants have demonstrated the capacity to recover from the most diverse impacts, from the mega-earthquake of 2010 to the overflow of the Mapocho River in 2016, recovering its operational capacity in a few hours. Likewise, Santiago has been able to cope, continue to grow and develop despite coexisting with chronic tensions such as inequality, air pollution and mobility problems. .

On the other hand, the governance structure of the city at the regional level is faced with a strong territorial fragmentation and institutional overlap that generates duplicities, lack of coordination, inability to integrate policies in the territory and the impossibility of generating comprehensive urban projects with a long-term look. The emphasis of this strategy is placed on governance, since it can contribute decisively to solving structural issues.

It is a priority to have a strategy that manages to generate the guidelines to face the problems of the city through a planning process that includes the different stakeholders of society with a vision of the future for the Region.

In this context, the network of 100 Resilient Cities (100RC), pioneered by the Rockefeller Foundation, selected the Santiago Metropolitan Region in 2014 to be part of the group of 100 cities in the world that work in the construction of resilience for face the physical, social and economic challenges of the 21st century.

The Santiago Human and Resilient Strategy generates a chart of navigation towards 2041, which seeks to strengthen the coordination capacity and promote an institutional framework that is capable of articulating all the stakeholders and communities, in order to learn from the lessons of the past, to know the risks and their roots, reduce and mitigate their eventual damages and strengthen the recovery capacity to build the Santiago of the future.

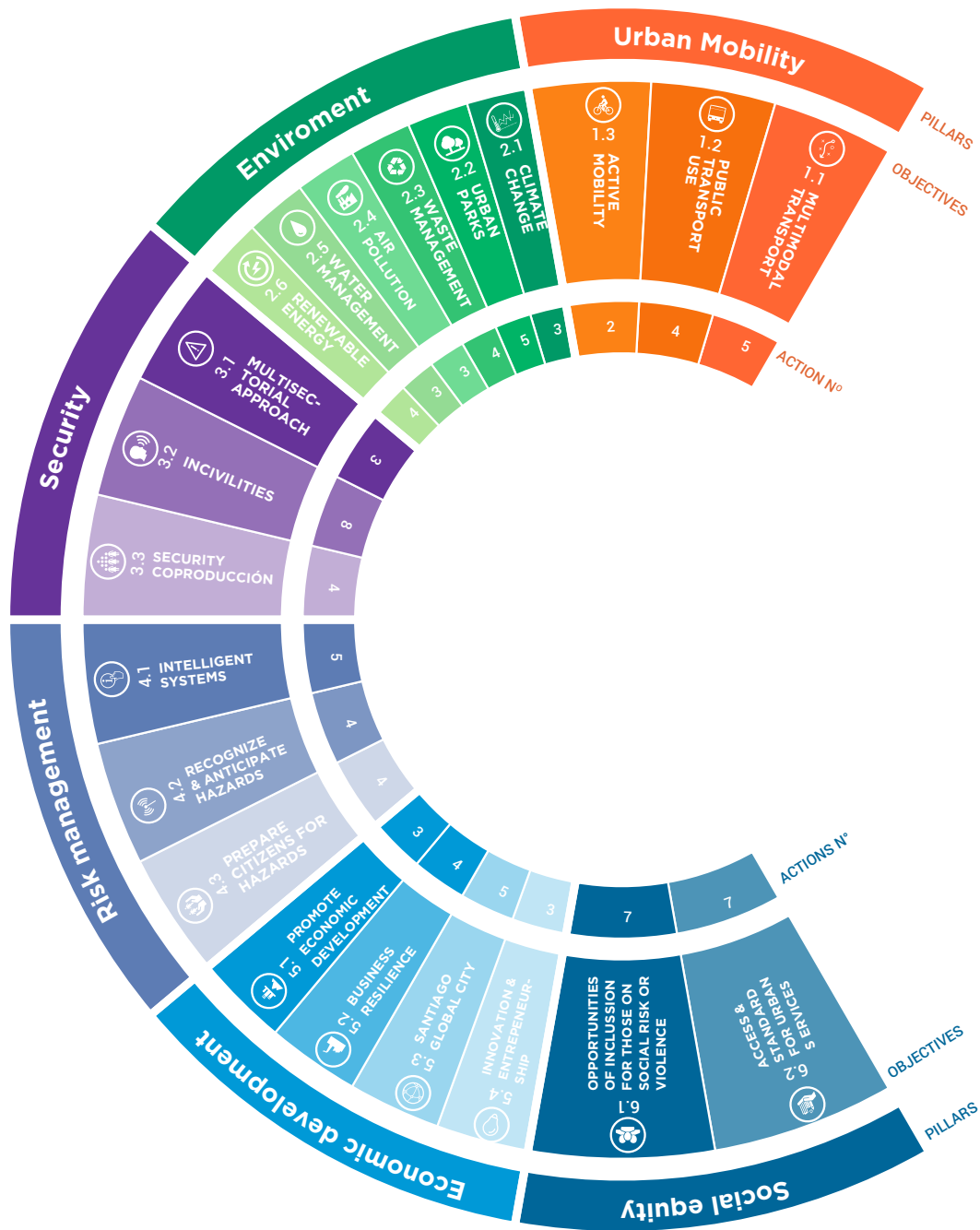
VISION

We aim for Santiago to have a human scale driven development, in which neither the car, nor the building, nor the economic interest predominates, but people. A city where its inhabitants know Santiago is dreamt, is planned and is built thinking of each one of them.

Santiago's Resilience Strategy is divided into **6 pillars: Mobility, Environment, Security, Risk Management, Economic Development and Competitiveness, and Social Equity; subdivided into 21 objectives** in order to address the challenges of the city through a more human and resilient vision. The objectives are achieved through **75 proposed plans, programs and projects** organized according to their temporality (short, medium and long term).

Throughout each pillar, a couple of **priority plans, projects or programs** were identified and recognized, due to their specific condition, as emblematic projects that Santiago Resiliente will promote for its future implementation

STRATEGY SUMMARY



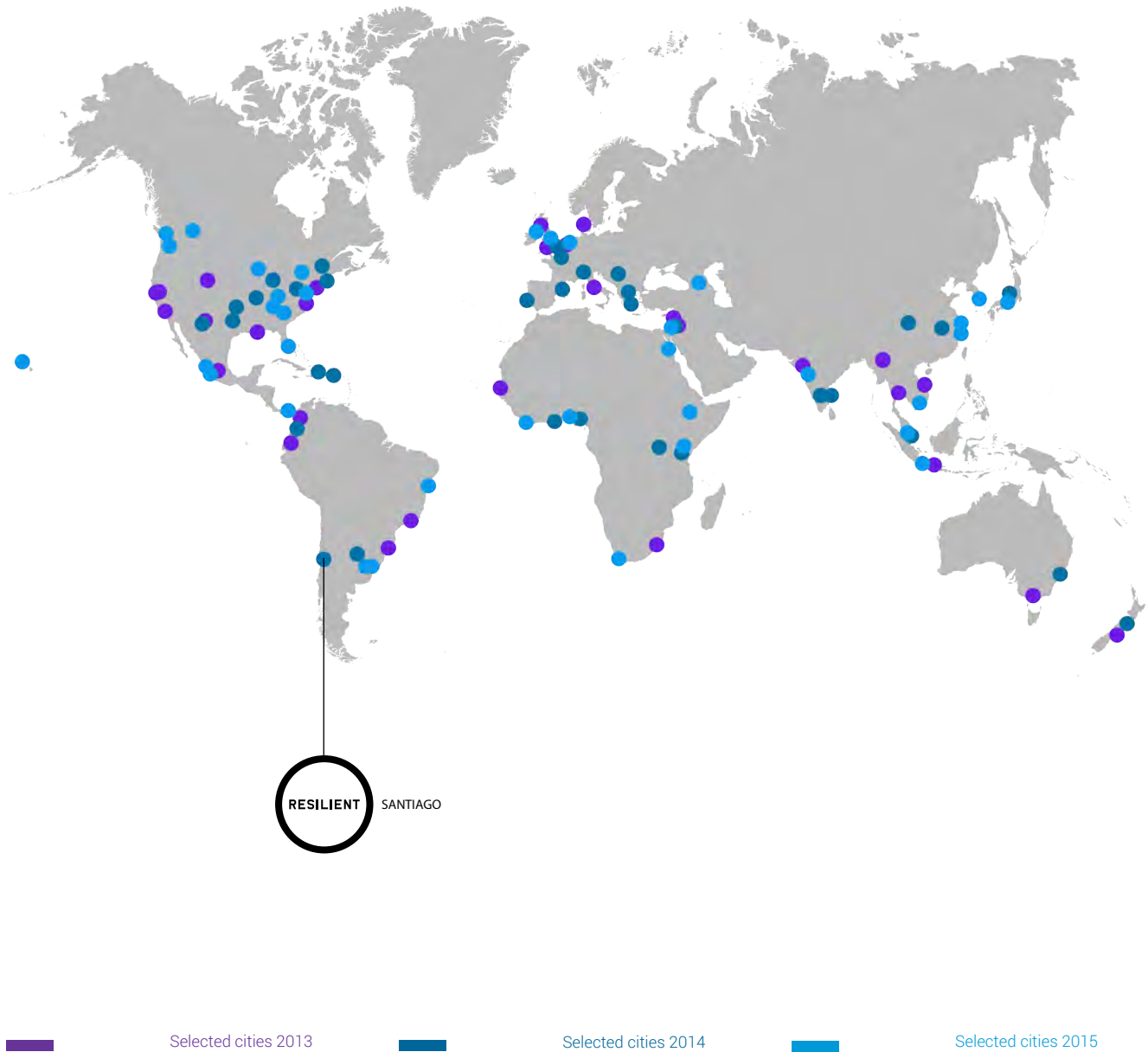
6
Pillars
21
Objectives
75
Plans,
programs
and action



Section I

INTRODUCTION

Figure 1. 100 Resilient Cities Network



1.1. 100 RESILIENT CITIES INITIATIVE

The 100 Resilient Cities network -100RC- is a program promoted by the Rockefeller Foundation, aimed at helping global cities become more resilient to the physical, social and economic challenges of the 21st century. 100RC supports the adoption and incorporation of a resilience approach that not only includes shocks, such as earthquakes, fires, floods, etc., but also stresses that may weaken a city's structure on a daily or cyclical basis.

The program supports the cities included in its network through financial support to retain a CRO¹, who will lead the city's resilience initiatives, as well as through expert support for the development of a resilience strategy, access to services provided by global strategic partners and by becoming part of a global network of cities to share experiences and best urban practices. Through these actions, 100RC is not only aimed at helping these cities become more resilient individually, but also at building a global practice of resilience between governments, NGOs, the private sector and citizens.

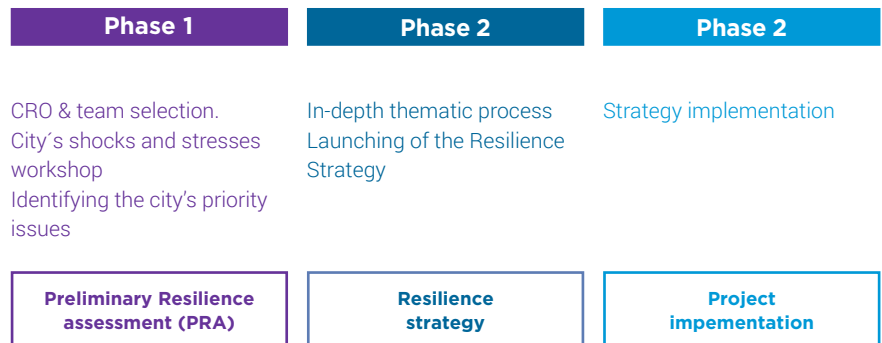
The program consists of three main phases:

Phase 1. Identifying the city's priority issues. The foundations for the development of the resilience strategy were established through instances of participation and the involvement of several key stakeholders. This phase culminated in the preparation of the Preliminary Resilience Assessment (PRA).

Phase 2. In-depth thematic process. New analyses were conducted during this phase, and the discussion of the prioritized topics was deepened. Gaps were identified and partnerships were formed. This phase ended with the launch of the city's Resilience Strategy.

Phase 3. Strategy implementation Development of the initiatives identified in the Resilience Strategy.

Figure 2. 100 Resilient Cities Phases



1. CRO, Chief Resilience Officer

1.2. CONCEPTUAL FRAMEWORK FOR URBAN RESILIENCE

Although the term ‘resilience’ emerged in the 1970’s; related to the field of ecology, describing the ability of systems to maintain or recover their functionality in the event of disruptions, in recent years, the term has also been used in connection with cities, since they are complex systems, constantly adapting to changing situations². The term resilience has been defined by the 100 Resilient Cities program as “the capacity of individuals, communities, companies

and systems within a city to survive, adapt and grow, no matter what kinds of chronic stresses and acute shocks they experience.”³. Urban resilience focuses on the ability of systems to better prepare, adapt and recover when faced with multiple threats, in a prompt and efficient manner.

According to the program’s definition of Resilience, resilient systems are characterized by 7 qualities⁴:

1. Reflective: They use past experience to gather information and to come to future decisions.

5. Resourceful: They recognize alternative ways of using resources in times of crisis, in order to meet their needs or achieve their goals.

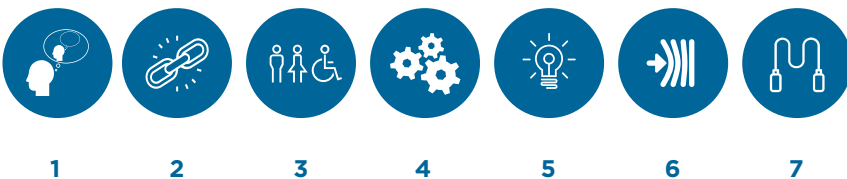
2. Robust: Well-built, conceived and managed systems integrating quantitative and qualitative approaches.

6. Redundant: They must include initiatives and policies that guarantee the ability to reactivate the city’s operating systems in times of failure or collapse.

3. Inclusive: Prioritize citizen participation, integrating the opinions and aspirations of society’s representative stakeholders in decision-making.

7. Flexible: Systems capable of adapting to unforeseen changes arising within the context: risk situations, critical situations, lack of data or the inclusion of new interested parties.

4. Integrated: Processes that are capable of bringing a wide range of different systems and institutions together through articulated work.



2. (ARUP, 2014).
 3. (100RC, 2014).
 4. (ARUP, 2014).

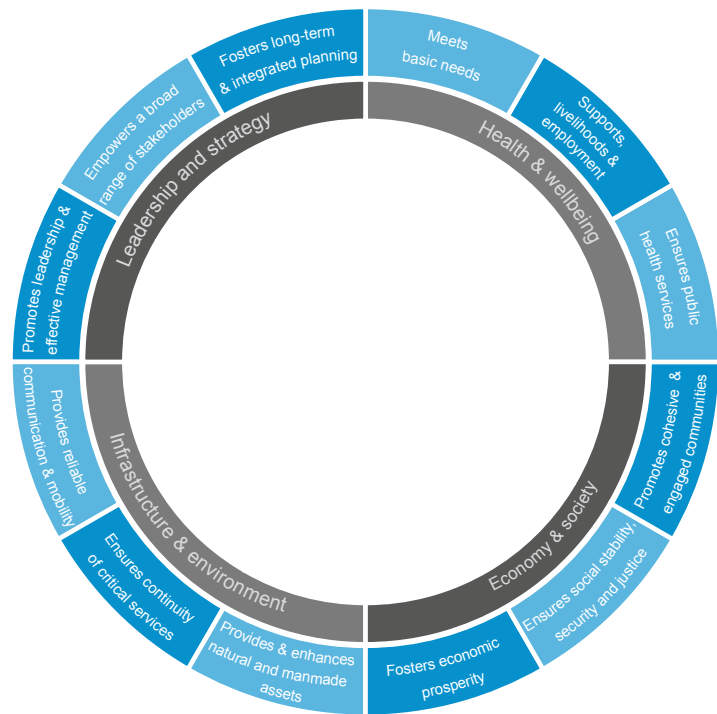
When these qualities are integrated into urban systems, the city begins to articulate its urban planning policies in a more comprehensive way, whilst building the institutional capacity to actually implement them.

To evaluate how each city begins this process, 100 Resilient Cities, in conjunction with the consultancy firm ARUP, has developed a conceptual framework defined as City Resilience

Framework (CRF). This conceptual framework intends to measure the city's ability to maintain operability, functioning, adaptation and behavior change when faced with a problem⁵.

The CRF integrates the qualities and interrelation of the problems that a city can potentially face- and allows for the evaluation of a city's resilience in the context of other members of the 100 RC initiative.

Figure 3. City Resilience Framework (CRF)




5. Opportunity Statement, City Resilience Index February 2013.

6. 2 groups of stakeholders and data sources were used for Santiago: 1) Interviews and workshops conducted by the Santiago-Resiliente team, 22 face-to-face interviews and 2 workshops with stakeholders. In total, 703 stakeholders were gathered through interviews and workshops; PRA-Santiago, pp. 26-28; 2) Perception and Public Opinion Study in the Metropolitan Region of Santiago, 2016.

The CRF consists of 4 dimensions, 12 objectives and 52 indicators. They help in articulating the city's resilience building process: they generate up to 156 qualitative scenarios and 156 quantitative data points. This conceptual framework was used during the first phase of the Resilient Santiago

program, for the collection of data, actions and perceptions through several participants⁶. This process allowed for the systematizing and illustrating of the results on the shocks, stresses, strengths and weaknesses of Santiago concerning resilience.





Section II

**SANTIAGO
WITHIN ITS
CONTEXT**

2.1. CONTEXT

The city of Santiago is the heart of the Metropolitan Region of Santiago (SMR), which although is the smallest region of the country, it is also the most densely populated one⁷. It currently has over 6.1 million inhabitants, and by 2020, its population is expected to exceed 7.5 million, which would count for over 40% of the country's total population⁸. In this context, Chile's population growth-rates indicate that Santiago's population will stabilize at around 8 million, below mega cities such as Sao Paulo or Mexico, which already exceed 15 million inhabitants.

Although Santiago's population is not expected to grow significantly, its income will indeed increase and as a by-product of this, so would the demands for a better quality of life, larger housing and better services and as a result, the city will continue to grow in size and height. The Gross Domestic Product of the SMR exceeds 93 billion dollars⁹, and is expected to double by 2025, placing Santiago among the world's 75 most dynamic cities. Projected economic and social growth implies that, by the end of this decade, middle-upper-class households (ABC1 C2) will increase their current share from 33% to 46% of the population. The Metropolitan Region is mostly urban: 96.9% of the population lives in urban areas, the percentage of rurality has remained stable since 1990 and the projections of the National Statistics Institute for year 2020 remain around 3 %¹¹.

The Region's most important activity comes under Financial and Business Services (36%), followed by Commerce, Restaurants and Hotels (16%), which count for half of the region's economic activity¹². Santiago is Latin America's safest capital city, with

the lowest homicide rates, low levels of corruption and a stable institution, creating the proper development dynamics for it to become one of the region's main business and services centers, thus capitalizing on its positive attributes. This is recognized in several international rankings that position the Chilean capital among the continent's 3 best cities to live in and do business.¹³

Administratively speaking, the Metropolitan Region is led by the Regional Government, which is headed by the Intendant and the Regional Council. Its territory is organized into **six provinces that group 52 autonomous districts with democratically elected authorities. 34 of these districts correspond to the Metropolitan Area of Santiago, and 18 of them to the rural environment.**

Unlike the world's major cities, Santiago still lacks a democratically elected metropolitan authority. Nor does it have technical metropolitan authorities in place to control planning, transport or security powers that are distributed at a local or national level, which renders the coordination and implementation of metropolitan policies and programs difficult.

Chile's central zone has a semiarid climate, with four well-defined seasons and rainfall concentrated in the winter. Water fallen in the high mountains during cold months is stored in the snow and the ice of the mountain, feeding the rivers during the rest of the year and generating suitable conditions for life and cultivation. This geographical configuration, coupled with its agricultural potential, allows for the region to be defined as a mixed region. According to the statistics of the Ministry of Agriculture, the SMR rural sector has an area of about

7. (GORE, 2012).

8. (INE, 2013).

9. (McKinsey & Company, 2014).

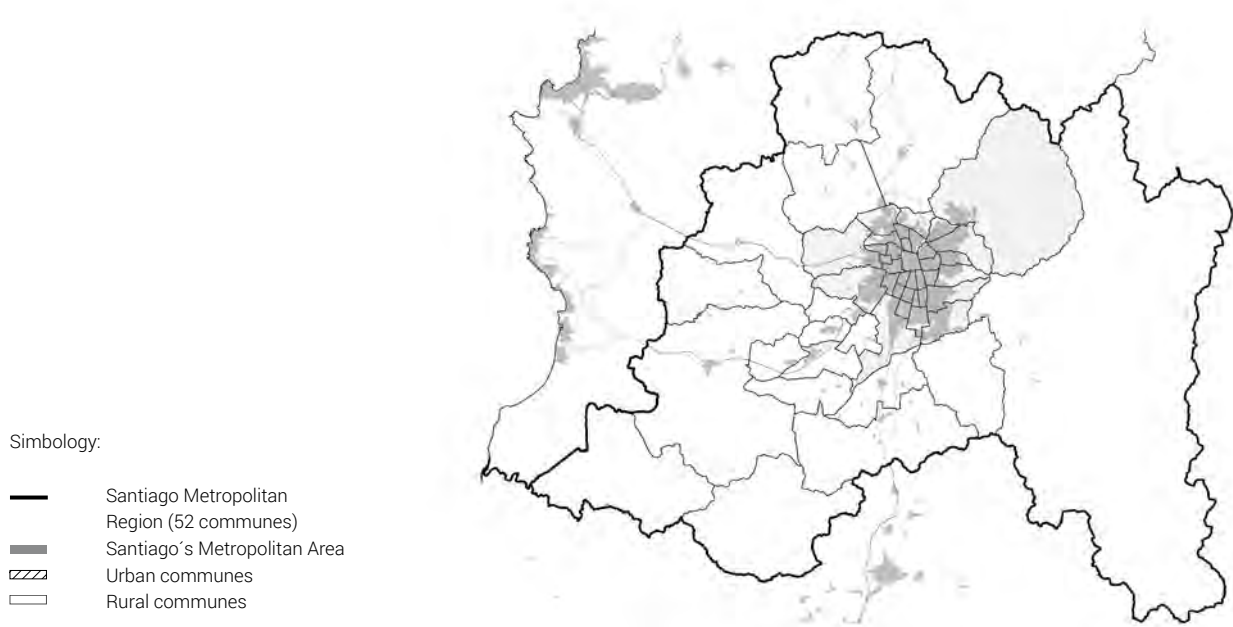
10. (McKinsey & Company, 2014; Mercer, 2016; Master Card Global Centers of Commerce, 2008).

11. (GORE, 2012).

12. (UDD, 2016a).

13. (Mercer, 2016; América Economía, 2016; Master Card Global Centers of Commerce, 2008).

Figure 4. Urban and rural communes in SMR



150,000 hectares of intensive production in the country's best lands. The SMR is Chile's main producer of vegetables (27%) and the third-ranking producer of fruit trees¹⁴.

Whilst poverty rates have declined since 1990¹⁵, the explosive economic development experienced in recent years has led to disturbingly increased rates of inequality, cementing the Region's place as that with the highest levels of inequality in the country¹⁶. In turn, Santiago is the capital of OECD countries with greater distributive inequality of economic growth benefits and greater segregation of rich groups, which are concentrated in the most provided for part of the city¹⁷. The income gap between the richest and poorest quintiles amounts to 15 times, leading to differences in access to, quality and location of housing, access

to quality education, gender gaps, disparity of services between central and peripheral districts¹⁸, amongst other problems.

Although the Chilean State has developed several policies, programs and structural reforms to reverse these problems, their territorial implementation still remains uncertain while the governance of cities and metropolitan areas is unresolved. In recent years, there have been emerging processes that have been providing the Metropolitan Region with new features. Santiago's population is gradually aging, and migratory processes from several Latin American countries have grown steadily. Additionally, there is a growing stress between levels of achievement and levels of individual well-being, partly related to the diminished trust in politics and public institutions.¹⁹

14. (GORE, 2012).

15. (CASEN, 2013).

16.(GORE, 2012).

17. (OCDE, 2012).

18. (GORE, 2012).

19. (ENT, 2016).

Source figure 4. Gore, 2017.

SANTIAGO IN NUMBERS

7.300.000

habitants.

984 km²

Santiago's extension

18%

poverty in the region.

41%

of Chile's population live in Santiago.

52

communes integrate SMR.

61.5%

of the migrant population live in SMR.

97%

of the population live in urban areas

77

years is the life expectancy for men in Santiago.

83.1

years is the life expectancy for women in Santiago.

3%

of the population live in rural areas

5.205.795

direct employment

45%

of Chile's GDP is generated in SMR.

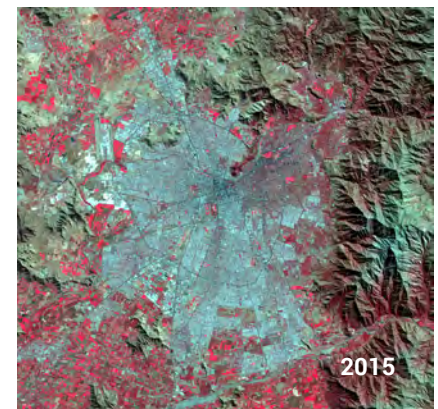
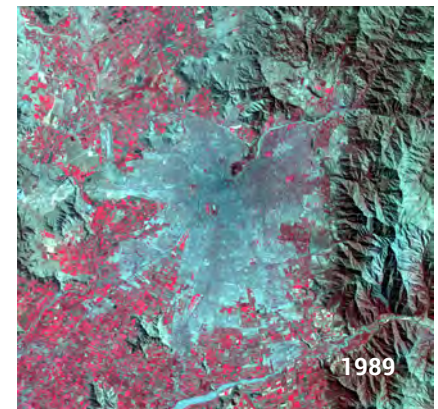
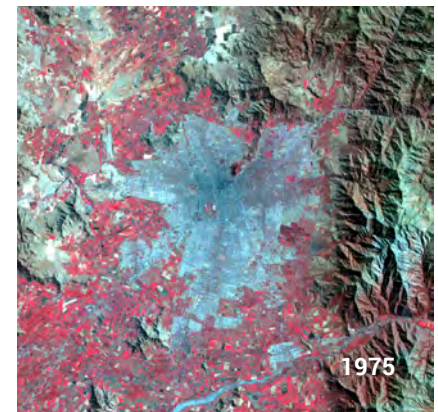
2.2. SCL URBAN REALITY (SEGREGATED, DISPERSED, FRAGMENTED)

Over the last decades, Chile has undergone an explosive development process, cementing it as a Latin American benchmark. Both the country and the Metropolitan Region have been characterized by a steady economic growth, financial robustness²⁰ and a significant reduction in the levels of poverty. However, the built city has consolidated with a scenario of limited urban planning tools, along with a high preponderance of market dynamics.²¹

Santiago has mainly grown in size, mostly as a result of the sustained construction of large sets of social and middle-class housing in cheap lands located in the northwest, southwest and southeast suburbs. Although this has generated a solution to the quantitative housing deficit, it has also consolidated large pockets of poverty with little to no coverage of urban public property. In contrast, the expansion towards the northeast suburbs has predominantly occurred through the construction of low-density suburbs and closed condominiums, generating a whole new dimension of segregation, territorial fragmentation and dynamics of public space use²².

The land and housing policies implemented over the last 30 years have made a direct impact on the living conditions of neighborhoods and communities. In the 1980s, slum (campamentos) eradication programs that had been developed during the dictatorship inferred a heavy transfer of low-income population from central areas towards the suburbs. Whilst these programs provided permanent housing solutions for families that had previously lived in those slums, the quality of the new

Figure 5. Santiago's urban growth



20. (BM, 2016).

21. (Greene y Soler, 2004).

22. (Hidalgo, 2004).

Source figure 5: Aerial photographs from the United States Geological Survey. <https://earthshots.usgs.gov/earthshots/Santiago#ad-image-5>.

new housing was poor, since they were situated on remote, cheap lands that were far from networking opportunities and that lacked essential equipment.²³

Once democracy was recovered in the 1990s, these incentives to expel low-income classes to the suburbs were strengthened by regulations that reduced the provision of urban land, which not only incited speculation and a limited access to social housing lands, but also confirmed a spatial segregation model. These dynamics exceeded the capacity of existing planning instruments and of the authorities to regulate the supply of equipment to meet all needs related to service, leisure, education and socialization. As for new middle-class neighborhoods, the design and equipment standards of green areas met the minimum requirements, maximizing land use. However, in the case of social housing, the level of consolidation of public spaces, lighting and services are, even to this day, highly precarious. This is partly due to the fact that these sets overburden municipal services, which do not earn sufficient income to cover the demands, since social housing is exempt from the payment of real estate taxes.

Over time, Santiago has become a large, dispersed and socially fragmented city, whose territory reflects the country's high levels of inequality. The highest income groups²⁴ are dispersed between 6 districts that represent only 18% of the urban area.²⁵ The quality of life in this part of the city excels in international rankings, placing Santiago as one of Latin America's best cities to live in. However, most of Santiago's inhabitants endure a polar-opposite reality: They live in spatially segregated areas with serious habitability and urban health problems, having little access to quality services and infrastructure, experiencing problems with connectivity and encountering

spaces that lack green areas and proper equipment, among other issues.²⁶

In accordance with the aforementioned trends, the administrative and financial center of Santiago has gradually moved from the historic center towards the east, following the geographic wedge of wealth concentration. This high-income area possesses metropolitan services and sources of employment, which means that only three districts (Santiago, Providencia and Las Condes) attract 40% of morning rush hour journeys.²⁷ On the other hand, the construction of urban sub-centers has materialized through large malls that have not generated a significant dispersion of the region's sources of employment²⁸, nor a public open space capable of generating local urban identity.

Faced with this political, economic, spatial and social reality, Santiago has implemented its Regional Development Strategy, which, in line with this "Resilience Strategy: Human and Resilient Santiago", will allow facing current challenges and opportunities: building a fairer, more sustainable and resilient city, one that regards individuals as the heart of its work and one that is planned and built in a participatory and equitable manner.

23. (Sugrayñez, 2002; Ducci, 1996, 1997, 2000, 2007).

24. (Rodríguez y Winchester, 2001).

25. (GORE, 2016a).

26. (GORE, 2016c).

27. (CEDEUS, 2016).

28. (Arriagada, 2017).

2.3. SHOCKS AND STRESSES IN SCL

A resilient city is both well prepared to deal with sudden **shocks** that threaten it, as well as to address chronic **stresses** that weaken its systems on a daily or cyclical basis. Considering the physical, natural and social context of the SMR, understanding the hazards, threats and vulnerabilities to which it is exposed is

necessary. Through a bibliographical review, supplemented with participatory processes that included a wide range of stakeholders²⁹, the main shocks and stresses that threaten the city were identified, particularly those addressed by this Resilience Strategy.



29. More information review chapter Appendix - Development of the Strategy.

2.3.1. Shocks

Historically, the SMR has faced several shocks related to its geography and climate (earthquakes, barrages, storms, floods, thermal inversion and droughts). These shocks have affected the region's urban and rural realities, whilst also putting at risk physical property and basic subsistence systems. The city has had to recover and rebuild itself systematically and, whilst doing so, has been forced to develop new parameters aimed at dealing with parts of these phenomena.

However, an increase in extreme weather incidents due to climate change in recent years, coupled with new information on existing threats in the region and the persistence of vulnerabilities contributing to risk, all indicate that planning and preparing for possible threats is an urgent task. According to historical and projected evidence, the most potentially disruptive shocks on the SMR are: **1) Geophysical phenomena** such as deep (plate subduction) or cortical (presence of the **San Ramón fault**) **earthquakes** and **volcanic eruptions**; **2) Extreme climatic phenomena** such as **pluvial-**

fluvial flooding and **drought cycles** affecting most of the SMR; **3) Landslides** arising from hydro-meteorological events in urban areas built on risk areas and **4) Wildfires** in rural areas of the SMR.

Like most of the country, the SMR is located in the Andean subduction margin, which explains its constant seismic activity (between 1906 and 2010, there were seven destructive seismic incidents in the SMR). In recent years, dangers related to seismic activity in areas near the fault of San Ramón, located in the eastern part of Santiago, on the piedmont of the Andes, have been scientifically proven. This is a seismically active geological fault³¹, where movements of about one and four meters could occur in the event that an earthquake hit between 6.6 and 7.4³². An earthquake of these characteristics, coupled with constructions built with seismic standards that are unsuitable for incidents of this scale, could be extremely destructive for the region³³.



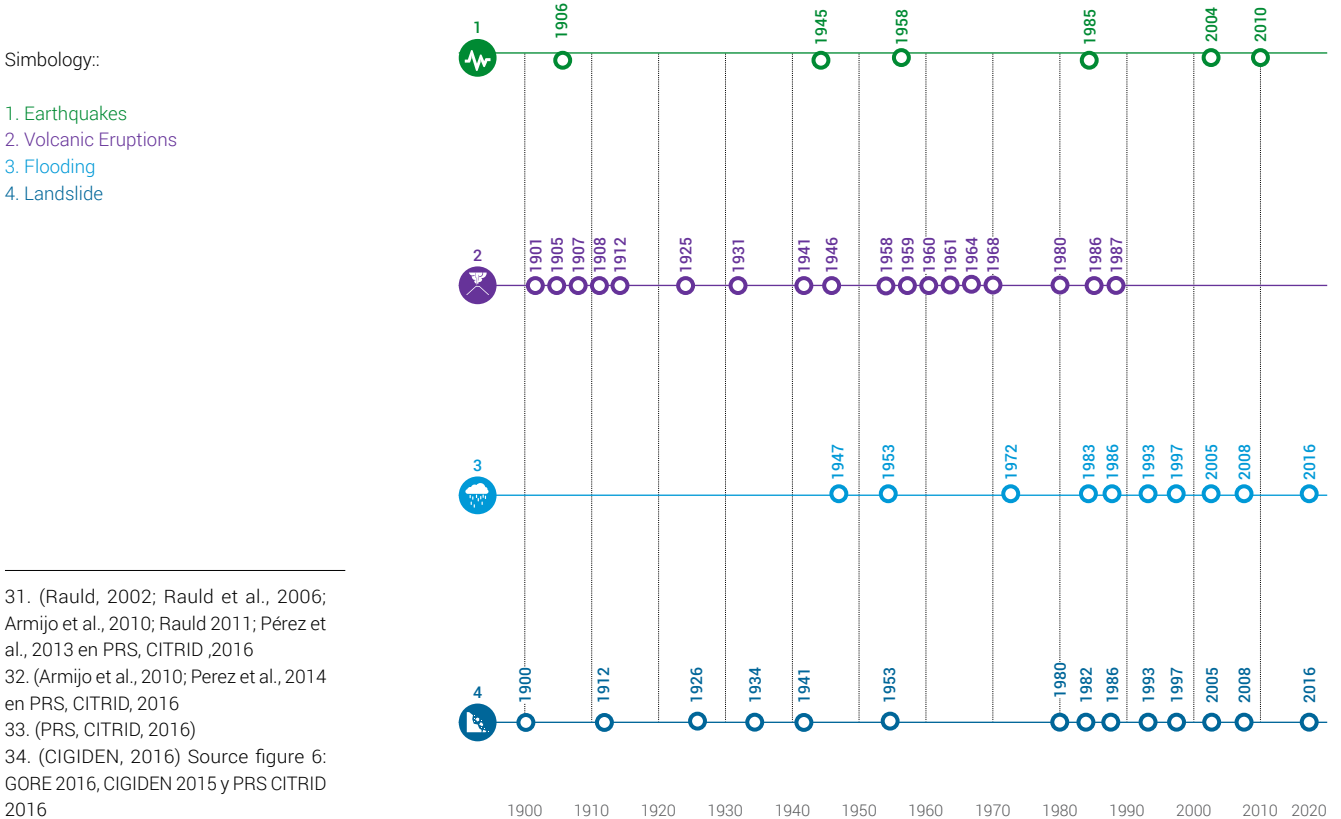
30. (PRS, CITRID, 2016). The country's annual losses due to earthquakes account for about 1 and 2% of the GDP; whereas the 27F 2010 earthquake and tsunami entailed losses of about US\$ 30,000 million for the government, equivalent to 18% of the national GDP. This confirms the need to continuously manage the risks related to these incidents, in order to reduce potential destructive impacts

Although the region's volcanic activity was intense during the 20th century, it has declined over the last decades. Episodes of eruption have been small, very localized and adjacent to the high Andean mountain range, beyond populated areas. However, volcanic risk and potential lahars are a latent threat, especially for cities located in particularly vulnerable areas of the upper valleys of the Maipo and Mapocho rivers.

rapid floods of rivers in the Andean precordillera. These extreme hydro-meteorological events affect a great part of the region. In recent years, this condition has been exacerbated by: 1) the accelerated urbanization process without proper urban planning, 2) the potential increase of so-called "warm rains", with a high isotherm due to climate change, and 3) the still scarce network of hydro-meteorological monitoring, and a significant lack of information of meteorological and geomorphological processes³⁴.

On the other hand, over the last few years, the SMR has experienced emergencies and disasters caused by barrages and

Figure 6. SMR impact timeline



31. (Rauld, 2002; Rauld et al., 2006; Armijo et al., 2010; Rauld 2011; Pérez et al., 2013 en PRS, CITRID ,2016

32. (Armijo et al., 2010; Perez et al., 2014 en PRS, CITRID, 2016

33. (PRS, CITRID, 2016)

34. (CIGIDEN, 2016) Source figure 6: GORE 2016, CIGIDEN 2015 y PRS CITRID 2016

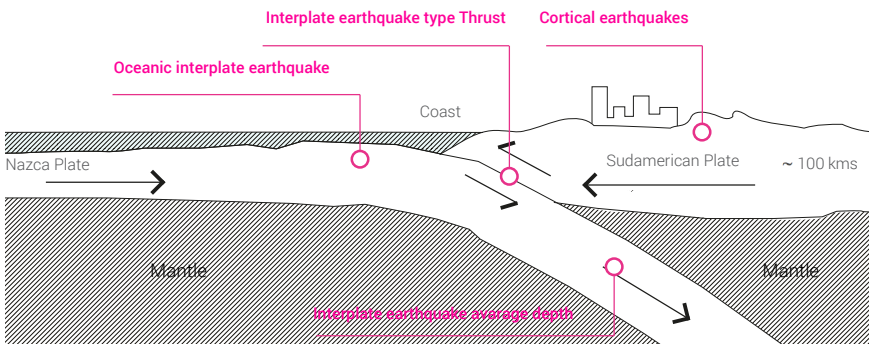
Additionally, the city frequently experiences other types of incidents, such as pluvial floods, consisting in flooding of highly waterproofed low areas with little to no drainage system coverage.

In this regard, the Andes mountain range has a high risk of mass landslides due to hydro-meteorological events or seismic phenomena, which pose a threat, particularly for infrastructures, but also for many isolated areas.

Finally, wildfires (which in Chile are man-made, since there is no possibility

of causalities due to electrical stoSMR or spontaneous combustion) have been a constant shock over the past four decades, with an average of 440 fires per year and more than 4,250 hectares affected³⁵. They have been cyclical, with 11-year peaks. Vegetation has been destroyed, and valuable ecosystems have been directly and indirectly damaged by the reduction of the ability for natural recovery due to the high frequency of such threats.

Figure 7. San Ramón Fault



Source figure 7: Campos et al. 2005 en PRS, CITRID, 2016.
Source image: Departamento de Geología, U. de Chile, 2015.

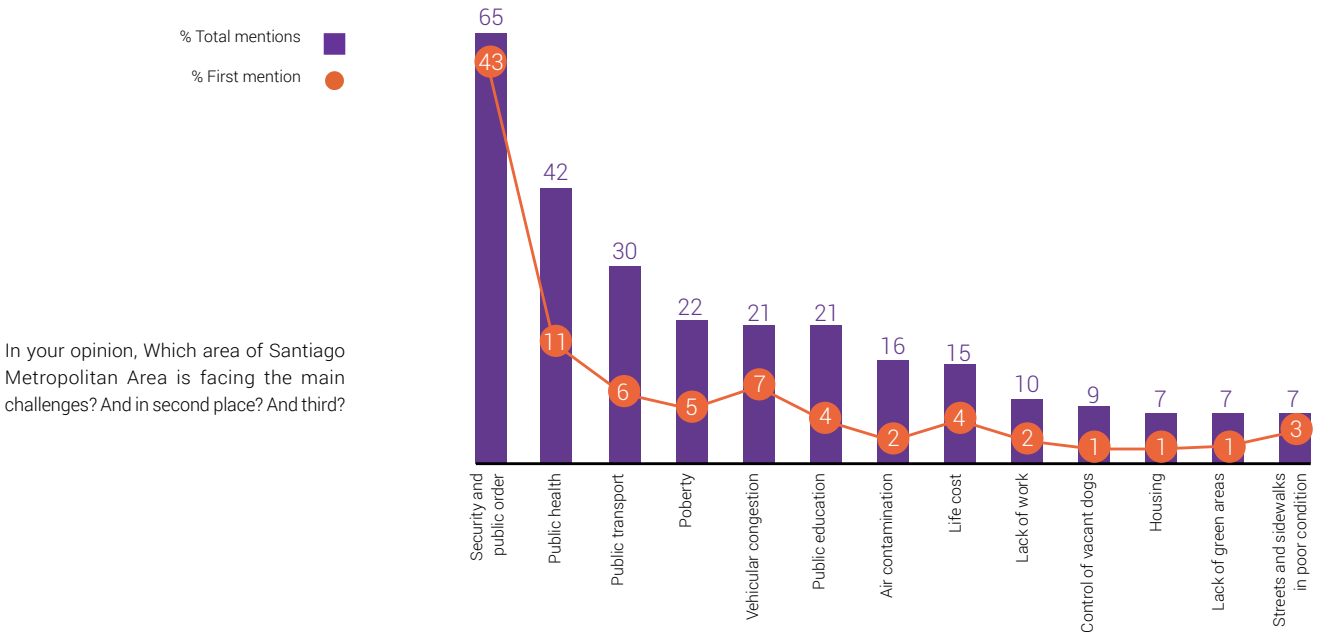
2.3.2. Stresses

Santiago has several natural, physical and political-administrative elements that affect its citizens on a daily basis. According to the 4th Perception and Public Opinion Survey of the SMR36, when asked what they liked the least about living in the region, respondents mentioned security, transportation and pollution as the main issues. At the workshop launch of the 100RC program in Santiago among other forums and

workshops³⁷, experts agreed with the survey data on environmental pollution (air and water) and transport, and added inequality and socio-spatial segregation to the list of priorities. Three chronic stresses will be analyzed for the region:

- a) mobility**
- b) security**
- c) environment and air pollution**

Figure 8. Citizens perception



In your opinion, Which area of Santiago Metropolitan Area is facing the main challenges? And in second place? And third?

35. (CONAF, 2017)
 36. (GORE, 2017) Encuesta realizada en Diciembre del año 2015 con una muestra de 749 casos
 37. See Strategy Development Process Source figure 8: Study of perception and public opinion in the SMR. March, 2015. 750 Cases.



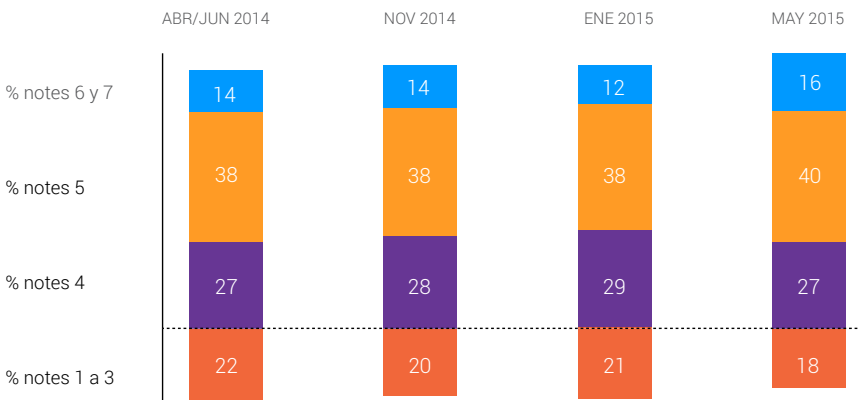
a. Mobility

There are several stakeholders that have negatively affected mobility in Santiago. With urban growth that lacks proper planning in land use and transport that is tailored to its needs, there has been a long-drawn-out scenario for the creation of an efficient transportation system that includes motorized and non-motorized means of transport. Ten years after its implementation, the capital's main public transport system, Transantiago, is faced with a number of challenges: users' systematic disapproval (due to poor travel experience and overcrowding),

high levels of evasion³⁸, insufficient infrastructure to ensure proper travel and transshipment times; and lastly the need for unplanned subsidies obtained through special laws³⁹. This situation discouraged the use of public transport and thus increased private car usage, resulting in road congestion. According to Origin Destination surveys conducted in Santiago, the percentage of motorized trips in public transport has fallen from 83% in 1977 to 70% in 1991, 52% in 2001 and 47% in 2012⁴⁰.

Figure 9. Study of Satisfaction with Transantiago Operators summary.

A) Metropolitan public transport evaluation



B) Avarege system notes



38. 34,6% registrado en el período Octubre - Diciembre 2016. (MTT, 2016).

39. (CEDEUS, 2016).

40. (CEDEUS, 2016).

Source figure 9: Estudio de satisfacción con operadores Transantiago, Noviembre, 2105.

Source image: Infinita, 2017.

b. Security

Although Santiago is deemed as Latin America's safest city⁴¹, Santiago's inhabitants believe this issue to be their biggest problem, concerning mainly crime and drugs⁴². While it is true that victimization rates have fallen from 40% in 2003 to 26.4% in 2015⁴³, the feeling of insecurity has increased.

In the region, 27.9% of the police reports relate to incivilities in public spaces, which leads to an impairment of spaces, dirt, absence of minimum agreed standards, abuse and vandalism. To combat these types of acts, the Chilean system has put two separate and centralized police structures in place, but lacks community policing. Carabineros, the main police force in the country, seems to lack a territorial policy

that takes into account the diversity of the SMR's social situations⁴⁴, and local governments have severe restrictions in creating and implementing municipal police capabilities.

In addition, about 16% of young people (about 500,000 individuals) currently neither work nor study; many of who have dropped out of school and who mostly belong to the lowest quintiles⁴⁵, located in segregated suburban areas⁴⁶, with a high social vulnerability. This situation generates exclusionary dynamics that in some cases lead to anti-systemic behavior such as gangs, barras bravas, criminal groups and drug trafficking, weakening cohesion and increasing the social risk of communities.⁴⁷



41. (EIU, 2015)

42. (GORE, 2017)

43. (ENUSC, 2015)

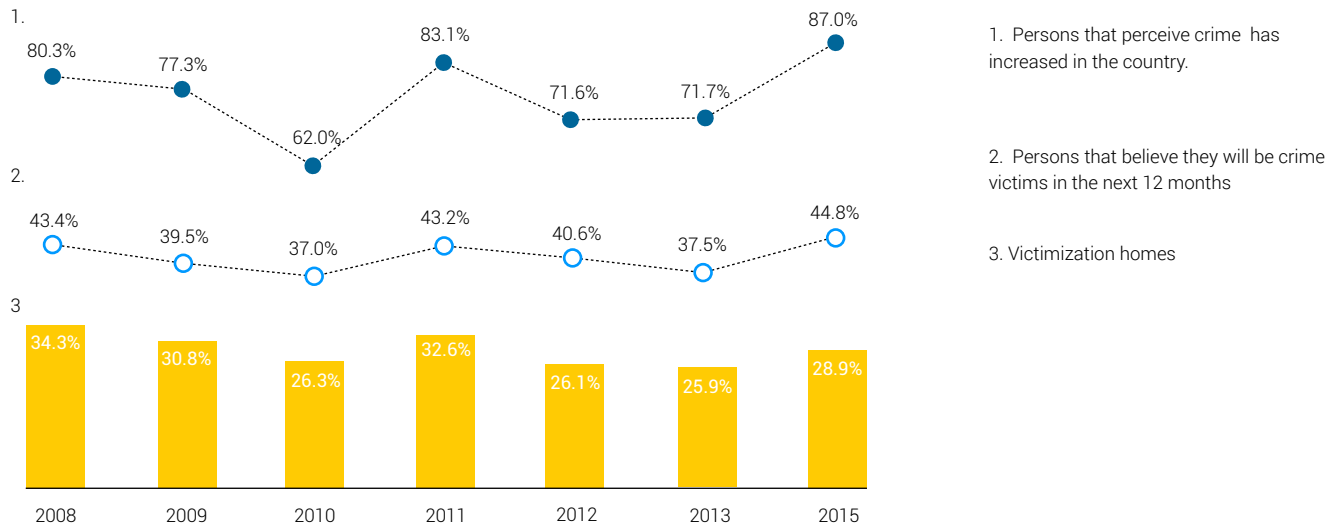
44. (UAH, 2016)

45. (UAH, 2016)

46. (Arriagada y Cortinez, 2010)

47. (Sabatini, Wormald et al., 2006)

Figure 10. National urban victimization SMR survey



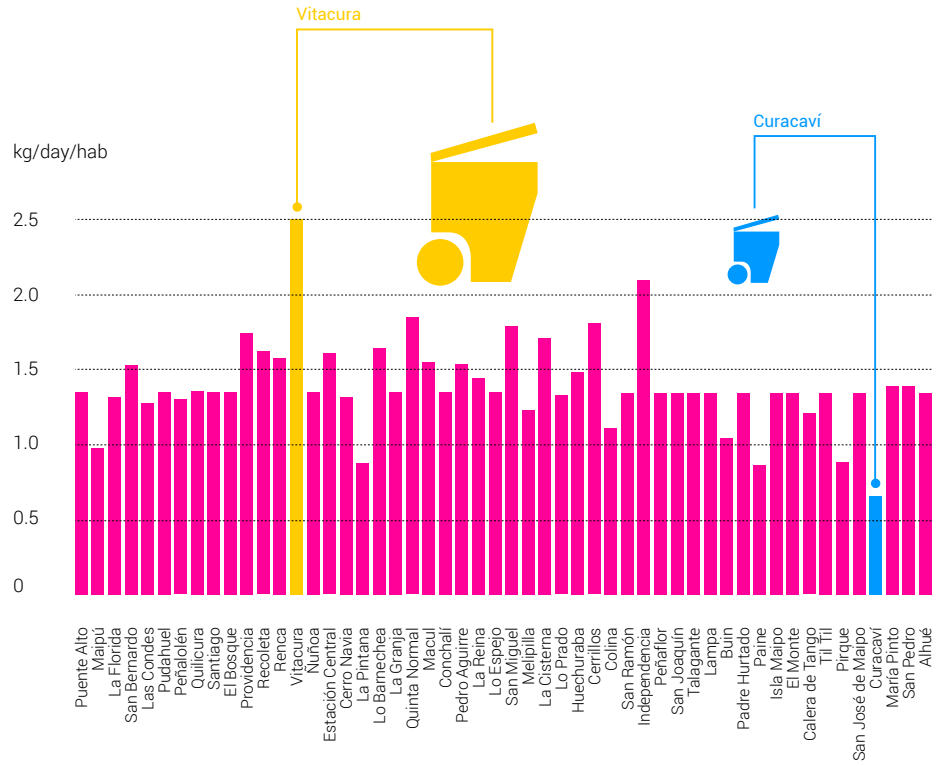
c. Environment

Environmental stresses relate to air pollution, a lack of green areas, poor management of solid waste and climate effects, among other elements. Car-centered urban sprawl, concentration of industrial activities and the persistent use of firewood in a valley equipped with very poor ventilation have contributed to poor air quality. In 1996, Santiago was declared as an “Area Saturated with Breathable Particles PM10, Suspension Particles, Ozone and Carbon Monoxide; and Latent Zone for Nitrogen Dioxide”, which led to the creation of the first Atmospheric Decontamination and Prevention Plan for the Metropolitan Region (PPDA). In 2014, Santiago was also declared an Area Saturated by Fine Breathable Particles (PM2.5), which led to the creation of a new Atmospheric Decontamination plan. As for solid waste management, this has

become a chronic problem in Santiago, and in recent years, it has become one of the most pressing issues in the public agenda. Although there is a regulation and audit, problems linked with garbage have been accentuated by the absence of a central coordination with comprehensive long-term waste management plans, little education on domestic and commercial recycling and the high concentration of illegal landfills and small dump sites in suburbs and vulnerable neighborhoods. Lastly, the main sanitary landfills are located in low-income districts, such as Til Til, which are repositories of a number of undesirable land uses prisons, hazardous industries and other activities that transform the areas into real dead zones, yet another growing aspect of urban segregation in the region.

Source figure 10: ENUSC, 2015.

Figure 11. Waste generation per capita in SMR communes, 2009.



Source figure 11: Informe Estado del Medio Ambiente, 2011.

2.4. CLIMATE CHANGE

Climate change effects pose an enormous challenge, concerning both their understanding and planning of a region adapting to them. In the case of the SMR, these changes could affect both urban (heat waves, changes in water and energy availability, occurrence of extreme events⁴⁸) and rural areas, with droughts that accentuate agricultural water demand.

Increased temperature may significantly affect the occurrence of floods and barrages, given the proximity of the city's urban area to the Andes Mountains, tending to raise the 0 ° C isotherm. This implies an increase in the rainwater flow to the basin.⁴⁹ Another effect is an increased rate of heat to SMR, which could generate high sedimentation runoffs. This runs into turbid surface waters, Santiago's main drinking water source, which compromises the supply to the urban networks. In February 2013 and April 2016, the SMR experienced

serious difficulties in distributing drinking water due to turbidity problems of the tributaries that run into the main drinking water treatment plants.⁵⁰

A stress that will be intensified due to climate change is the reduction in water reserves, due to the accelerated melting of glaciers and Andean snows.⁵¹ According to the World Resources Institute, Chile is a country under risk of high water shortage in the coming decades.⁵² A consequence of this is the increased rate of drought cycles, which could affect the urban supply and the agricultural demand. This has been the most heavily affected area, due to being the largest consumer of water; it uses 78% of the national water resources⁵³. Hydroelectric generation, mining, and industry, amongst others, are all activities that could also be altered by water scarcity⁵⁴.

Climate change effects pose an enormous challenge, concerning both their



48. (Centro de Cambio Global UC, 2016)

49. (CIGIDEN, 2016)

50. (CIGIDEN, 2016)

51. (Centro de Cambio Global UC, 2016)

52. (WRI, 2015)

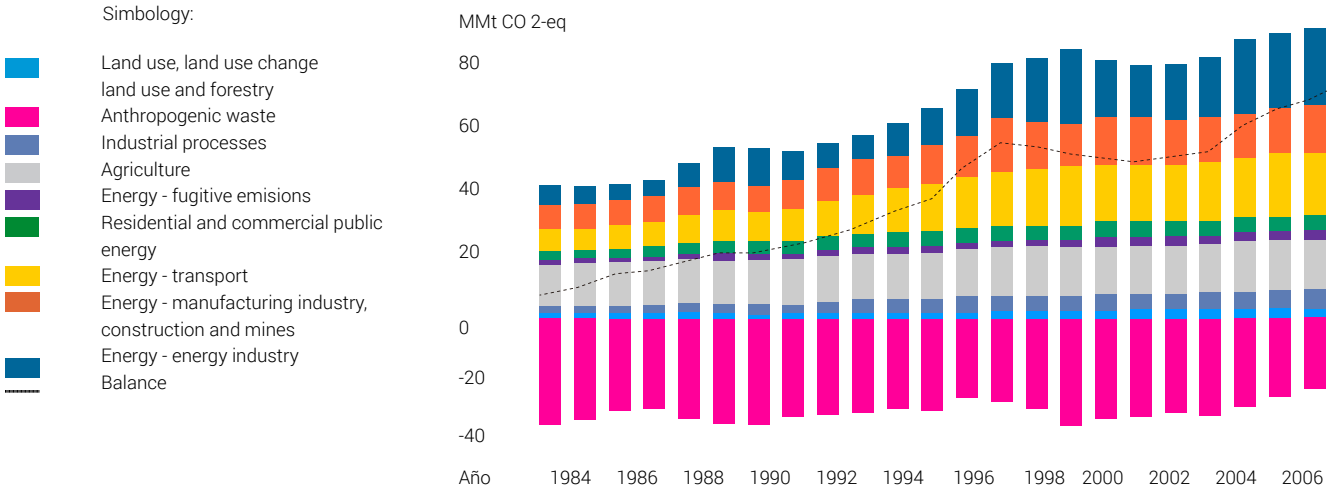
53. (Vicuña y Meza 2013 en CIGIDEN, 2016)

54. (CIGIDEN, 2016)

understanding and planning of a region adapting to them. This phenomenon represents an opportunity for the city to implement and/or improve preparation and mitigation measures against possible

natural and anthropogenic phenomena, through several measures, such as reusing wastewater or reducing the heat island by planting trees.

Figure 12. Net GHG Emissions by Sector, 1984-2006.



Source figure 12: Informe Estado del Medio Ambiente, 2011.



JUEGOS INFANTILES
NIÑOS DE 3 A 12 AÑOS
AYUDENOS
A SU CUIDADO



Section III

CHALLENGES OF SANTIAGO

3.1. REGIONAL COMPLEXITY

One of the main characteristics of the SMR, bred from its accelerated growth process, is its high level of urbanization and concentration of goods and services. Although this condition is typical of many Latin American countries, the metropolitan area of Santiago has one of the world's highest levels: over 40% of the national population lives in the region⁵⁵. This places a heavy burden on national functions and activities, generating a demographic, economic and political over-concentration that turns the SMR into the country's most complex region.

The root of this urban condition can be linked to the rural-to-urban migration process that occurred in the first half of the 20th century, which then subsequently increased with migrations from medium-sized cities. Santiago, the country's political capital, promoted multiple economic activities that entailed labor opportunities for peasants and working class masses, which, in conjunction with multiple public and private investments, accentuated a significant concentration of activities and services. Hence why **urban expansion** was accelerated at the expense of both agricultural land and natural hazard areas. Santiago consolidated itself as a large city, with almost no planning, which generated most of the urban issues it faces today.

The first challenge is to address **urban segregation**, which translates into **socio-spatial fragmentation and territorial inequality**. The disparities faced by the city can be noted in unequal housing, tools, infrastructure and conditions of services scattered across the land. Focusing public investment

precisely on improving such conditions is necessary, not only in overcoming quantitative, but also qualitative and standard gaps.

The regional challenge of fragmentation is not only reflected in social teSMR. Like many other areas of this type around the world, its current metropolitan management model suffers from an **institutional overlap**, which in turn generates duplicities, lack of coordination, inability to integrate policies into the area and the inability to generate integral or comprehensive urban policies.

This reality, coupled with a high degree of **political centralism**, renders decision-making difficult, by limiting the Region's harmonious and comprehensive development process. The central government defines and operates many policies and programs in a uniform manner, without necessarily passing through intermediate or local governance levels, and many territorial decisions lacking completion and coordination are made by local governments, giving way to several shocks and urban disorders. National policies do not take into account the reality of the region, and local decisions generate a somewhat fragmented metropolitan governance⁵⁶.

As we have described above, many of the region's challenges arise from its **metropolitan nature**. The Regional Development Strategy identified segregation, urban marginality, habitability problems, lack of connectivity, insecurity and pollution as constraints to human development⁵⁷. Understanding and admitting this metropolitan nature

55. (Atienza y Aroca, 2012).

56. (Orellana, 2009).

will allow for the regions' districts to be better integrated.

Lastly, the **geographic aspect** of the region counts as one of its complexities. The city of Santiago is located in a tectonic basin that is enclosed on all sides, rendering connectivity with the surrounding areas difficult. This narrow territory increases the environmental value of little flat land, hindering urban expansion. The city currently occupies 45% of the space available at the bottom of the basin. Likewise, flooding prone zones due to their geological condition, found north of the city, hinder urban location. Additionally, the expansion of the city at the piedmont of the Andes increases the risk of floods caused by the rivers and streams that descend like torrents from the Andean mountain range towards the basin, resulting in frequent emergencies and catastrophes that are increased due to the mere existence of population located in risk areas.

On the other hand, the confinement of Santiago's basin hinders the valley's atmospheric ventilation, generating higher levels of pollution and an urban heat island, increasing temperatures due to urbanization and human activities. Additionally, the high Coastal Range acts as a catalyst for the rain shadow effect. Henceforth, humidity on the leeward side drops, increasing aridity, mainly in the northern area of the SMR. This results in it becoming a restriction to the agricultural production systems of said area. Lastly, the presence of the San Ramón fault on the eastern edge of the Santiago basin is a latent risk factor, not only for the communities residing on it, but for the entire city and region.

Figure 13. Complexities at the regional scale

1 Urban sprawl	2 Urban segregation	3 Socio-spatial fragmentation	4 Territorial inequality
5 Institutional Overlay	6 Political centralism	7 Metropolitan character	8 Geographical aspects

57. (GORE, 2012).

3.2. GOVERNANCE

The concept of governance has become a focal point of the discussion in recent decades due to its capacity to improve the quality of life in cities. Fragmentation of large urban areas has led to the administrative management thereof to become excessively horizontal, increasing the lack of cooperation and coordination between public entities⁵⁸. Evidence collected by agencies such as the OECD shows that this fragmentation correlates with direct negative effects on urban performance. To elaborate further, its negative effects on the quality of life it provides to its inhabitants, on administrative management efficiency and on the capacity to innovate in infrastructure mechanisms and projects⁵⁹. This has led to the rethinking of metropolitan governance models. Several studies show that the existence of metropolitan government authorities or bodies mitigate these negative effects and productivity increases⁶⁰.

The so-called region-cities have gained ground due to the resurgence of the idea of economic development⁶¹. The "economic city" goes far beyond the political limits of the territory, and it influences several interconnected urban life systems. The creation and implementation of a participatory and city-scale decision-making model is key to the success of this "metropolis".

Metropolitan governance in Santiago can significantly contribute to solving structural issues concerning regional planning, urban planning, transport, environment, security, risk management and economic development. Greater regional and local democracy, as well as territorial development-orientation, can improve resource allocation efficiency, policy-making and implementation quality, and the legitimacy of collective decision-making, bringing them closer to its inhabitants.

In 2007, a process aimed at transferring certain responsibilities from national to regional levels began, which for the SMR were to address the following issues: 1) local fragmentation: predominance of projects, competitive funds, conditional transfers over long-term strategies and programs, 2) the absence of an urban policy despite the high level of urbanization, 3) the absence of a rural policy, despite the dependence on natural resources, and 4) the lack of an urban-rural interaction approach and policies addressing it.⁶²

It is worth bearing in mind that the most visible feature of the SMR is its metropolitan nature. Santiago is the country's largest metropolitan area. Within the national context, the metropolitan area has the region's highest proportion of inhabitants, far surpassing the metropolitan areas of Valparaíso and Concepción.

In the case of the Metropolitan Area of Santiago, short-term legal changes, specifically the bill to strengthen regionalization⁶³, are taking significant steps towards more regional governance instruments. Improving the mechanism

58. OCDE, 2016.

59. Ibidem.

60. (Ahred, Farchy, Kaplanis y Lembcke, 2014).

61. (MRI, 2011).

62. (OCDE, 2013).

1

Santiago's Metropolitan Area

Communes : 37
 Populatio: 6.574.380
 % regional population: 89%

2

Concepción's Metropolitan Area

Communes: 11
 Population: 1.050.349
 % regional population: 49%

3

Valparaíso's Metropolitan Area

Communes: 5
 Population: 983.662
 % regional population: 53%

Figure 14. Chile's main urban metropolitan areas



to transfer capabilities from the central to the regional level, the power to create metropolitan areas and their governance instruments and the creation of new divisions in the GORES are all things that show significant progress towards greater government effectiveness and a better quality of regulation. These changes, coupled with the democratic election of the highest regional authorities, will enable a better channel to voice citizen demands, a greater capacity for the State to respond to them and it will significantly increase the accountability of the authorities⁶⁴.

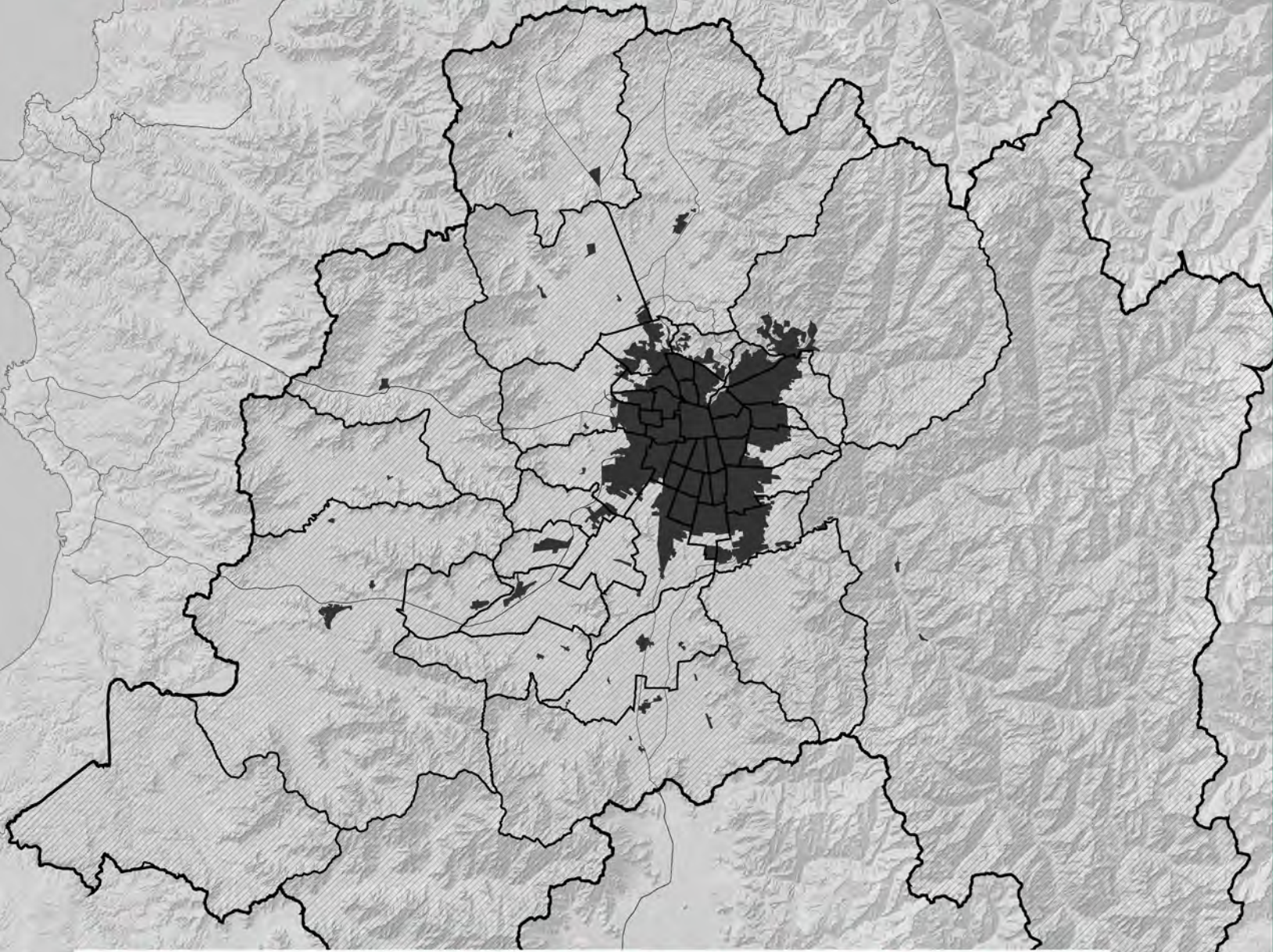
Santiago requires a new governance model that can solve four essential issues:

- **Defining the role and skills for policy making at a regional level**
- **Defining the skills to implement policies through initiatives and projects**
- **Possessing the ability to plan, allocate and execute budgets in key metropolitan areas such as public transport**
- **Having the powers to comprehensively manage critical resources for the metropolitan operation (water, transport, energy, etc.)**

Additionally, having a citizen participation policy that complements the electoral cycle, and focusing on a management model that includes Local Governments as key stakeholders for decision-making, is necessary. Creating a Metropolitan Council of Mayors is required to link and coordinate the different metropolitan projects such as zoning, infrastructure, investment, transport and environment plans, among others, in order to consolidate a regional governance model. Likewise, public private partnerships between the business and civil stakeholders of the Metropolitan Region should be promoted so as to stimulate dialogue, agreements and the construction of shared visions for the region.

63. (Chamber of Deputies, 2011).
 64. (GORE, 2016a).

Santiago Metropolitan Region is integrated by 52 communes



The SMR has a complex governance model, where the centrality for decision making contrasts with the fragmented management of a territory divided into 52 urban and rural communes. This creates problems for the participation of different levels of government, both national and local. In addition, the current model has limitations to promote efficient and comprehensive metropolitan development in the region. This reality is reflected in the duplication of functions and the absence of a regional urban policy. Metropolitan governance for Santiago can contribute decisively to resolving structural issues, but for this it is necessary to generate a new model.

- Santiago Metropolitan Region
- 52 Communes of SMR
- Grand Santiago urban area
- ▨ SMR rural areas
- Principal roads

Figure 15. Governance at a national and local level

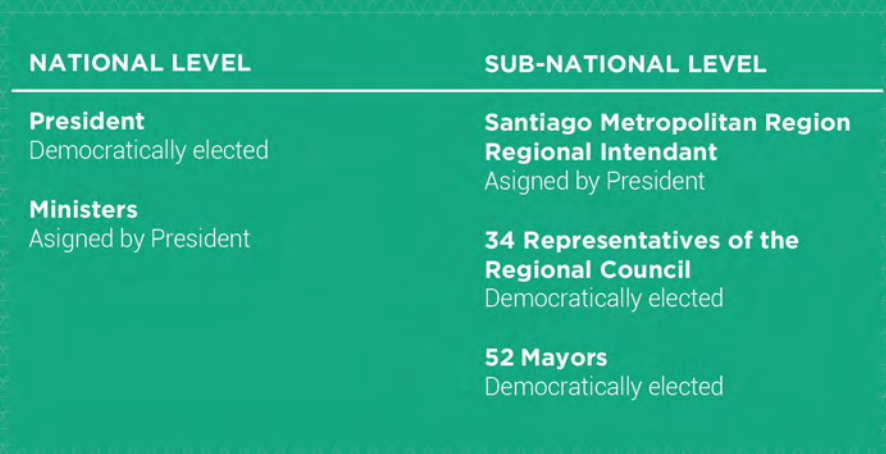
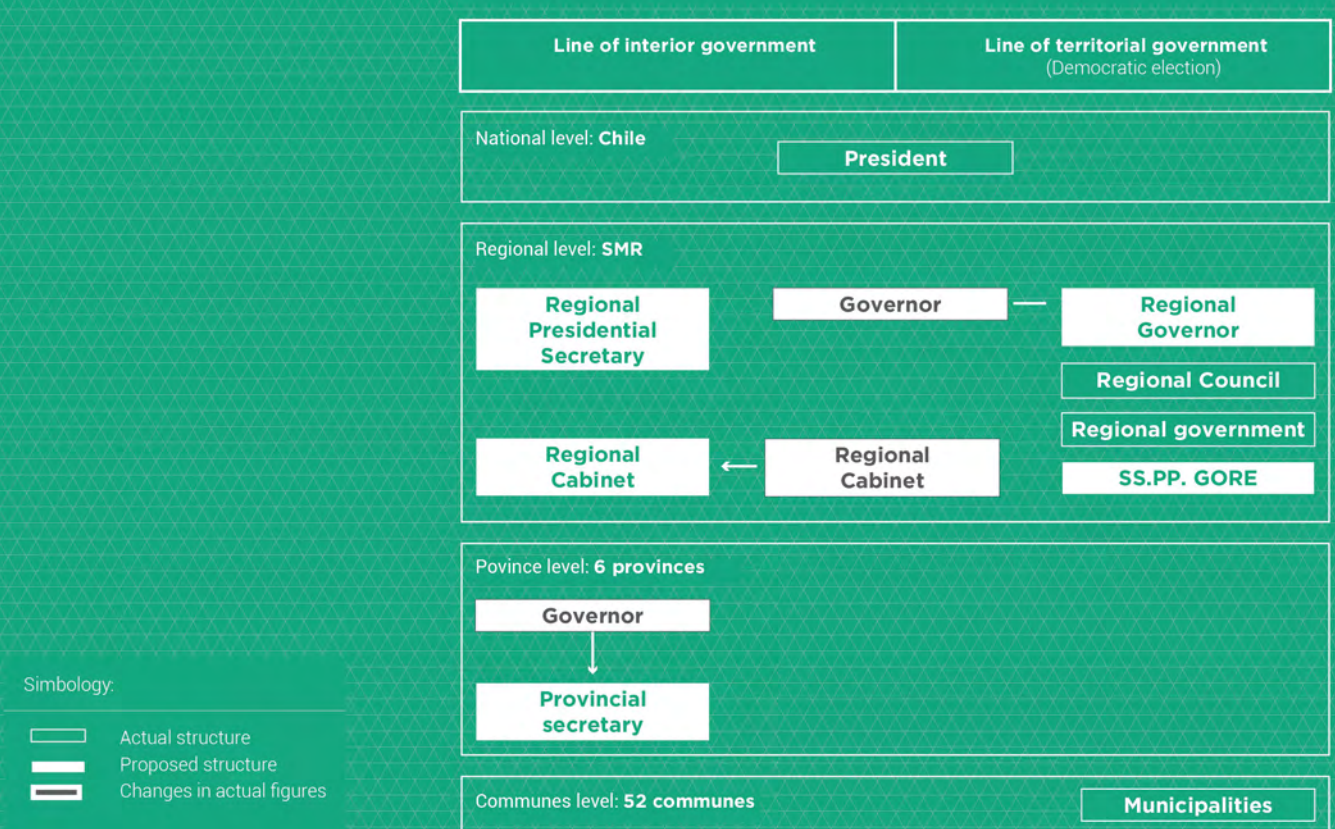


Figure 16. Actual and proposed governance structure







Section IV

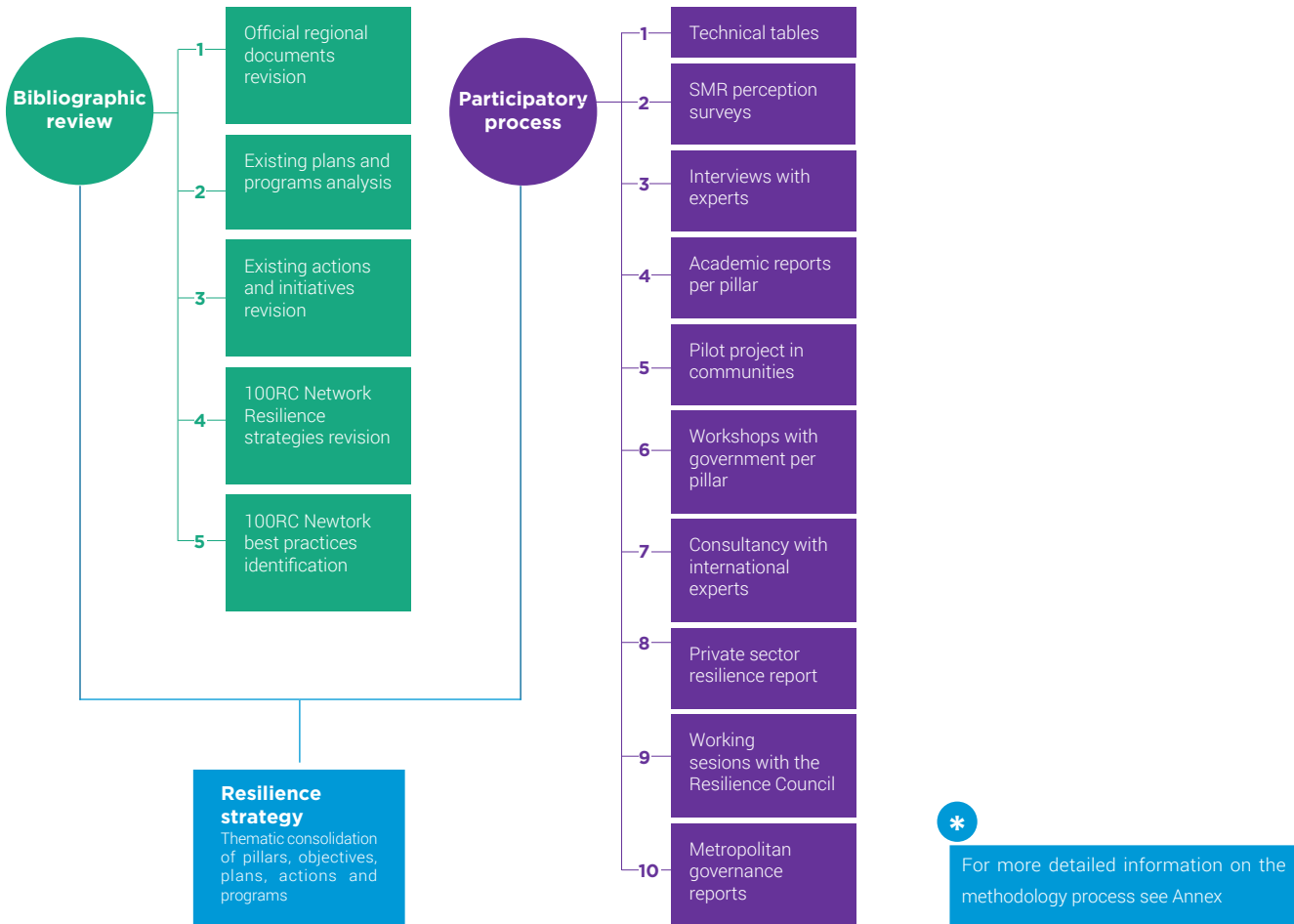
**DEVELOPMENT
OF THE
RESILIENCE
STRATEGY**

4.1. METHODOLOGY TO DEVELOP THE HUMAN AND RESILIENT SANTIAGO STRATEGY

The Resilient Santiago team used an innovative in-depth thematic method by generating a participatory process and integrating inputs generated by several key stakeholders. The development thereof is structured based on the integration of two main inputs:

a) bibliographic review and b) participatory process. For each of these tasks, we developed inputs that were integrated into the strategy. The methodological process and its components are described in the following scheme:

Figure 17. Detail of components of the methodological process of the Santiago Strategy



4.2. HUMAN AND RESILIENT SANTIAGO STRATEGY PREPARATION PROCESS

The Strategy process began with the launching workshop of the 100RC program on **17th June 2015**. The event commenced in an introductory plenary session with 140 participants, followed by three working sessions where 96 representatives of the national, regional and local government, of the private sector and of civil society, participated. The results of this workshop's work were materialized in a report that set the foundations for the strategy preparation process. The workshop identified the shocks and stresses prioritized by the participants, and drew up a list of 162 key stakeholders that could influence the construction of a more resilient region.

In **January of 2016**, the CRO of Santiago began working in the Regional Government. Its first task was to prepare a detailed diagnosis of the region's status of resilience, through several means. First, a list of 659 public and private actions that were being developed by the city was compiled. This, in order to understand "who are the ones preparing actions of resilience in the region and how they are doing it". Additionally, strategic planning and citizen perception documents that could guide the development of the Resilience Strategy were analyzed. Perceptions of resilience pertaining to the inhabitants of the SMR, experts and citizens included, were also analyzed.

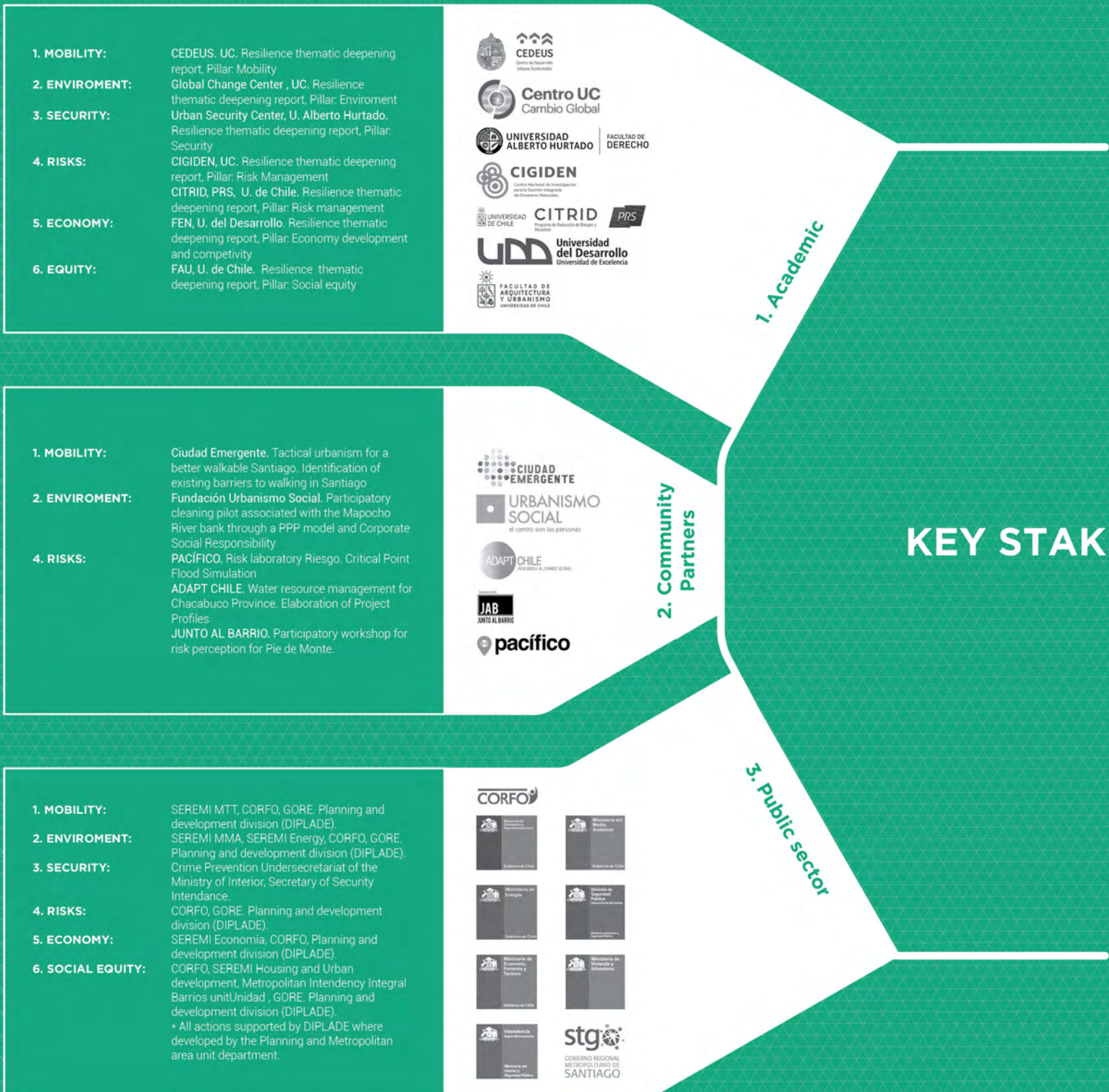
Prominent professionals were interviewed for an expert analysis, supplemented by information collected from two workshops that included 115 stakeholders from the government, private entities and civil society. Citizen perception was obtained by analyzing the Perception and Public Opinion Study in the Metropolitan Region

of Santiago, with a sample of 750 people⁶⁵. The results were analyzed in **May 2016**, in a two-day working session, which concluded with the identification of the city's priority resilience issues and cross-cutting principles, that later became the structure of the document "Preliminary Resilience Assessment", published in **August 2016**.

Phase 2 was aimed at the in-depth thematic process of the work lines identified as priorities in the PRA. To this end, the aim was to integrate a broad vision, by including strategic partners related to each of the pillars, who elaborated different inputs recommending short, medium and long-term plans, actions and programs, closely collaborating with the Resilient Santiago team. In addition, a Public-Private Resilience Council was established, consisting of 35 experts from academia, government, NGOs, the private sector and professional associations. The purpose of this council was to provide decision-making advice during the process.

In order to support the integration of the different inputs, a workshop was held between **19th and 20th December 2016**, called FOO (Field of Opportunities Workshop), whereby the Strategy's approach, pillars and objectives were validated by the 100RC team. Lastly, between **January and March 2017**, the Resilient Santiago team led the task of structuring the Strategy, developing content, integrating the information and finally validating the document developed with key stakeholders and members of the Resilience Council.

Figure 18. Key key stakeholders in the Resilience Strategy process



STAKEHOLDERS

4. 100RC Network partners



PARTNER: ARUP

1. MOBILITY: Ernst and Young. Intermodalidad Urbana - Rural. Characterization of the problem from the Rural. Proposals and lines of action.

2. ENVIROMENT: Veolia. Environmental, sanitary and land use requirements applicable to the location and operation of composting plants or other technologies in the SMR.

4. RISKS: Risk Management Solutions. Modeling for the economic zone of acceleration of the San Ramón fault.

5. Private Sector



SeCRO: Resilience driven companies an input was developed for the Strategy, highlighting the role of the private sector in building resilience for the country. The SECRO network integrates it:

1. Aguas Andinas
2. CGE
3. Telefónica
4. Transbank
5. Abertis Autopistas de Chile
6. COPEC
7. GNL Quintero
8. Metrogas

6. Resilience council



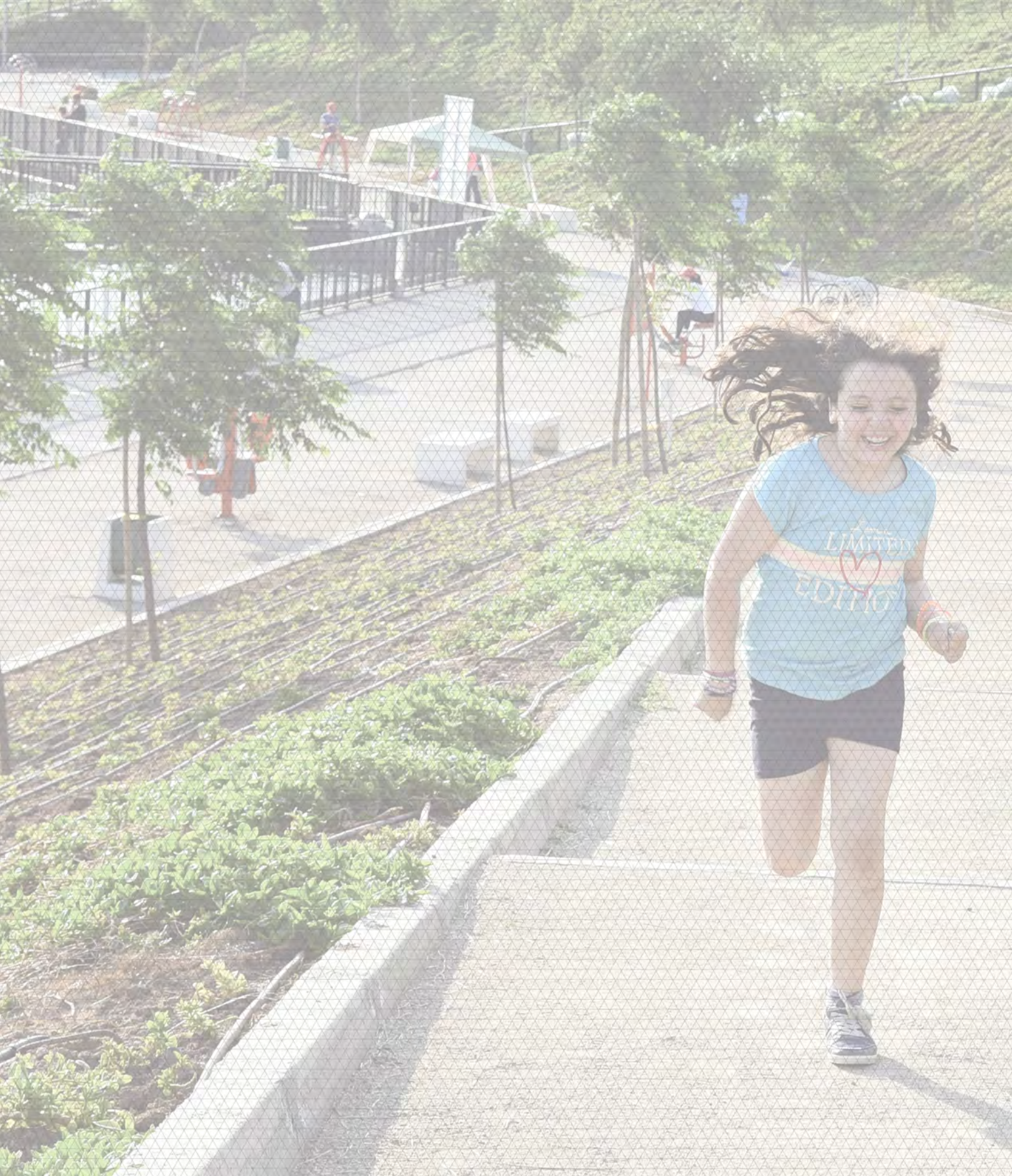
PUBLIC: SEREMI Housing and Urbanism, SEREMI MOP, SEREMI Economy, SEREMI Enviroment, SEREMI Energía, SEREMI Transport, ONEMI, DTPM (Metropolitan Public Transport Directory), CORE.

PRIVATE: SECRO, Telefónica, Aguas Andinas, Metro de Santiago, CCHC, SOFOFA, Cámara de Comercio de Santiago.

CIVIL SOCIETY: Fundación Mi Parque, Avina, Adapt Chile, Ciudad Emergente, Ciudad Viva, ONG Inclusiva.

ACADEMY: CIGIDEN, CEDEUS, Centro de Cambio Global, Centro de Políticas Públicas UC, U. Alberto Hurtado, CR², Centro de Inteligencia Territorial, U. Adolfo Ibañez, U. del Desarrollo, U. Diego Portales, Facultad de Ciencias Físicas y Matemáticas, U. de Chile.

GUILD: Colegio de Arquitectos de Chile.





Section V

**HUMAN &
RESILIENT
SANTIAGO
STRATEGY**

5.1. VISION

HUMAN & RESILIENT SANTIAGO

We want a human-centered development model for Santiago, where neither cars nor buildings or economic interests dominate, but rather people. For the people who live in and experience the city to feel that Santiago is dreamt up, planned and built with them in mind.



a. Principles

The approach and construction of a more human and resilient Santiago includes 4 principles that in turn guide the preparation of this Resilience Strategy. These principles arise from the Human Santiago approach. These are:

1. Human approach

Which places people and their particularities at the center of the discussion, prioritizing their quality of life and experience of living in the city

2. Participative city

Which includes the opinions and ambitions of society's key stakeholders in decision-making, by means of effective and binding participation instances

3. Territorial intelligence

Recognizing the particularities of each territory for evidence-based decision making

4. Promoting the right to the city

Providing access to all of the city's benefits, and levelling the playing field among the districts of the Metropolitan Region.

b. Transversal Elements

Transversal elements are characteristics that transcend the sectoral pillars of this strategy, and that encapsulate the ways in which we intend to face the different regional problems. These elements are **governance** and **intersectorality**. They are the hallmark of the proposals presented herein, as they seek to solve the different challenges in a comprehensive and coordinated way, with a regional approach, despite territorial and sectoral fragmentation.



Intersectorality



Governance

Governance

There are a number of elements and actions that are needed in place to build a city; these include having a political leadership supported by a competent institutional structure, promoting dialogue between multiple stakeholders, articulating several initiatives, proposing a strategic approach, channeling conflicts and, above all, listening to what the inhabitants have to say.

This is key in addressing the challenges that the SMR has to face. In a highly centralist country like Chile, and set in a context of territorial fragmentation due to a system made up of urban and rural districts, among which there is little coordination and limited dialogue with the Regional Government, having the figure of a Metropolitan Authority with clear attributions is highly necessary. Likewise, short-term legal changes related to a new regional governance model force us into future scenarios, which will result in unprecedented methods of governing these peculiar territories. The strategy for a “Human and Resilient Santiago” is aimed precisely at doing this.

Intersectorality

The complexity of the metropolitan challenges requires an integrated action of policies and responses to their problems. This means formulating the different areas of sectoral knowledge and expertise in order to address issues that simply cannot be solved in a fragmented way. However, intersectorality cannot occur spontaneously; it must be articulated, organized and structured so that interinstitutional and intersectoral relations can take place, and thus generate the expected results. Intersectorality means a new way of planning and executing territorial projects and policies, considering, integrating and articulating sectoral interests with a shared approach, providing a desirable method of approaching the city's challenges.

5.2. HOW TO READ THE STRATEGY

The Strategy consists of **pillars** that in turn have **objectives** developed through **plans, programs and projects**. Each of these pillars were identified from the work developed during phase 1 and 2 of the Strategy-preparation process, and their subject matter came from the in-depth thematic process (See section 4. Development of the Resilience Strategy).

Each pillar begins with a description of the **Problem Status**, which gives an account of the current situation of the topic being presented, and a **Map of the Metropolitan Area** that charts at least one of the issues raised in the text. The current situation is described below, with an emphasis on **Governance**: Where we are and where we are headed to, accompanied by a **Governance Reference** on the matter, using international cases.

Some **Strategic Partners** have also been featured for each pillar, contributing inputs for the construction of each of the pillars of this Strategy. These strategic partners delved into each topic through academic research, community pilots, a transfer of public sector experiences, among others, and were key in generating content for each thematic pillar.

The **objectives** associated with each pillar are then developed, with their plans, programs and projects. **A brief description of the proposal**, the **status of the action** (implemented or under planning process), its **timing**

(short, medium and long term) and the main **stakeholders involved**, is provided for each initiative (either plan, program or project). In the case of plans or programs, a list of **linked actions** is detailed below, which are not exclusive of new actions that may be incorporated over time.

Certain **priority plans, projects or programs** are identified within each pillar, which, due to their specific condition, can be recognized as emblematic projects that Resilient Santiago will promote for future implementation. **These priority proposals** have in turn been linked with actions led by other cities of the 100RC network, in order to generate joint work and knowledge exchange plans.

In some cases, proposals include documents that have been developed by third parties, such as policies, plans, strategies, etc., and subject to their relevance, they have been featured as a **reference document**, by including their name and cover photo.

Finally, each pillar includes a local reference, aimed at highlighting a proposal or initiative of a municipality or provincial government, which serves as an example and as good practice that, thanks to its characteristics, can then be replicated in other territories.

The strategy consists of 6 pillars, 21 objectives and 75 plans, programs and projects that are detailed below:

Diagram guide to read the strategy



1

URBAN MOBILITY
Conected
Santiago

For a city that prioritizes public transport, cyclists and pedestrians over automobiles, and provides a reliable, safe, sustainable and intelligent integrated mobility system.

2

ENVIRONMENT
Green &
Sustainable
Santiago

For a city that grows and develops in harmony with the environment, with a responsible usage of natural resources and the provision of equal access to green areas and high quality urban parks.

3

SECURITY
Safe
Santiago

For a city that promotes the peaceful coexistence of its inhabitants; which understands the multi-causality of crime and addresses it in a collaborative, coordinated, strategic and intelligent manner.

4

RISK MANAGEMENT
Prepared
Santiago

For a city and for communities that can learn from their history as well as the history of others, for better preparation for future disasters, thus reducing related damages and impacts.

5

ECONOMIC DEVELOPMENT
Global & Innovative
Santiago

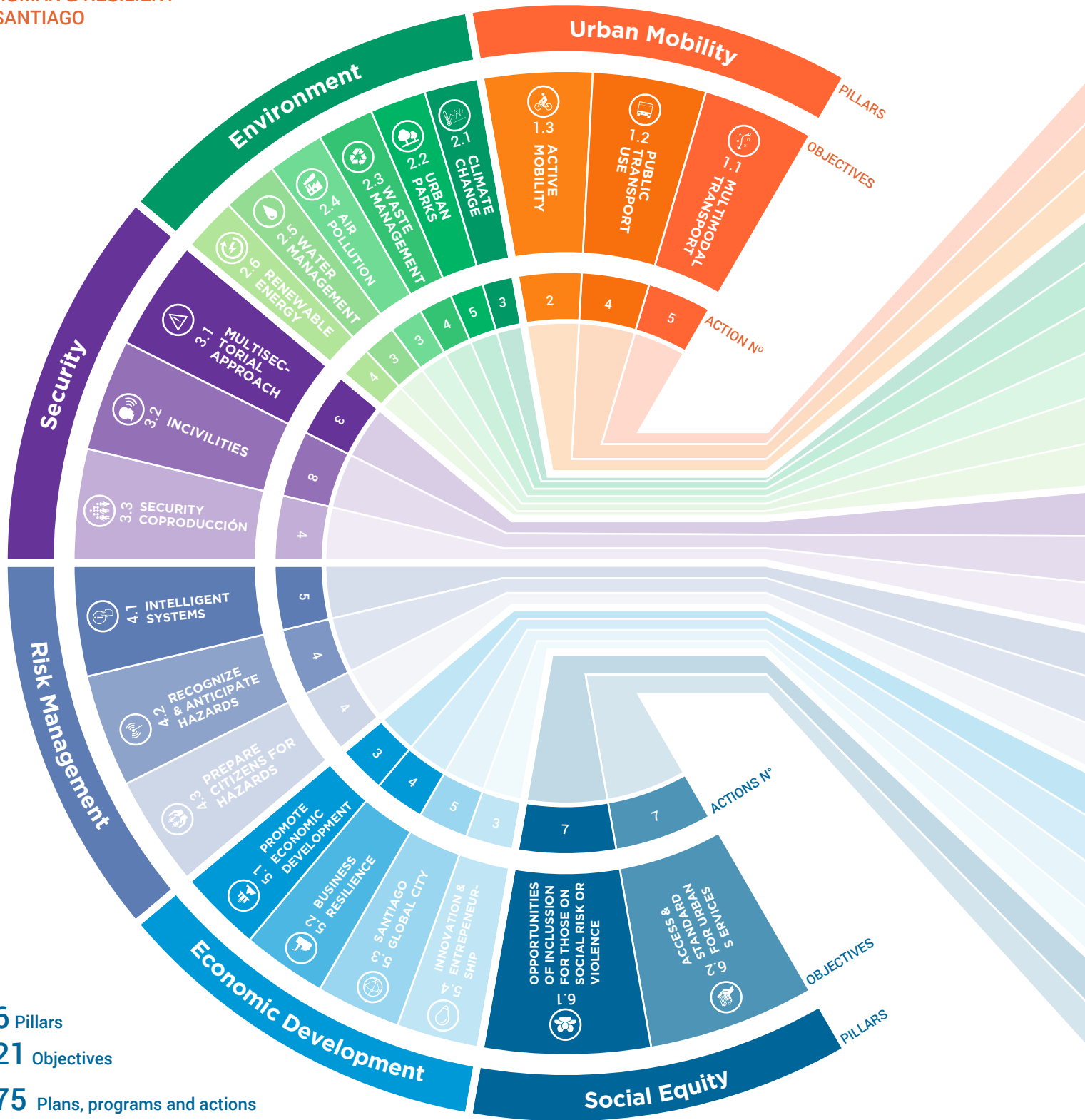
For a territorially equitable city that fosters the creation of new opportunities, in the midst of an ecosystem of regional innovation, entrepreneurship and circular economy.

6

SOCIAL EQUITY
Inclusive
Santiago

For a city that reduces its social gaps, inequality and territorial fragmentation, where all of its inhabitants have access to the benefits and opportunities it provides.

HUMAN & RESILIENT SANTIAGO



6 Pillars

21 Objectives

75 Plans, programs and actions

PLANS, ACTIONS AND PROGRAMS

PLANS, ACTIONS AND PROGRAMS				
Urban Mobility	1.1	1.1.1. ProMovilidad Urbana Regional Policy 1.1.2. Commuter Rail Network Project	1.1.3. Urban-Rural Mobility Integration Plan 1.1.4. Urban Freight Transport Program	1.1.5. Orbital Ring Road Project
	1.2	1.2.1. Consolidate the Massive Public Transport System	1.2.2. Modernization project for integrated urban mobility management	1.2.3. Intermediate bypass for public transport 1.2.4. Nueva Alameda Providencia Project
	1.3	1.3.1. Santiago Pedaleable Plan 1.3.2. Santiago Camina Plan		
Environment	2.1	2.1.1. Regional Climate Change Program 2.1.2. Basin Environmental Monitoring Plan	2.1.3. Energy Consumption Reduction Plan	
	2.2	2.2.1. Construction of new Urban Parks 2.2.2. Program of Nature Conservation Areas		
	2.3	2.3.1. Waste management technology center 2.3.2. Santiago Recicla	2.3.3. Eradication and conversion of illegal solid waste landfills - Basura Cero	
	2.4	2.4.1. Santiago Respira 2.4.2. Zona Verde Transport Program		
	2.5	2.5.1. Responsible Consumption 2.5.2. Biodiversity and Water Ecosystem Protection	2.5.3. Rural Drinking Water Program	
	2.6	2.6.1. Regional Energy Plan 2.6.2. Mini-hydros construction project	2.6.3. AWaste to Energy Plan 2.6.4. Santiago Solar regional solar program	
Security	3.1	3.1.1. Intervention Plan in Urban Sub-Centers 3.1.2. Municipal Security Councils	3.1.3. Requirements of safety standards for urban intervention projects.	
	3.2	3.2.1. Recovery plan for empty lots 3.2.2. Ruta Segura Program 3.2.3. Responsible Pet Ownership Program	3.2.4. Integrated Teleprotection Network Plan 3.2.5. Paradero Seguro Plan	3.2.6. Program for neighborhood justice
	3.3	3.3.1. Citizen participation and security co-production	3.3.2. Public-private work plan for crime reduction	3.3.3. Victim Care Network
Risks	4.1	4.1.1. Regional Risk Management Policy 4.1.2. Social Networks Monitoring Platform	4.1.3. Integrated Emergency and Disaster Management Centre	
	4.2	4.2.1. Seismic Risk Program 4.2.2. Hydro-meteorological Hazard Program	4.2.3. Fire Prevention and Control Program 4.2.4. Prepared Santiago Emergency Protocols	
	4.3	4.3.1. Community Strengthening in Foothill Multi-Hazards	4.3.2. Regional network of municipalities 4.3.3. Regional Emergency Volunteer Coordinator	4.3.4. Risk Management Education Program
Economy	5.1	5.1.1. Regional Infrastructure Plan 2041 5.1.2. Promote the agro-industrial sector		
	5.2	5.2.1. Public-Private Work Plan for Public Interest Projects	5.2.2. Santiago + B Program. Social impact 5.2.3. Business Continuity Plan for SMEs	5.2.4. Group insurance against disasters and emergencies, focused on SMEs
	5.3	5.3.1. Strategic Plan Santiago City Brand 5.3.2. Strategic Plan for Regional Tourism	5.3.3. International Convention Centre Project 5.3.4. City-city horizontal cooperation program	5.3.5. Santiago Ciudad Inteligente Program
	5.4	5.4.1. Santiago Emprende Program 5.4.2. Impacta Santiago Program	5.4.3. Innovation Ecosystem Improvement Program	
Equity	6.1	6.1.1. School retention and reinsertion program 6.1.2. Regional policy on children and adolescents	6.1.3. Program for education and treatment of drug use and abuse, focused on young people 6.1.4. Metropolitan Youth Strategy	6.1.5. Regional policy on migrant population 6.1.6. Regional street people policy
	6.2	6.2.1. Update the PSMR 6.2.2. Río Mapocho Integral Project	6.2.3. Neighborhood Recovery Plan 6.2.4. Santiago es Mío Cultural Program	

MOBILITY PILLAR

CONNECTED SANTIAGO

For a city that prioritizes public transport, cyclists and pedestrians over automobiles, and provides a reliable, safe, sustainable and intelligent integrated mobility system.

This chapter has been developed based on the inputs generated by CEDEUS UC, DIPLADE Planning Department, DIPLADE Metropolitan Area Unit, SEREMI of Transport and Telecommunications, CORFO, ARUP and the Private Public Resilience Council.





Objective 1.1
Plan and promote a
multimodal transport system
with a regional approach



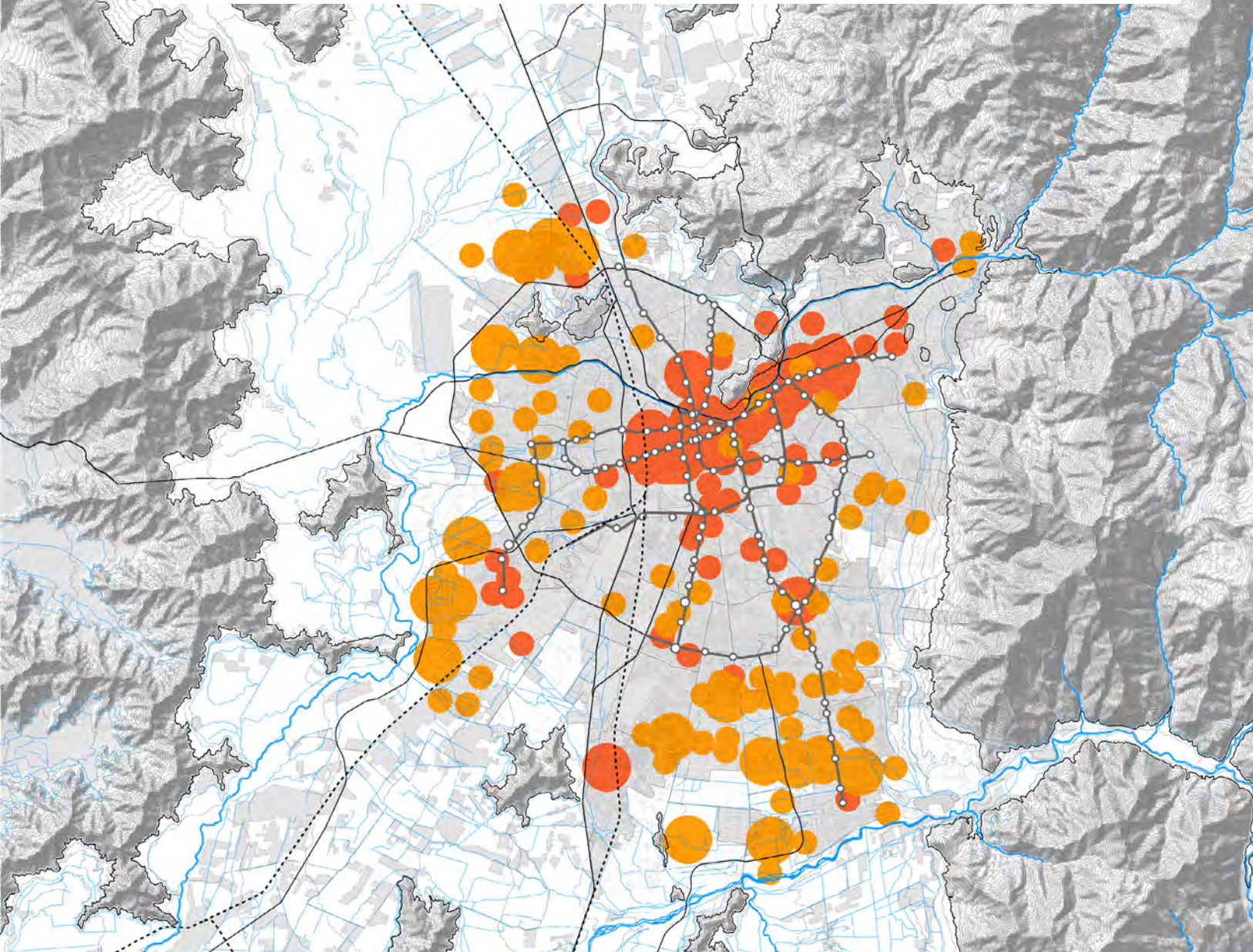
Objective 1.2
Promote public transport
use, improving the travel
experience of the inhabitants
of Santiago



Objective 1.3
Improve and promote active
mobility for an efficient
and sustainable regional
transport system

Road and transport system of the SMR. Origin-Destination in rush hour.

The map shows the road and transport system of the SMR, crossed with the points of origin and destination exceeding 3,000 trips a day at morning rush hour. It illustrates a concentration of trips towards the center of the city, and a functional dependence with the peripheral zones.



- Base Map**
- Main streets
 - - - Train tracks
 - Road network
 - Hidrology
 - Topography

- Origin - Destiny rush hour AM.**
- Origin, 3,000 to 7,000 trips
 - Origin, 7,100 to 13,000 trips
 - Destiny, 3,000 to 7,000 trips
 - Destiny, 7,100 to 44,000 trips

- Transport**
- Metro stations
 - Santiago's Metro lines

Source: SECTRA, EOD 2012, GORE 2016, UGIT 2016.



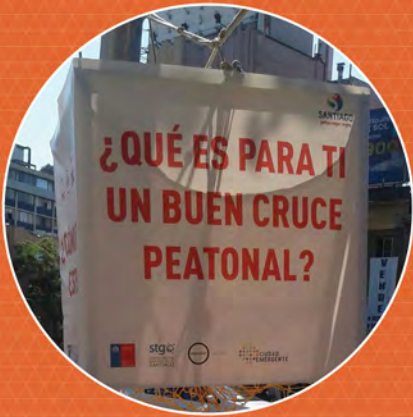
Governance reference. London, United Kingdom

Transport for London



Transport for London (TfL), is a statutory body created by the Greater London Authority (GLA) Act 1999. It is the institution in charge of implementing the Mayor's Transport Strategy (MTS), with an estimated 20-year development period, updated roughly every eight years. TfL is responsible for the current proper functioning and future planning of Transport, both in the city and in its metropolitan area, which involves streets (traffic lights, bicycle paths, signage, maintenance), several rail networks, including the underground (London Underground), overground, light railways, self-service bike network, buses, taxis and river transport.

Strategic Partners: Mobility Pillar



Community partner
Ciudad Emergente

Tactical urbanism for a better walking Santiago. Identification of existing barriers to walkability in Stgo.

"Through the prototype we seek to transform an existing pedestrian crossing of the city by improving the experience of the pedestrian and the walk associated with intermodality, based on tactical actions."



100RC Platform partner
Ernst & Young

Urban Rural Intermodality Metropolitan Region. Identification and characterization of the problem, and proposals for lines of action.

"Santiago should promote a model of intermodal mobility of high participation in public transport and active modes, at regional level, in an integral and strategic way."



Academic partner
CEDEUS, UC

Academic report: Mobility pillar

"Strengthening the system requires adding more axes to the mass transit network, which allow for expeditious and reliable travel around the city."



Objective 1.1



1.1.1.

PRIORITY PROPOSAL



SANTIAGO

Term:

Medium term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Transport and Telecommunications, SECTRA, DTPM, MINVU, Metro, EFE, Civil Society Organizations and Municipalities.

More info at:



Problems of Urban Mobility: Strategy and Measures for Mitigation

Plan and promote a multimodal transport system with a regional approach

ProMovilidad Urbana Regional Policy

This Policy includes regional level recommendations submitted by the Presidential Advisory Committee ProMovilidad Urbana of 2014, which includes the definition of a Metropolitan Authority with powers, faculties and resources to effectively and coherently take action on problems related to the city, land use and urban mobility. In teSMR of mobility, this Regional Policy will allow for the planning and the managing of supply and demand, articulating investment in infrastructure, equipment and its impacts. Efforts will be made to ensure that modern, efficient and accessible transport systems are put in

place to improve the quality of life of the inhabitants of the Region.

This program consists of several related actions, listed below:

Related actions:

1. Metropolitan Transportation Authority
2. Comprehensive Urban Mobility Master Plan that takes infrastructure and management measures into account.
3. Subway Line Expansion Plan



1.1.2.

Term: Long Term
Status: Ongoing project
Stakeholders: GORE, SEREMI of Transport and Telecommunications, SECTRA, DTPM, EFE, Metro and Municipalities.

Commuter Rail Network Project

The concentration of services, education and employment in the capital, have created a functional dependency of the inhabitants of peripheral settlements and those adjacent to the city center, generating a huge surge of daily trips concentrated in peak hours.

On the other hand, it has been shown over time that the construction of highways and roads has increased private vehicle use, encouraging the expansion of the city with low-density peripheral urbanization and high car dependency. This city model is inefficient in providing a quality public transport system, since it must travel long distances to meet low demand. These conditions render providing a massive, efficient and sustainable public transport service incredibly difficult. As an alternative solution, the region's commuter rail services offer competitive conditions, which allows for the improvement and expansion of the service, leveraging the existing area

next to the railway line, increasing the frequency and providing intermediate intermodal centers at the stations. These combined and complementary solutions allow us to promote a massive, clean and sustainable transport system.

This program consists of several related projects, listed below:

Related actions:

1. Fare Integration of Commuter Rails and Public Transport System (buses and underground)
2. Melitren Commuter Rail (Santiago-Melipilla)
3. Nos Express and Rancagua Express Commuter Rail
4. Zona Norte Commuter Rail (Santiago-Batuco Til Til)



1.1.3.

Term: Long Term

Status: Proposal

Stakeholders: GORE, SEREMI of Transport and Telecommunications, SECTRA, DTPM, MINVU, Metro, EFE, Civil Society Organizations and Municipalities.

Urban-Rural Mobility Integration Plan

The urban sprawl of Santiago, with no territorial planning processes, has led to rural areas depending on urban areas. On the other hand, the quality of service of the rural buses is deficient, since they provide low coverage, low accessibility and all at very high costs due to the lack of fare integration with the urban transport system. This impacts rural transport costs, as well as users' travel experience. This plan is aimed at addressing these issues, by understanding the urban-rural mobility system as a comprehensive and intermodal system.

Related actions:

1. Intermodal Development Plan, aimed at identifying the region's relevant transfer points.
2. Defining and implementing a fare integration model for the region's urban-rural transport system.
3. Implementing an exclusion perimeter to improve the operation of rural buses.
4. Policy to develop urban, rural and intercity bus terminals for intermodal points.

This program consists of several related projects, listed below:



1.1.4.

Term: Long Term
Status: Proposal
Stakeholders: GORE, SEREMI of Transport and Telecommunications, SECTRA, DTPM, MINVU, Metro, EFE, Civil Society Organizations and Municipalities.

More info at:



CORFO Roadmap

Urban Freight Transport Program

Transporting goods and commodities is pivotal in ensuring the city's proper operation. It is currently a negative externality due to its environmental impacts, weak regulation and congestion stemming from loading and unloading processes, which become more conflictive during peak hours. This program consolidates and implements several initiatives, aimed at providing the region with a robust and comprehensive freight logistics system that takes the different urban scales with a regional approach into account.

This program consists of several related projects, listed below:

Related actions:

1. Road space rationing in congested areas.
2. Incentives for the construction of a network of logistics consolidation and distribution centers.
3. Information system for urban freight management.
4. Intelligent Truck Parking Pilot Project.



1.1.5.

Term: Long Term

Status: Proposal

Stakeholders: GORE, SEREMI Transport and Telecommunications, SECTRA, MINVU, Civil Society Organizations and Municipalities.

Orbital Ring Road Project

The outer ring of Santiago was projected and incorporated into the Santiago Metropolitan Regulation Plan in the 1960s, along with the Américo Vespucio ring, and it is aimed at connecting the outlying districts of Colina, Lampa, Huechuraba, Pudahuel, Maipú, Puente Alto, La Florida, Peñalolén, La Reina, Las Condes and Lo Barnechea. This ring allows for the decongesting of the Américo Vespucio ring and redistributing

trips to other regions and to the internal areas of Santiago. It also generates direct connections with other routes, and allows for freight transport to circulate beyond the urban radius, thus decongesting the current routes through peripheral connections such as the junction of Route 78 and 68. The project has a 130 km extension and is expected to be built in tranches.⁷³



73. (La Tercera, 2013).
Image source: El Mercurio, 2008.



Objective **1.2**

Promote public transport use, improving the travel experience of the inhabitants of Santiago



1.2.1.

Term: Medium Term
Status: Ongoing project
Stakeholders: Ministry of Transport and Telecommunications, DTPM, Civil Society Organizations and Municipalities.

Plan to Consolidate the Massive Public Transport System

The report of the ProMovilidad Commission of 2014 recommends that in the decision-making process on transport, housing, urban or industrial projects, authorities should always put the provision and expansion of mass public transport services first, playing down other modes of transport. In this context, promoting those actions and projects aimed at improving the quality of the mass public transport system is necessary, rendering it more sustainable and attractive in other ways, focused on improving users' travel experience. Likewise, the rebidding process of the Surface Bus System seeks to improve the fleet and establish new regulatory mechanisms to improve service delivery.

This program consists of several related actions, listed below:

Related actions:

- 1.** New investments to reduce evasion/ Audit Plan/ Education and raising awareness plan to improve public transport.
- 2.** Plan to promote public transport use and thus increase the number of passengers.
- 3.** Investments to improve travel times through:
 - The construction and adaptation of existing routes to exclusive corridors for Transantiago.
 - The consolidation and improvement of priority roads for public transport.
- 4.** Management System for the Integrated Operation: Fleet Exploitation Support System (SAEF).
- 5.** Enabling Subway lines 3 and 6/ Expansion of Subway lines 2 and 3/ Construction of new Subway lines.



1.2.2.

Term: Medium Term

Status: Proposal

Stakeholders: GORE, Ministry of Transport and Telecommunications, SECTRA, DTPM, Metro and EFE.

Technological modernization project for integrated urban mobility management

The collection and use of updated data generated by the transport network would improve management of the transport system and the mobility of its users. Big Data provides decision-making information to both the public sector that plans, manages and regulates, as well as to private entities that operate public and freight transport systems. An

integrated urban mobility management system would support decision making, in order to have more efficient and effective systems. The correct analysis of this information would allow steering actions aimed at reducing travel times, reducing environmental impact and operating costs.

1.2.3.

Term: Long Term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Transport and Telecommunications, SECTRA, DTPM, MINVU, SERVIU, MOP and Municipalities.

Intermediate bypass project for public transport

Considering the urban sprawl of Gran Santiago, and the deterioration and abandonment of the city's intermediate areas, the proposal to consolidate an intermediate bypass for public transport would allow for the recovering and revitalizing of the city's pericentral areas and would improve connectivity and access to public transport. The intermediate bypass, formed by the avenues Departamental, Las Rejas, Dorsal

and Pedro de Valdivia, directly benefits 14 districts⁷⁴ of the Metropolitan Region, connects with circular transportation roads and provides travel options that avoid having to enter the downtown area.

This bypass has been consolidated in 10 of the 14 districts with priority to public transport. Some districts are still left in order to fully improve the transport platform.



74. (MINVU, 2014).



1.2.4. PRIORITY PROPOSAL

RESILIENT SANTIAGO

Term: Long term
Status: Ongoing project
Stakeholders:
 GORE RM, SEREMI of Transport and Telecommunications, SECTRA, DTPM, MINVU, SERVIU, MOP, Municipalities of Lo Prado, Estación Central, Santiago and

100RC Network Reference

NEW YORK



“Improving Urban Mobility”
 Projects will restore streets, corridors, highways and bridges, to improve the mobility of the city's inhabitants.

Image source: Plataforma Urbana, 2016.

Nueva Alameda Providencia Project: Remodeling the city's structural core

The Nueva Alameda Providencia Project is aimed at renewing the most emblematic structural core of the city of Santiago, and it has been proposed as a comprehensive urban recovery project that prioritizes public transportation, with cultural, social, historical, urban and mobility implications. In 2015, an international public competition defined the best alternative to developing the study of the

project that covers over 12 kilometers, from Pajaritos to Tobalaba, integrating the districts of Lo Prado, Estación Central, Santiago and Providencia. The Nueva Alameda Providencia project stands out for having incorporated a citizen participation process at a regional level right from its design stage, recognizing the individualities of each territory and the complexity of the city's logic.





Objective **1.3**



1.3.1.

PRIORITY PROPOSAL



SANTIAGO

Term: Medium Term
Status: Ongoing project
Stakeholders: GORE, SEREMI of Transport and Telecommunications, SECTRA, DTPM, MINVU, SERVIU, MOP and Municipalities.

100RC Network Reference

MELBOURNE



“Metropolitan Bicycle Path Network” Bicycle path network adapted to local needs.

75. (BID, 2015).

Improve and promote active mobility for an efficient and sustainable regional transport system

Santiago Pedaleable Plan

In recent years, Santiago has shown a steady increase in the use of bikes as a means of transportation. According to an IDB study⁷⁵, the city counts as Latin America’s second largest bicycle user, with about 510,000 trips a day, despite its somewhat precarious infrastructure for this mode of transportation. The “Santiago Pedaleable” Plan is aimed at promoting the use of bicycles as a sustainable and clean means of transportation, through investments, programs, projects and interdisciplinary workshops carried out throughout the Metropolitan Region.

This program consists of several related actions, listed below:

Related actions:

1. Implementing an inter-municipal system of self-service bicycles in the city of Santiago, promoting its integration with the transport system.

- 2.** Implementing Santiago’s Bicycle Lane Master Plan, using high quality design.
- 3.** A new legislation on the use of bicycles as a mode of transport.
- 4.** Implementing a network of short and long-term public parking lots for bicycles.
- 5.** Developing a 400-kilometer multipurpose trail network for pedestrians and bicycles in rural areas.
- 6.** Developing road coexistence campaigns between modes of transport.
- 7.** Recovering pedestrians and cycling spaces through greenway projects linked to the recovery of urban watercourses and their surroundings.

- Mapocho 42K: Bike trail along the banks of the Mapocho River.
- Mapocho pedaleable: Bicycle lane and pedestrian space in the bed of the Mapocho River.
- Paseo Metropolitano: Bike promenade around Cerro San Cristóbal, linked to the Canal del Carmen.



1.3.2.

Term: Short Term
Status: Ongoing project
Stakeholders: GORE, SEREMI of Transport and Telecommunications, DTPM, MINVU, SERVIU, MOP, Municipalities and Gehl Architects Office.

Santiago Camina Plan

In 2015, 25% of Santiago’s occupational accidents were due to falls resulting from the poor conditions of the sidewalk. In the context of a city where 56% of people who are travelling around the city at a time are walking⁷⁶, having a sidewalk standard to improve the experience of pedestrians is essential. The “Santiago Camina” Plan is aimed at improving the quality of life of the region’s inhabitants through projects linked to pedestrians and their walkability experience.

This program consists of several related actions, listed below:

Related actions:

1. Promoting projects to improve people’s experience in public space.
2. Disseminating the Gehl Architects’ methodology, which promotes walkability, through technical forums, trainings, lectures in universities, meetings with municipalities, among others.
3. Developing incentives to standardize and ensure inclusive pedestrian spaces.
4. Creating a sidewalk design manual to ensure a regional standard.
5. Promoting pedestrianisation of urban sub-centers (Plan Centro)

More info at:



Santiago Camina



75. (GORE, 2014b).



Local Reference. Santiago Municipality

Comprehensive Mobility Plan for the District Of Santiago

The Comprehensive Mobility Plan was developed by the Municipality of Santiago, and it is aimed at promoting sustainable transport, to discourage the use of private motorized vehicles and to improve road safety. The Comprehensive Plan is structured based on the prioritization of projects grouped in specific plans, implemented in strategic areas of the district: Peatón Primero, Pro Bici, Zonas Calmas, Plan Centro, NAMA-Zona Verde de Transporte, Participatory PlatfoSMR, Accessibility and Underground Parking Plan.

ENVIROMENT

GREEN AND SUSTAINABLE SANTIAGO

For a city that grows and develops in harmony with the environment, with a responsible usage of natural resources and the provision of equal access to green areas and high quality urban parks.

This chapter has been developed based on the inputs generated by: UC CENTER FOR GLOBAL CHANGE, CIGIDEN, ADAPT CHILE, DIPLADE Planning Department, DIPLADE Metropolitan Area Unit, SEREMI of Environment, SEREMI of Energy, CORFO, ARUP, Public-Private Resilience Council.





Objective 2.1
Preventing and mitigating
problems of climate change



Objective 2.2
Reducing the shortage of
green areas in vulnerable
areas through high quality
projects



Objective 2.3
Generating and
implementing a
comprehensive regional
waste management model



Objective 2.4
Reduce the city's air
pollution rates



Objective 2.5
Establish a water
management metropolitan
system



Objective 2.6
Promote the use of non-
conventional renewable
energy

Status Quo

Climate change invokes numerous challenges for cities. Santiago is no exception. There are several pieces of evidence in our region that account for the environmental alterations that arise from urbanization: the generation of heat islands and water cycle alterations due to ground impermeability and air pollution, among others⁷⁷. According to the Center for Global Change⁷⁸ unless early adaptation measures are taken, Santiago will experience the impacts related to these alterations, which could alter the urban water cycle.

Santiago's inequality is also apparent in environmental issues. For example, the distribution of green areas directly correlates to the income level of districts. Some of those with a lower socioeconomic level have an average of about 0.4 and 2.9 m² of green areas per inhabitant, whereas some wealthier ones have an average of about 6.7 and 18.8 m²/hab⁷⁹. Balancing this distribution is extremely necessary: the World Health Organization recommends 9 m²/inhabitant.

On the other hand, according to the Environmental Status Report⁸⁰, the Metropolitan Region is the nation's largest waste producer. It accounts for 43% of the country's total production. Of the total solid waste generated, more than 50% could be recovered, which would significantly reduce the amount sent to legal landfills. The difficulties in standardizing regulations in small and medium sized districts plus the low regulation and monitoring of final waste disposal, the absence of a regional recycling network and a weak segregated collection system, have all led to the proliferation of illegal landfills and small dump sites, which all pose a major health challenge for the city.

Lastly, Air Pollution has been identified as the main environmental issue of the Metropolitan Region of Santiago (37%)⁸¹, something that has cemented its position as one of the most polluted cities out of those American cities with highest income. Although the 2.5 ug/m³ annual concentration of particulate material (PM) has dropped from 69 to 22 ug/m³ in 2015, there are still more than 40 critical episodes per year due to fine particulate matter⁸². In addition to this, and due to the region's geographical and ventilation conditions, pollutant concentrations move from the Precordillera towards districts located in the valley, coinciding with lower income districts.

77. (Romero, et. al., 2010b)⁶⁶. MMA, 2011.

78. (Centro de Cambio Global, 2016)
79. (Figueroa, 2009).

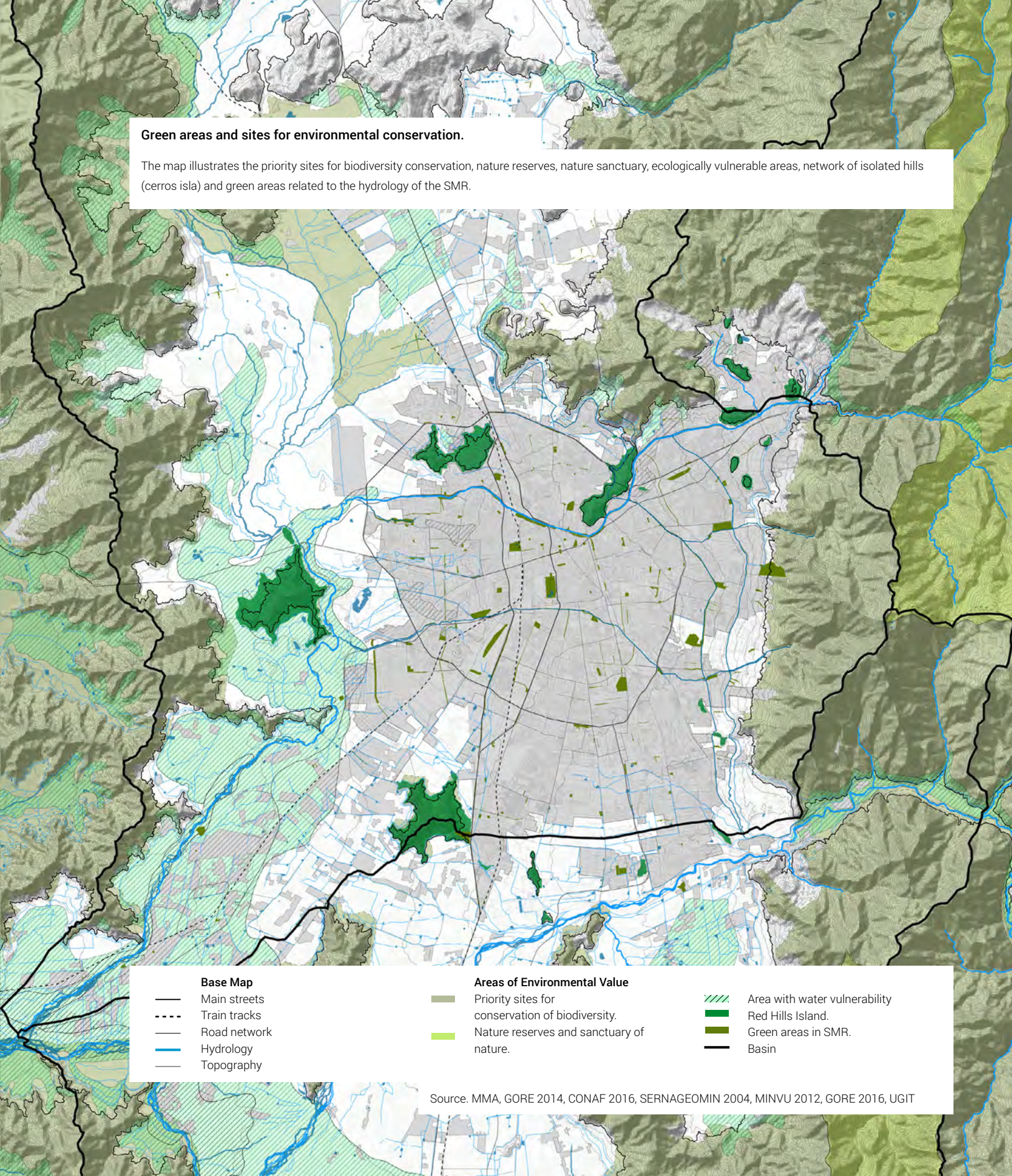
80. (MMA, 2011a).

81. (MMA, 2015a).

82. (MMA, 2015b).

Green areas and sites for environmental conservation.

The map illustrates the priority sites for biodiversity conservation, nature reserves, nature sanctuary, ecologically vulnerable areas, network of isolated hills (cerros isla) and green areas related to the hydrology of the SMR.



Base Map

- Main streets
- - - Train tracks
- Road network
- Hydrology
- Topography

Areas of Environmental Value

- Priority sites for conservation of biodiversity.
- Nature reserves and sanctuary of nature.

- Area with water vulnerability
- Red Hills Island.
- Green areas in SMR.
- Basin

Source. MMA, GORE 2014, CONAF 2016, SERNAGEOMIN 2004, MINVU 2012, GORE 2016, UGIT

Metropolitan governance

Where we are, where are we headed to

The environment involves several thematic areas in our region. In addition to the age-old problem of air pollution, we have water availability and management, biodiversity protection, waste collection and management and access to green areas for all citizens.

All these issues are addressed by different institutions: the Ministry of the Environment, Ministry of Public Works, Ministry of Housing and Urban Development, the National Forestry Corporation (CONAF), municipalities and companies involved in the collection, recovery and ultimate disposal of waste.

The local government holds exclusive waste management powers, operated by private companies, but neither they nor the Regional Government have the powers to territorially integrate policies regarding other environmental issues.

In addition to this, new stakeholders raise local and global demands as the awareness of the dangers and implications of climate change increases. The goal is to create commitments at different levels (national, regional, local), in order to tackle this global challenge. The realization of these commitments demands coherent actions and a long-term vision, which is extremely difficult with stagnant sectoral visions and with few institutional coordination instances.

Creating environmental governance mechanisms is necessary, not only as a means of contributing to the global challenges, but also to provide the region's inhabitants with better health conditions and quality of life. Given the primarily territorial dimension of environmental damage, regional and local governments better identify problems and are more successful in coordinating policies in the abovementioned areas. Likewise, environmental heritage is part of cultural heritage and collective identities, whose protection and upkeep is fundamentally the subnational governments' task.

The goals for a Green and Sustainable Santiago are the regional version of those commitments and challenges adopted by Chile to contribute to the sustainability of the planet. In order to fulfill them, a governance scheme capable of bringing them to our territory is necessary.

Actions and programs:

1. Regional authority with specific powers (Metropolitan area team)
2. Intersectoral Coordination Group (CCG)
3. Comprehensive hydrological information system



Governance Reference, Mexico City

Water Fund

The successful creation and implementation of the Mexico City Water Fund is part of said metropolitan region's climate change adaptation measures, by integrating the water ecosystem and its different hydrological basins. The Fund includes key topics such as:

1. The definition of the conservation plan, the baseline for the monitoring protocol, the creation of the necessary legal and financial entities and the implementation of the pilot projects related to the recharge of the city aquifer.
2. Initiatives for the conservation of rural lands within the city's border in order to regulate the hydrological cycle and to achieve integration with the regional ecosystem.
3. Financial sustainability, by investing in international markets. The return on investment is used for land conservation investments, to develop technical support and to promote sustainable lifestyles and community development in the area of influence.

Strategic partners: Environment pillar



Community partner
Social Urbanism

Participatory cleaning pilot associated with the Mapocho river bank through PPP partnership and Corporate Social Responsibility

"Mapocho Limpio is an invitation to transform the banks of the Mapocho River into a new active, quality, clean and safe public space."



100RC Platform partner
Veolia

Environmental, sanitary and land use requirements, applicable to the location and operation of composting plants or other technologies in the SMR

"Segregation at source and composting are environmentally friendly solutions that allow the sustainability of cities."



Academic partner
Global Change Center, UC

Academic report: Climate Change in the Metropolitan Region of Santiago

"The supply of drinking water in urban areas corresponds to the second largest consumption of the resource after agricultural activity."



Objective 2.1



2.1.1.

PRIORITY INITIATIVE



SANTIAGO

Term:

Short Term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Environment, MINVU, MOP (DOH, DGA), Municipalities, Civil Society Organizations, Private Organizations and Academics.

See more in:



National Plan for Climate Change 2017-2022

Preventing and mitigating problems of climate change

Regional Climate Change Program (*)

The Regional Climate Change Program is aimed at promoting the integration of this topic into regional public policies, seeking points of agreement with national policies, regional development strategies and regional sectoral policies and activities. To this degree, the creation of the Regional Climate Change Committee is being proposed, whose framework will be the actions proposed in the National Climate Change Adaptation Plan 2014. On the other hand, since 2016, Santiago has been part of C40, a group of leading cities in the reduction of carbon emissions and climate change adaptation. Being part of this network allows for collaborative work with other cities, the transfer of knowledge

and support for the preparation of plans, programs and projects, which will ultimately serve as input to the program.

Related actions:

1. Implementing recommendations of the Climate Change Adaptation Plan RM.
2. Creating the Regional Climate Change Committee (CORECC).
3. Compliance with agreements of the C40 (Cities Climate Leadership Group).



2.1.2.

Term: Short term

Status: Proposal

Stakeholders: GORE, SEREMI of Environment, MINVU, MOP (DOH, DGA), Municipalities, Civil Society Organizations, Private Organizations and Academics.

Basin Environmental Monitoring Plan


Consolidating an early warning and threat management system by means of an information network that integrates both public and private data systems, has been planned in order to address the lack of experience in basin early warning systems. Further development and the operation of systems that integrate new weather forecasting technologies, climate change, online monitoring, water quality, real-time hydro-meteorological information and modeling tools based on new scientific knowledge, are required.

This plan consists of several related actions, listed below:

Related actions:

- 1. Consolidating a basin early warning system.
- 2. Information network of integrated public and private data.
- 3. New hydro-meteorological forecasting technologies

See more in:



Plan Nacional de Cambio Climático 2017-2012



2.1.3.

Term: Short term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Energy, SEREMI of Environment, MINVU and SERVIU.

Energy Consumption Reduction Plan

According to data from the Ministry of Energy, Chile's economic growth has led to a 122% rise in energy consumption between 1991 and 2011⁸⁴. 25% of the total energy consumed in the Metropolitan Region is at a household level, and in recent times, there has been a 2.5% rise in per capita consumption. In order to curb this trend, preparing an energy reduction plan has been proposed, which must take into account households, SMEs, industries and the public sector, including the incorporation of renewable energies, audits, minimum standards, training and citizen education on a conscious use of energy.

Related actions:

1. Household Energy Reduction Plan:
 - Neighborhood training programs in electricity consumption and heating
 - Minimum energy efficiency standards for houses.
2. Energy consumption reduction plan in SMEs and industries.
3. Energy consumption reduction plan in the public sector.
4. Audits to measure energy consumption
5. Streetlight replacement plan by means of the ESCO system.⁸⁵
6. Training and education campaigns.





Objective **2.2**



2.2.1

PRIORITY INITIATIVE



SANTIAGO

Term:

Medium term

Status: Ongoing project

Stakeholders: GORE, MINVU, SERVIU, MOP, SEREMI of the Ministry of the Environment and Municipalities.

100RC Network reference

OAKLAND



“Development of Urban Parks” The parks will be built taking into account equity, safety, operation feasibility and environmental and economic performance criteria.

Reducing the shortage of green areas in vulnerable areas through high quality projects

Plan for the construction of new Urban Parks (*)

The metropolitan region has an average of 3.4m2 of green areas per inhabitant, far below the 9m2/inhabitant recommended by WHO. In addition to this, the region has a significant territorial inequality, reflected in the concentration of green areas consolidated in higher income areas. The Plan is aimed at building new high-quality urban parks in vulnerable areas, taking into account design components that may enable the sustainability of these spaces over time.

This plan consists of several related actions, listed below:

Related actions:

- 1.** Incorporating at least 7 new urban parks into the city's network of parks.
- 2.** Building a Nuevo Parque Metropolitano Sur Cerro Chena
- 3.** Strengthening the Network of Isolated Hills (Cerros Islas) through master plans and triggering projects
- 4.** Defining a criteria for the design of urban parks for the SMR, taking into account aspects such as environmental sustainability, tree species and water management.



2.2.2.

Term: Short term

Status: Ongoing project

Stakeholders: GORE, SEREMI of National Assets, SEREMI of Environment, SEREMI of Housing and Urban Planning.



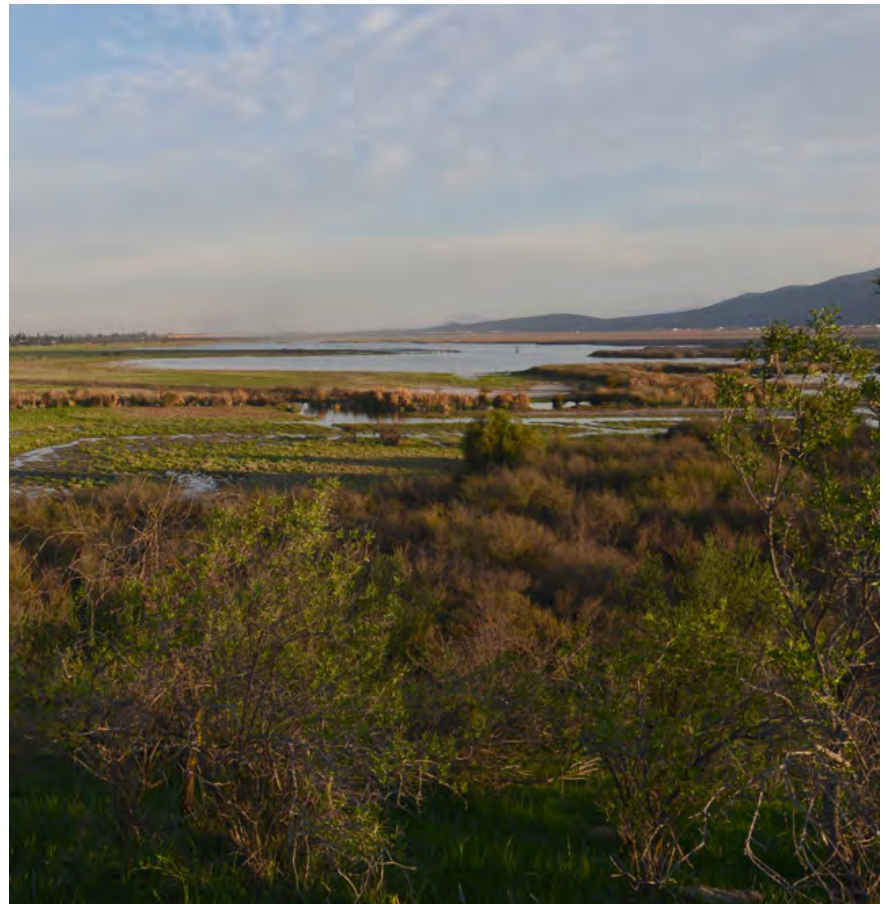
Program of Nature Conservation Areas in the Metropolitan Region

45% of Chile’s population lives in the Metropolitan Region⁸⁶, but less than 1%⁸⁷ of the surface is protected. This plan is aimed at protecting areas of high ecological value due to the presence of native flora and fauna and glaciers located at the precordillera, transforming them into national parks or reserves. This would also allow for them to be promoted as tourist and ecological expedition sites, which would foster the conservation and protection of the region’s biodiversity and its natural ecosystems.

This program consists of several related actions, listed below:

Related actions:

1. Protecting the Batuco wetland as Natural Reserve.
2. Transforming the Río Clarillo National Reserve and the area of Río Olivares into National Parks.
3. Erecting new Natural Conservation Areas in the SMR.



86. (GORE, 2012)

87. (MMA, 2011)



Objective **2.3**

2.3.1.

Term: Long term

Status: Proposal

Responsible: CORFO, Sustainability and Climate Change Agency, GORE, SEREMI of Energy, SEREMI of Environment, Universities, Municipalities and Private Companies.

Generating and implementing a comprehensive regional waste management model

Waste management technology center

Since 2005, Chile has had a Comprehensive Solid Waste Management Policy, which has, in recent years, enabled them to achieve a level of household waste disposal in landfills with health and environmental guarantees of about 60% at the country level⁸⁸. Progress is being made in implementing a new approach on waste, aimed at reducing its generation and promoting its reuse. However, designing a center for the development of new waste management techniques, technologies, markets and business models, is crucial.

This project consists of several related actions, listed below:

Related actions:

1. Designing the Technological Center
2. Generating and compiling a database of waste studies and information
3. Contributing to the elaboration of standards and indicators.
4. Promoting applied research based on new technologies, business models and waste management.



88. (CONAMA, 2010)
Image source: Plataforma Urbana





2.3.2.

PRIORITY INITIATIVE

RESILIENT

SANTIAGO

Term:
Short term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Environment and Organization of Waste Pickers.

Waste recovery program Santiago Recicla (*)

Poor waste management and its ultimate disposal in landfills generates high environmental and health costs (soil, air and water). In addition, it creates high economic costs for municipalities, which, through private companies or self-management, merely collect, transport and finally dispose of said waste in landfills, with no waste management involved. The waste recovery program is aimed at promoting comprehensive and articulated regional work on waste management and ultimate disposal processes, with the various key stakeholders involved. Waste recovery through recycling is key to achieving this goal. In addition to the management of a network of clean points, it must also involve steady work with the community, in order for citizens to become aware and to be actively involved in the waste problem. At the same time, it expects to generate incentives for recovery and segregated ultimate disposal, using technologies (such as mobile applications) that encourage recycling by connecting people and waste-pickers.

This program consists of several related actions, listed below:

Related actions:

- 1. “Santiago Recicla” waste recovery program**
 - Implementing a network of ‘clean’ points in the Metropolitan Region.
 - Renovating existing recycling facilities.
 - Organic waste recovery plan (households, fairs, cleaning and ornament).
 - Implementing a program to promote, communicate, train and educate people in waste recovery and recycling, focused primarily on schools
 - Waste-picker formalization plan.
 - Using mobile applications for logistical support and to promote recycling (E.g.: Reciclapp: Recycling Management, connecting people with waste-pickers, Recicla Online Electronic Recycling, etc.)
- 2. Construction and demolition waste recovery system**
- 3. Waste reduction incentive system.**
- 4. Studying the different modalities of origin waste segregation, conducting pilot experiences and proposing the best alternatives for the city of Santiago in this regard.**

100 RC Network reference:

DAKAR



“Public recycling points for the whole city” Installing recycling points helps to improve waste management.



2.3.3.

Term: Medium term
Status: Ongoing project
Stakeholders: GORE and SEREMI of Environment.

Basura Cero - Comprehensive program for the eradication and conversion of illegal solid waste landfills and small dump sites

According to the cadaster conducted by the Metropolitan Health SEREMI, there are 77 illegal landfills in Santiago, along with another 700 small dump sites⁸⁹ located in different areas around the city. All of them pose a health risk to people, and also give rise to several negative externalities such as fire risks and pockets of insecurity, among other things. Creating a comprehensive program that tackles this problem from all angles is necessary, from the illegal load and transportation

of waste to reconverting the use of the spaces allocated for waste disposal. This program consists of several related actions, listed below:

Related actions:

- 1. Increasing the capacity to audit the illegal load and transportation of debris and waste.
- 2. Projects to reconvert the use of allocated spaces.



89. (GORE, 2016f).



Objective **2.4**



2.4.1

PRIORITY INITIATIVE°



SANTIAGO

Term:

Short term

Status: Ongoing project

Stakeholders: GORE and SEREMI of Environment.

See more in:



Santiago Respira

Reduce the city's air pollution rated

Santiago Respira atmospheric decontamination plan (*)

Environmental pollutants at a metropolitan level originate from a number of sources: transportation, industry, housing and others, generating a toxic cloud made up of particulate material: PM2.5 is the most dangerous for human health, since it can penetrate the airways all the way to the lungs. The Santiago Respira atmospheric decontamination plan addresses the emission structures derived from all emission sources, making clear its aim to reduce global

PM emissions by 60%. It also promotes the use of clean and sustainable means of transport, and establishes better emission compensation and control mechanisms.

This program consists of several linked actions, listed in the Santiago Respira Atmospheric Decontamination Plan, such as measures to reduce industrial, household and transport emissions.



2.4.2.

Term: Short term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Energy, SEREMI of Environment and SEREMI of Transport and Telecommunications.

Zona Verde Transport Program

Based on the “NAMA⁹⁰-Santiago Zona Verde” initiative, driven by the H. Municipality of Santiago during 2016, it is aimed at creating a regional project that strategically defines a space defined as a green transport area. The overall aim is to promote a sustainable transport system, in a bid to reduce greenhouse gases and polluting emissions. Some of the proposals offer the use of electric vehicles, given that they are a sustainable mode of transportation that uses efficient, renewable and clean energy sources, both for public use, car sharing and private use.

This program consists of several related actions, listed below:

Related actions:

1. Promoting zero emission vehicles
2. Low-emission public transport buses.
3. Green taxis.
4. Electric mobility network (public-private).
5. Electric public cars. Car Sharing.
6. Supply network expansion.
7. Incentives for replacement.



90. NAMAs are a set of feasible activities, sovereignly defined by a country and that lead to emission reductions in a measurable, reportable and verifiable manner. It is an acronym for Nationally Appropriate Mitigation Action



Objective **2.5**



Term: Short term

Status: Proposal

Responsible: GORE, SEREMI of Environment , MOP (DGA, DOH), Municipalities and Social Organizations.

Establish a water management metropolitan system

Metropolitan Responsible Consumption Program

The supply of household drinking water is the second largest demand for water at the regional level after agriculture. Paradoxically, at a residential level, Chile's water consumption is similar to countries such as Finland or the United Kingdom, far exceeding that of other countries in the region⁹¹. For a Resilient Santiago, we must create a Regional Responsible Consumption Program that educates, infoSMR and sensitizes citizens and the productive sectors on the responsibility for water life cycle. This program consists of several related actions, listed below:

Related actions:

- 1. Cuida el Agua Communications and Citizen Education Campaign
- 2. Municipal open assemblies and with social organizations, focusing on the responsible use of water.
- 3. Municipal open competition for the reduction of water consumption.
- 4. A reduction of the water footprint of SMEs, industries and the agricultural sector.



91. (SISS, 2015).

2.5.2.

Term: Medium term
Status: Proposal
Stakeholders: GORE, SEREMI of Environment, MOP (DGA, DOH), Private Water Companies, Municipalities and Social Organizations.

See more in:



Estrategia Nacional de Recursos Hídricos

92. Water funds are collective impact mechanisms aimed at contributing to the water security of metropolitan areas, by investing in natural infrastructure. They also contribute to strengthening the integrated management of basins and the governance of water resources, by financing long-term conservation actions and bringing relevant stakeholders in water management together. These funds provide companies, governments and civil society with an effective solution to influence and promote the conservation of natural capital in a sustainable way. They are an effective alternative to combine green and grey infrastructure as a long-term solution in order to ensure a water balance for cities. (Alianza Latinoamericana Fondos de Agua, 2016)

Biodiversity and Water Ecosystem Protection Program

According to all forecasts, in the coming decades, the Metropolitan Region will be affected by climate change, with a drop in average annual precipitation rates and an increase in average temperatures. Additionally, accelerated urban growth, the loss of soils' water retention and of the cooling effect of vegetation in urban and suburban areas, will increase the number of floods and extreme heat. The Biodiversity and Water Ecosystem Protection Program is aimed at protecting the region's existing water, controlling water overexploitation and regulating the effects of uncontrolled urban development processes on the piedmont.

This program consists of several related actions, listed below:

Related actions:

1. Preparing a Regional Water Policy.
2. Irrigation plan for basins of the Metropolitan Region.
3. Protecting upstream water sources by applying for Water Funds.⁹²
4. Glacier Protection Plan.
5. Protection of water at the precordillera (afforestation of the piedmont, areas of infiltration, freezing of real estate development permits).
6. Control of water overexploitation.





2.5.3

PRIORITY INITIATIVE



RESILIENT SANTIAGO

Term:
Medium term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Environment, MOP (DGA, DOH), Municipalities and Social Organizations.

Rural Drinking Water Program (*)

In Chile, groundwater for human consumption in urban areas accounts for 40% of the total volume consumed and, in the case of rural drinking water, 76%⁹³. There are currently a little over 100 rural drinking water services managed by neighborhood committees or cooperatives advised by the Ministry of Public Works, who support investments to retain and expand infrastructure and equipment works. On the other hand, about 2500 houses in the rural area are still provided with drinking water by means of water trucks⁹⁴ and 54,740 people in rural areas have poor drinking water supplies.⁹⁵

This program consists of several related actions, listed below.

Related actions:

1. Constructing new rural drinking water services in semi-concentrated localities where their current supply is precarious, leveraging sectoral and regional resources.
2. Improving existing services based on priority infrastructure requirements, in order to ensure service continuity.
3. Promoting technological innovations on water supply for human consumption in areas suffering from water scarcity.
4. Advising and training rural drinking water committees and cooperatives in service management.
5. Preparing the implementation of the New Rural Drinking Water Act in the Region.



93. (Ministerio del Interior, 2015).

94. (GORE, 2014a).

95. (GORE, 2016g).



Objective **2.6**

2.6.1.

Term: Short term

Status: Ongoing project

Responsible: GORE, SEREMI of Environment, SEREMI of Public Works (DGA, DOH), SEREMI of Energy, Municipalities and Social Organizations

To see more:



Energía 2050. Política Energética de Chile.

Promote the use on non-conventional renewable energy

Regional Energy Plan

The Regional Energy Plans (PER) are created based on the goals and actions defined in the 2050 Energy Policy Agenda, and they reflect the region’s approach to energy and set the territorial conditions for its development, in accordance with the Regional Development Strategies⁹⁶. Regional energy projects are currently developed in a rather piecemeal fashion, and do not adhere to a strategic territorial planning process. Creating an Energy Plan adapted to the actual reality of the Metropolitan Region that recognizes the best use of land, that includes participatory processes with local communities and integrates the existing land-use planning instruments,

is necessary. As a result, projects that contribute towards building a comprehensive regional approach can be implemented.

This program consists of several related actions, listed below:

Related actions:

1. Stage 1 execution: Diagnosis
2. Stage 2 preparation: Plan Development
3. Workshops and working sessions of the regional energy development committee.



96. (Ministerio de Energía, 2015).

2.6.2.

Term: Medium term

Status: Proposal

Responsible: GORE, SEREMI of Energy, SEREMI of Public Works (DGA, DOH), SEREMI of Environment, Municipalities and Social Organizations

Mini-hydros construction project

The Maipo River and its tributaries -including the Mapocho River serve as the main source of water for the Metropolitan Region. The extension of the hydrographic basin of the Maipo river (15380 km.), along with its significant average annual flow (92.3m3/sec), 97 provides the opportunity to use waters for generating electricity. In this respect,

the proposal is for a program to use hydro energetic sources by building Mini-hydros creating a network that contributes to the Central Interconnected System. These types of power plants are deemed as Non-Conventional Renewable Energy (NCRE) due to the fact that they generate less than 20 megawatts of power



2.6.3. **PRIORITARY INITIATIVE**



RESILIENT SANTIAGO

Term: Medium term
Status: Ongoing project
Stakeholders: GORE, SEREMI of Energy, SEREMI of Public Works (DGA, DOH), SEREMI of Environment, Municipalities and Social Organizations.

Waste to Energy Plan (*)

The Metropolitan Region produces about 2.8 million tons of household solid waste (RSD) per year, of which around 98% are disposed of in landfills⁹⁸. The Waste to Energy Plan is aimed at promoting energy generation through the capturing of gases that arise from the breakdown of organic matter (biogas) that exists in waste, thus generating a sustainable energy system.

The aim is to expand and replicate the experience of the Loma Los Colorados landfill in Til Til, which since 2009 has had a biogas plant that generates electricity that is later injected into the Central Interconnected System. Consequently, it has become a Small Means of Distributed Generation (PMGD).



97. (GORE,2016g).

98. (Ministry of Energy, 2016).

2.6.4.

Term: Medium term

Status: Proposal

Responsible: GORE, SEREMI of Energy, SEREMI of Public Works (DGA, DOH), SEREMI of Environment, SEREMI of Housing and Urban Planning, Municipalities and Social Organizations.

Santiago Solar regional solar program

Chile is amongst the countries that have the world's highest solar radiation, and as a result it is automatically classed as a privileged territory for generating solar energy, both for heating and consumption. A characteristic of this energy is its versatility of how it can be put to use: from photovoltaic panels for household consumption to large facilities for industrial use. The "Santiago Solar" program is aimed at encouraging the generation and use of solar energy in both rural and urban contexts, and to further apply it in different contexts, including household, industrial, SMEs, and agricultural, to name a few.

This program consists of several related actions and programs, listed below:

Related actions:

1. Solar energy for Rural Drinking Water systems.
2. Conversion program for SMEs.
3. Household Photovoltaic System: distributed generation and self-consumption.
4. Thermal Solar Systems Program (in public, residential, industrial buildings)..
5. Solar Roofing Program (public, residential and industrial).



Source image: Solar del Valle.



Local reference. Commune La Pintana

Environmental Management Department (DIGA)

Since 1995, with the creation of the Directorate for Environmental Management (DIGA), the district of La Pintana has been at the forefront of environmental management at a municipal level. Their work stands out in environmental innovation and articulation with all stakeholders (from community to private entities), organized from their administrative sectors. The implementation of various projects has substantially contributed to improving the quality of life of the inhabitants of the district⁸³. The Directorate has developed a Climate Change Municipal Strategy (ECCG), structured around five main axes:

- 1) Significant citizen participation (by means of formal education, non-formal education)
- 2) Municipal energetic grid (energy efficiency, non-conventional renewable energies, energy cogeneration).
- 3) Protection and an increase of the district's vegetation (increase of public and private woodland, pruning and felling restrictions, school reforestation tournaments).
- 4) Comprehensive waste management (minimization strategies, inert waste and recovery or thermal treatment).
- 5) Proper water usage (water catchment, management efficiency, technification of irrigation mechanisms).

Source image: Commune La Pintana



Local reference. Commune Vitacura

Local environmental management (GAL)

Local Environmental Management is an initiative carried out by the district of Vitacura, seeking better management of the district's environment through policies aimed at improving resource sustainability and efficiency. Some of its functions include advising the mayor on environmental material, developing and implementing environmental education programs, carrying out and evaluating environmental impact studies, communicating with the community to deal with environmental consultations, complaints and claims, as well as monitoring compliance with standards. Local Environmental Management is mainly focused on five strategic lines: comprehensive solid waste management, pets, energy and water efficiency, environmental education and other projects that contribute to sustainability.

In addition to the above, the district carried out a Municipal Environmental Strategy (EAC), with which it hopes to reduce the consumption of energy and water resources, establish a more efficient solid waste management in municipal facilities and generate greater environmental awareness through promotion and citizen participation.

Source image: Commune Vitacura

SECURITY



SAFE SANTIAGO

For a city that promotes the peaceful coexistence of its inhabitants; which understands the multi-causality of crime and addresses it in a collaborative, coordinated, strategic and intelligent manner.

* This chapter has been developed based on the inputs generated by: UAH Urban Security Center, DIPLADE Planning Department, DIPLADE Metropolitan Area Unit, Under-secretariat of Crime Prevention of the Ministry of the Interior, Secretariat of Security of the Intendencia, ARUP, Public-Private Resilience Council.



Objective 3.1
Addressing citizen security
from a multisectoral
approach.



Objective 3.2
Promote initiatives that
address incivilities.



Objective 3.3
Include communities in
the security co-production
process.

Status quo

Despite the fact that household victim rates in the SMR have dropped from 40% in 2003 to 26.4% in 2015⁹⁹, the sense of insecurity has increased: in 2016, 86.8% of respondents believed crime had grown in the country, and 41.3% believed they would become crime victims over the next 12 months¹⁰⁰.

When analyzing the main reports of crimes committed in the region, 27.9% correspond to incivilities, understood as “disorders visible in public space, which regardless of whether they are crimes or not, are usually not addressed by the criminal control system”¹⁰¹, such as street vending, consumption of alcohol on the street, disturbing noises, quarrels, etc.. The problem of these types of actions is that citizens have a feeling of low social cohesion and lack of political control, which directly affects their sense of security¹⁰².

On the other hand, situational prevention, which is one of the ways of tackling this problem, has been positive in addressing the improvement of public spaces to alleviate the sense of insecurity that comes from a purely territorial aspect. For this, a multisectoral treatment is required, since merely improving public space has not contributed to reducing incivilities and violent situations in said spaces. The multisectoral approach requires promoting and strengthening stakeholders protecting people and communities at risk whilst, at the same time, promoting the articulated work of several public, private and civil society stakeholders and programs.

In this same context, actively involving the community in security matters is a need that is consistent with the multisectoral approach. It is the community itself that experiences insecurity and is subject to victimization, and it is therefore the party that best knows the causalities and effects. As a result, involving the community into the diagnosis and proposed solutions is a requirement. The community must also have a leading role in the appropriation of the public space, in the rapid and protected filing of claims and in social and community prevention processes. In general, levels of crime prevention neighborhood organizations must be improved by promoting citizen participation and levels of co-responsibility in crime prevention matters.

99. (ENUSC en UAH, 2016).

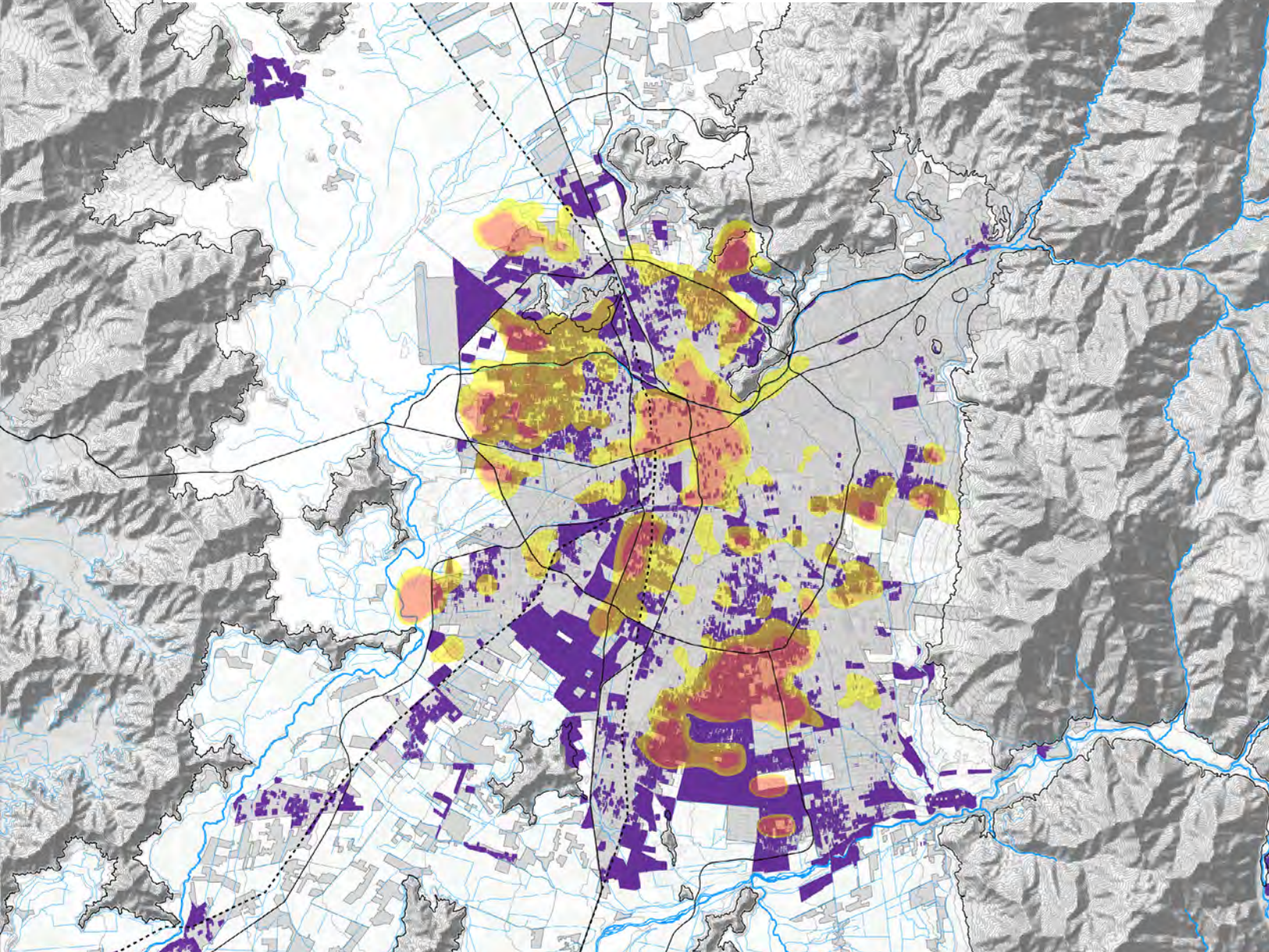
100. (ENUSC en UAH, 2016).

101. (Subsecretaría de Prevención del Delito, 2014).

102. (Vilalta, 2012).

Incivilities and concentration of poverty.

The map shows the concentration of incivilities in a heat gradient and its relation with low-income areas, which are referents of the E type socio-economic group.



- Base Map**
- Main streets
- - - Train tracks
- Road network
- Hydrology
- Topography

- Incivilities**
- Heat map of concentration of incivilities

- Vulnerability**
- Zones with high socioeconomic vulnerability

Source. Subsecretaría de Prevención del Delito 2017, INE 2002, UC, GORE 2016, UGIT

Metropolitan governance

Where we are and where we are headed to

As in most of the world's large cities, one of Santiago's main challenges is citizen safety. Dealing with urban crime requires addressing social, institutional causes and those related to physical environments. Therefore, the relevant governance must call upon multiple stakeholders: central government, police, judges, prosecutors, local governments, neighborhood associations and NGOs, among others.

Today, crime prevention powers are very centralized in the Ministry of the Interior and in the Under-secretariat of Crime Prevention. Municipalities had not been bestowed prevention and planning powers until only a few years ago. Regional governments have no instruments to work with on this issue, other than directing FNDR investments.

This high concentration of power at senior-level hinders the coordination between the different levels of government, since targeting groups of people and territories is a key factor in the fight against crime.

Currently, one of the most evident phenomena is the growing importance of the private sector as a supplier of dissuasive security. It is a valuable entity in addressing urban crime, but integrating it into a governance scheme aimed at common public objectives is essential.

Communities and civil society play a large part in placing security on the public agenda; for example, in the controlled monitoring that is taken upon by neighborhood organizations. They undoubtedly play a role in urban crime prevention and have over time collaborated with municipalities and police forces. The recent approval of the Municipal Public Security Councils is a step of good governance and policy coordination in the territory.

Although municipalities have been gaining crime prevention powers, the problems of institutional fragmentation should not be forgotten. This is why the objectives of this strategy seek for regional governance to play a role in crime prevention coordination and planning policies, so that it can be democratized throughout Santiago.

It should be kept in mind that the new position of regional governor-elect has no security-related powers.



Governance reference. Paris, France

Video Protection Plan for Paris (PVPP)

The Video Protection Plan consists of a closed circuit television adapted to the Parisian geography, aimed at protecting citizens from potential crimes. It is part of an overall modernization strategy in which a single control center is created, and where all of the support technologies for security decision-making, such as radio, traffic control and geolocation cameras, are integrated. Implementing this plan involves the formation of an ethics committee, whose main objective would be to safeguard the individual freedom of citizens.

This initiative is part of the UN-Habitat Safer Cities Program to improve local security. The Safer Cities program has a comprehensive and multisectoral approach, mainly aimed at improving people's quality of life. This shows that good urban governance, planning and management are all key elements in reducing crime and violence within cities.

Strategic partners: Security pillar



Resilience council
27 Participants

Session: Security

"The inequality, segregation, inequity and lack of opportunity experienced by a significant percentage of the city's inhabitants is mentioned as one of the many causes of crime."



Metropolitan Intendant
Integral Plans Unit for High Complexity Districts

Integral Plan Bajos de Mena

"The integral intervention covers the problematic of the place from the community to the urban and from the coexistence to the social and economic development."



Academic partner
Alberto Hurtado University

Academic report: security

"Security is the first concern for many inhabitants of Santiago, given the everyday and multiple expressions of this phenomenon, and its close relationship to the possibility of exercising other social and urban rights"



Objective **3.1**



Term: Medium term
Status: Ongoing project
Stakeholders: GORE, Regional Public Security, Under-secretariat of Crime Prevention, Municipalities and Social Organizations

Addressing citizen security from a multisectoral approach

Intervention Plan in Urban Sub-Centers

Santiago’s urban centers contain several areas that have a high concentration of commercial, cultural, educational and productive activities, with a high public rate. This reality, coupled with a number of physical stakeholders generated by the built-up space and the lack of citizen preventive measures tend to be conducive to crime. The intervention plan in Urban Centers is aimed at coordinating medium and long-term interventions, implementing public/private intersectoral work methodologies, and to support the management and control of the institutions involved. Actions include situational prevention projects such as teleprotection systems, providing lights in unsafe areas with high public rates, renovation of empty lots, bus stops, stands, street furniture, among other

things; as well as self-care promotion and citizen education. This plan consists of several related actions, listed below:

Related actions:

1. Recovering historic and civic centers.
2. Special plans for emerging issues (illegal trade, alcohol consumption in public spaces, etc.).
3. Self-care campaigns for crime prevention.



3.1.2.

Term: Short term

Status: Ongoing project

Responsible: GORE, Regional Public Security, Undersecretariat of Crime Prevention and Municipalities.

Municipal Security Councils

Municipal Public Security Plans (PCSP) are aimed at enhancing the role and leadership of municipalities in bringing together and articulating local stakeholders with crime prevention and insecurity powers. Based on a diagnosis made, Public Security Councils define their priorities and validate community and investment strategies, programs and projects that are aimed at solving violence, crime, co-existence and issues of insecurity.

This proposal consists of several related actions, listed below:

Related actions:

1. Promoting and strengthening Community Safety Councils.
2. Equitable investment in prevention and control.

3.1.3.

Term: Short term

Status: Proposal

Responsible: GORE, Regional Public Security, Undersecretariat of Crime Prevention, Municipalities and Social Organizations.

Requirements of safety standards for urban intervention projects.

This proposal is aimed at incorporating security as a transversal axis of urban projects, regarding both their design and execution; as has been done previously with the gender approach. The aim is to carry out pioneering work at a metropolitan level, including a citizen security approach in the different initiatives that involve and affect the city as a whole, especially inter-municipal projects.

This proposal consists of several related actions, listed below:

Related actions:

1. Integrating the security component as a requirement to apply to FNDR projects that are not related to security.
2. Consider the immediate environment in the design of concession roads and public works, with a special emphasis placed on avoiding residual spaces and those lacking pedestrian accessibility, which end up becoming unsafe public spaces.



Objective **3.2**



3.2.1. PRIORITY INITIATIVE



SANTIAGO

Term: Short term
Status: Ongoing project
Stakeholders: GORE and Municipalities.

100 RC Network reference

PITTSBURGH



“Reuse of underutilized lands” Empty lots and underutilized land have the potential to become a community asset, providing space for recreation, urban agriculture, waste-water capture, public art, etc.

103. (MINVU, 2012).

104. (GORE, 2016e).

Promote initiatives that address incivilities

Recovery plan for empty lots and deteriorated public spaces (*).

There are over 4,000 empty lots in the Metropolitan Region, which total around 6,500 hectares.¹⁰³ At least 400 of them are owned by the state.¹⁰⁴ These abandoned spaces are fire risk sources, small dump sites, potential criminal and alcohol consumption areas, among other things. Enabling empty lots to be located in the middle of the city as temporary public spaces can lead to encouraging pedestrian flows, transforming the urban image, providing security, encouraging citizen participation and diversifying local commerce by creating meeting places. Additionally, incorporating citizen participation methodologies to recover deteriorated public spaces activates community networks and improves the sense of security.

This plan consists of several related actions, listed below:

Related actions:

1. Gradually implementing tiny squares (*plazas de bolsillo*) in empty lots, providing a temporary and sustainable use to said places.
2. Promoting projects to recover deteriorated public spaces.
3. Regenerating urban edges..



3.2.2.

Term: Medium term

Status: Ongoing project

Stakeholders: GORE, Regional Public Security, Municipalities and Social Organizations.

Ruta Segura Program

Based on the experience of the Municipality of Peñalolén through the Community and Family Management and the Citizen Security Directorate, this initiative is aimed at increasing the safety of children whilst they are on their way to school in vulnerable sectors, strengthening the use and the appropriation of public space with the needs of children in mind, and involving the community in a system that revolves around community support and protection. The program calls upon local institutions, social organizations and neighbors to protect children, and it also includes situational prevention components, such as LED lighting,

signage, among other things. This program has been prepared based on the “Ruta Segura-Chile” Program.¹⁰⁵

This program consists of several related actions, listed below:

Related actions:

1. LED pedestrian lighting with vandal-proof design.
2. Installation of “Ruta Segura” traffic signs.
3. Community capacity-building process.

3.2.3.

Term: Medium term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Environment and Municipalities.

“Cuidado con el Perro” Responsible Pet Ownership Program

The Regional Canine Sterilization and Responsible Pet Ownership Program is aimed at controlling the population of street dogs in the Metropolitan Region of Santiago and encouraging pet owners to assume greater responsibility for every dog’s care and welfare. The program includes lectures and educational workshops on responsible pet ownership, free sterilization and microchip identification and registration of more than 170,000 dogs in the dog registration system.

Related actions:

1. Implementing sterilization and chip implementation services in 52 districts of the Metropolitan Region.
2. Developing workshops in schools, promoting responsible pet ownership.
3. Implementing a mass education program for responsible pet ownership.
4. Updating canine demographic studies in the Metropolitan region.

This program consists of several related actions, listed below:

105. (UCH, 2010).

 **3.2.4. PRIORITY INITIATIVE**

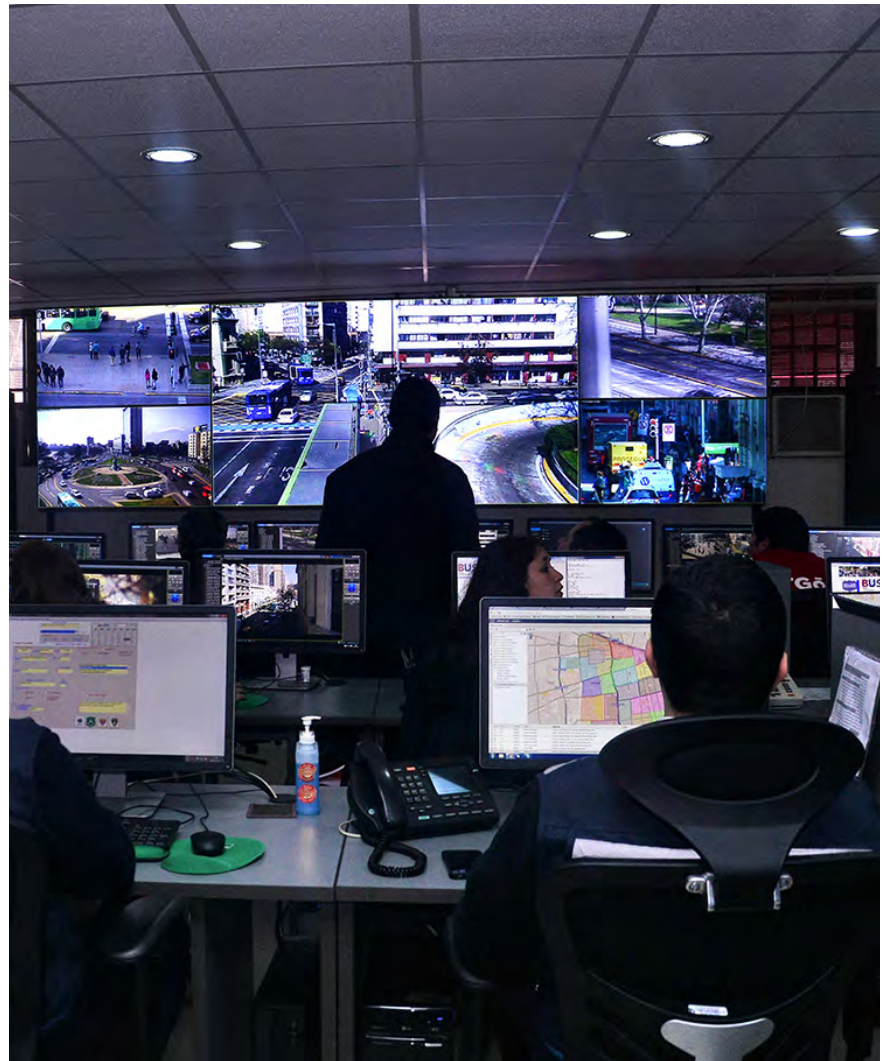
RESILIENT SANTIAGO

Term: Medium term
Status: Proposal
Stakeholders: GORE, Regional Public Security, Under-secretariat of Crime Prevention, Municipalities and Police.

Integrated Teleprotection Network Plan (*)

In the Metropolitan Region, there are different teleprotection systems and surveillance cameras operated by public and private institutions: municipalities, traffic control operations unit, urban and interurban highway concessionaires and Carabineros, among others. These systems operate independently, with different operational supports

and technologies. The Integrated Teleprotection Network Plan is aimed at the integration and interoperability of teleprotection cameras, for a greater response ability to mass casualty incidents and the reinforcement of crime prevention and control tasks.



3.2.5.

Term: Short term

Status: Proposal

Stakeholders: GORE, DTPM, SEREMI of Transport and Telecommunications, Municipalities and Social Organizations

Paradero Seguro Plan

Transantiago's bus stops located in intermodal nodes, urban sub-centers and in the civic center of the city tend to amass users due to the high demand. This, along with poor environment conditions (poor lighting, deteriorated environments, damaged infrastructure,

etc.) facilitates crime. The Paradero Seguro Plan is aimed at improving the security conditions in Transantiago's bus stops with high volumes of users, from a situational prevention approach, by means of technological solutions.



3.2.6.

Term: Medium term

Status: Proposal

Stakeholders: GORE, Regional Public Security, Undersecretariat of Crime Prevention and Municipalities

Program for neighborhood justice and mediation for incivilities and misdemeanors

The criminal prosecution system is overburdened, and is therefore unable to duly address cases filed therein. Of the 1.3 million average annual cases filed with the Public Prosecutor's Office, 58.3% were closed, according to data from the prosecutor's office itself.¹⁰⁶ This diagnosis evidences the need to supplement the current criminal prosecution system with other mechanisms enabling it to

address incivilities, contraventions and misdemeanors and minor crimes at neighborhood levels and with a restorative component. As a result, processes will be faster and incarceration rates for cases of lower social significance will drop. This should be complemented with the construction of referral and coordination protocols with instances of local neighborhood mediation.

105. (UAH, 2016)

Objective **3.3**

3.3.1.

Term: Short term

Status: Ongoing project

Stakeholders: GORE, Regional and Municipal Public Security.

Include communities in the security co-production process

Program of citizen participation and security co-production¹⁰⁷

In order to achieve a good citizen security strategy, it is essential that there be co-responsibility, i.e., the proportion of responsibility assumed by the citizens, as well as municipal authorities, regarding the identification, prioritization, financing, management, supervision, evaluation, monitoring and maintenance of a specific violence prevention project¹⁰⁸. The greater the role played by the citizens in fostering security, the greater the impact and sustainability will be over time, as local resources are developed to prevent and deal with crime. Most successful violence

prevention measures involve people in the active search for practical and effective solutions.

This program consists of several related actions, listed below:

Related actions:

1. Encouraging the formation and initiating the work of security committees.
2. Fostering participation through citizen security open assemblies.



107. (UAH, 2016).

108. (UAH, 2016).

3.3.2.

Term: Medium term

Status: Proposal

Stakeholders: GORE, Regional Public Security, Undersecretariat of Crime Prevention, Municipalities and Social Organizations.

Public-private work plan for crime reduction

Private security plays a significant role in controlling and deterring certain types of crime, especially those against property. A well-regulated and implemented promotion favors the monitoring of spaces and reduces victimization rates. New technologies enable the development of increasingly effective private security systems, where security staff are less exposed. Public-

private working groups allow generating regulatory frameworks and coordination initiatives between private security agents and crime control and punishment bodies, as well as promoting the exchange of good practices in preventive surveillance.

3.3.3.

Term:: Medium term

Status: Proposal

Stakeholders: GORE, Regional Public Security, Undersecretariat of Crime Prevention, Municipalities and Social Organizations.

Project to Consolidate a Victim Care Network

In the event of a crime, the victim care network incorporates several services and care in crime reporting, reparation, prosecution and media treatment areas. When a person is a victim of a crime, especially a violent one, a quick and timely response is required; and if the aim is to aid in repairing any damages, it is imperative that care is comprehensive and specialized. On the other hand, it is also important for people to overcome the negative consequences of crime victimization and to avoid secondary victimization. By encouraging networking of the different institutions, a greater coordination can be established between them, allowing them to define case referral protocols.

This plan consists of several related

actions, listed below:

Related actions:

1. Plan to work with the media in relation to the treatment of victims of crime.
2. Safe reporting hotline.
3. Neighborhood legal support program.
4. Victim support program.
5. Inter-institutional referrals and training of professionals.



Local reference. Commune Estación Central

Municipal Public Security Council

The Municipal Public Security Council is an advisory body of the mayor and an example of intersectoral coordination with different municipal security agencies. It is responsible for designing, implementing and evaluating security prevention measures to improve the quality of life of local residents, in a way that facilitates community participation and makes use of the existing provision of local services in an efficient and effective manner.

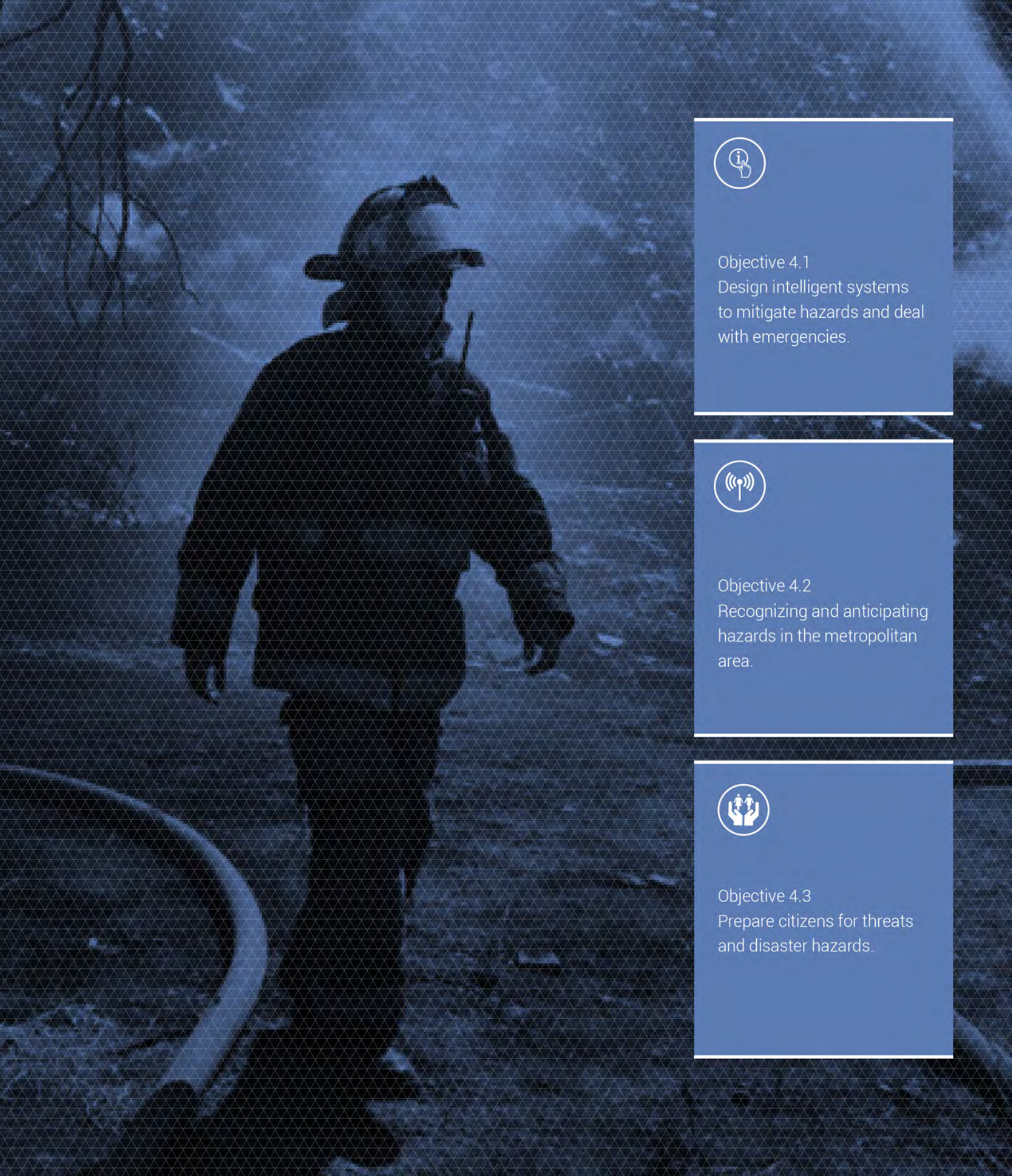
It has many tasks, such as diagnosing the district's security, monitoring the measures implemented, providing opinions and technical support to the public security plan, among other things. Some of the actions implemented are preventive campaigns, collaborative agreements, street vending operations and micro-trafficking reporting protocols.

RISK MANAGEMENT

PREPARED SANTIAGO

For a city and for communities that can learn from their history as well as the history of others, for better preparation for future disasters, thus reducing related damages and impacts.

This chapter has been developed based on the inputs generated by CIGIDEN, CITRID, DIPLADE Planning Department, DIPLADE Metropolitan Area Unit, CORFO, Private-Public Resilience Council.



Objective 4.1
Design intelligent systems
to mitigate hazards and deal
with emergencies.



Objective 4.2
Recognizing and anticipating
hazards in the metropolitan
area.



Objective 4.3
Prepare citizens for threats
and disaster hazards.

Status quo

Our region faces several natural and anthropic threats¹⁰⁹. Henceforth, resilience takes into account the effects of climate change and their impact on the city's physical growth, both in the environment and in the distribution of socioeconomic groups, since lower-income areas are in fact the most affected by risk episodes¹¹⁰. Regional threats range from seismicity and hydrometeorology to droughts, fires and volcanic activity. They force public institutions to recognize, mitigate, prevent and anticipate existing hazards in the Santiago basin¹¹¹.

In order to carry out risk management in Santiago, an analysis of changes to the environment and to the day-to-day life of the communities is required¹¹², since vulnerable conditions in human groups can increase the social effects of threats. According to historical evidence¹¹³, maintaining the current reactive approach to emergencies will continue to generate significant economic losses, whether due to infrastructure damage, destruction of the population's assets and property, environmental deterioration, health problems, and, most extreme of all, human losses.

Scientific information from the 1990s suggests that regional morphology, specifically in the Santiago basin, is controlled by the activity of the Andean fault system identified in the region and related to the San Ramón fault. Several studies have attempted to identify the fault's trajectory on the surface and its main geological features, its tectonic role for the region, average movement rates, recurrence intervals, and the time elapsed since the last surface rupture earthquake connected to this fault¹¹⁴. Delving into this matter to improve decision-making is necessary.

When the event surpasses response capabilities, it becomes a disaster, a situation that activates the Civil Protection Network, and particularly the transfer of information between several different institutions, in order for the authorities to make timely decisions. Proper information management allows for the development of specifically focused emergency, disaster and catastrophe response plans, real-time visualization of territorial impacts, the creation of territorial plans addressing disaster risk and the ability to provide reliable information to the authorities.

A Prepared Santiago involves updating the information of the stakeholders that are part of the regional disaster risk reduction platform and the civil protection system. In order to strengthen the level of preparation for disasters and an effective response to them, the intersectoral and citizen bodies of socialization and exchange of emergency plans at different territorial levels must be generated.

109. Anthropic: produced or modified by human activity (RAE).

110. (Romero, et. al 2010).

111. (CIGIDEN, 2016).

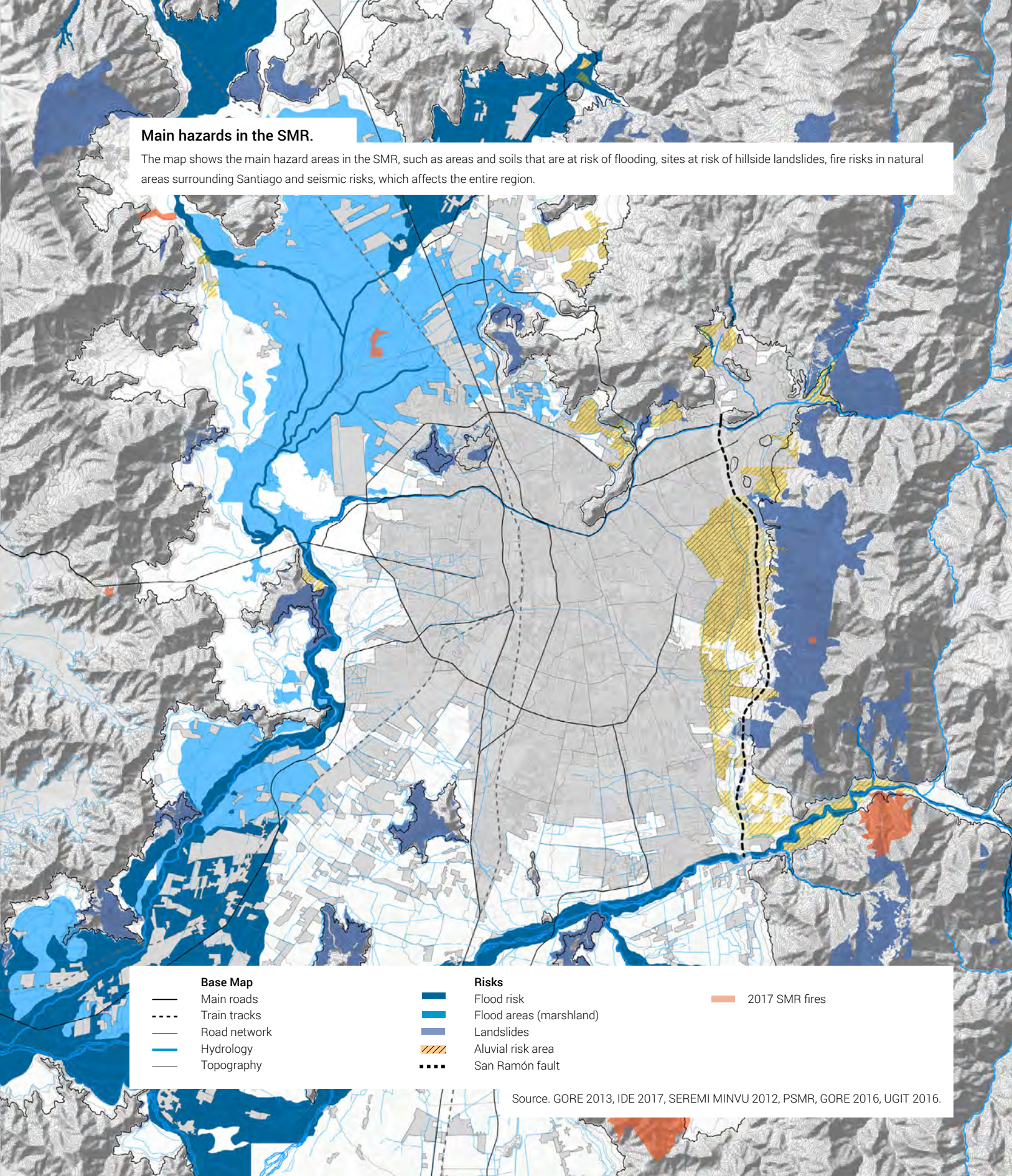
112. (Lucini, 2013).

113. (PNUD, 2012).

114. (PRS, CITRID, 2016).

Main hazards in the SMR.

The map shows the main hazard areas in the SMR, such as areas and soils that are at risk of flooding, sites at risk of hillside landslides, fire risks in natural areas surrounding Santiago and seismic risks, which affects the entire region.



- Base Map**
- Main roads
 - - - Train tracks
 - Road network
 - Hydrology
 - Topography

- Risks**
- Flood risk
 - Flood areas (marshland)
 - Landslides
 - ▨ Aluvial risk area
 - - - San Ramón fault

■ 2017 SMR fires

Source: GORE 2013, IDE 2017, SEREMI MINVU 2012, PSMR, GORE 2016, UGIT 2016.

Metropolitan Governance

Where we are, where we are headed to

Governance to address emergency, disaster and catastrophe risk relies on the Civil Protection System, consisting of both public and private bodies, services and institutions, including voluntary entities and the organized community, under the Coordination of the National Emergency Office of the Ministry of the Interior (ONEMI). ONEMI plans, coordinates and executes all prevention, mitigation, alert, response and rehabilitation activities; therefore all competences and resources are kept at central level.

The Emergency Operational Committees (COE) come together in the event of emergencies, and meet under the leadership of the Minister of the Interior, depending on the location and the magnitude of the incident. The COEs are institutions favorable to governance, since they balance power with different jurisdictional scales (municipal, provincial, regional or national), and they involve the entities, agencies and services of the Civil Protection System whose resources are required to be coordinated.

The Regional Government is empowered to adopt the necessary measures to deal with emergency situations or catastrophes (in accordance with central policies) and to develop prevention and protection programs. Additionally, it is entitled to use up to 5% of its legal budget (National Fund for Regional Development) for emergencies and disasters. The municipalities are the basis of the Civil Protection System, and they must administratively articulate resource availability according to the risk management cycle, providing information on the mitigation capacity in the event of disasters and reporting the damages occurred, if any, to ONEMI.

The current regional government refoSMR presents itself as a major obstacle to the goal of having a Prepared Santiago. It would leave future regional governors outside of the response phase, which may create a void that diminishes the coherence of the preventive, rehabilitation and reconstruction work post emergencies, disasters and catastrophes. Other issues relevant to governance in this area concern constant regulation and monitoring of the private sector, ensuring continuous operation of electricity, water, gas and telecommunications utilities. Finally, although civil society traditionally follows the basic prevention, mitigation, alert and response instructions, they must be involved to a higher degree in such tasks, especially when it comes to the challenge of fostering a citizen culture of risk prevention and preparedness.

Actions and programs

1. Regional authority in charge of Strategic Risk Management.
2. Articulation with local governments for Strategic Risk Management.



Governance Reference. San Francisco, USA

Department of emergency management (SFDEM)

The San Francisco Department of Emergency Management (DEM) is part of the San Francisco City Council, and it is the lead agency for planning, preparing, communicating, responding to and recovering from daily emergencies, urban-scale events and major disasters in the city. The DEM is the vital emergency communication link between the public and the early response; it coordinates and administers the city's Departments, interested parties, residents and visitors.

This department responds to emergency calls, dispatches police, firefighters and emergency medical services, activates the Emergency Operations Centre, coordinates information and resources during disasters and major special events in the city, supports the first responders, drafts emergency plans, trains public security agencies, conducts disaster response and recovery exercises, runs complex information technology projects throughout the city, summons the Disaster Council, partners with innovative organizations, maintains public alert systems, certifies paramedics, manages national security subsidiary funds and educates and prepares the community for emergencies.

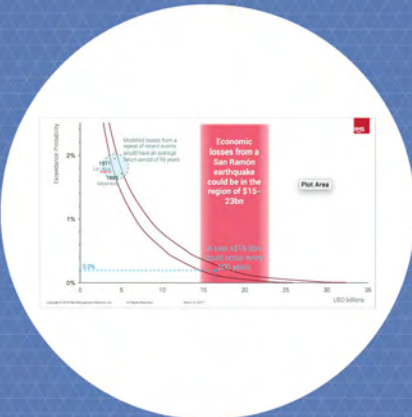
Strategic partners: Risk management



Community partner
Pacífico

Risk Lab

"We see the Laboratory as an opportunity for debate on how the implemented works are working and which could be prioritized in the future."



100RC Platform Partner
Risk Management Solutions (SMR)

Economic model of the acceleration zone of the San Ramon Fault

"The risk analysis that SMR conducted on the San Ramón Fault contributed to emphasize the need to better understand the economic losses that the city faces in the event of natural disasters."



Community Partner
Junto al Barrio Foundation

Community workshop mountain foot

"The choice of a strategic mapping point allows a cross-cutting participation of varied stakeholders, not just those who are usually more participatory."

See more in:



Sendai Framework for
Disaster Risk Reduction
2015-2030

Sendai Framework for Disaster Risk Reduction 2015-2030

Adopted at the Third United Nations World Conference on Disaster Risk Reduction, from 14 to 18 March 2015 in Sendai, Miyagi, Japan. The Sendai Framework is the successor to the 2005-2015 Hyogo Framework for Action: Increasing the resilience of nations and communities to disasters, which has been developed through a series of stakeholder consultations, initiated in March 2012 and the intergovernmental negotiations that took place between July 2014 and March 2015 with the support of the United Nations Office for Disaster Risk Reduction. In March 2015 Chile, through the signature, revalidates its commitment to the Marco de Sendai. The framework is structured around 4 priorities:

Priority 1: Understanding disaster risk.

Priority 2: Strengthen disaster risk governance to manage such risk.

Priority 3: Invest in disaster risk reduction for resilience.

Priority 4: Increase disaster preparedness in order to respond effectively in the areas of recovery, rehabilitation and reconstruction.

Source imagen: UNISDR



Objective **4.1**



4.1.1.

PRIORITY PROPOSAL



SANTIAGO

Term:

Medium term

Status: Proposal

Stakeholders: GORE, ONEMI, SERNAMEOMIN, CORFO CNID, Municipalities and Civil Society.

More info in:



Towards a Resilient Chile in the face of disasters. An opportunity.

Design intelligent systems to mitigate hazards and deal with emergencies

Regional Risk Management Policy

In 2016, the National Committee for Natural Disaster Resilience (CREDEN) proposed creating a national research, development and innovation (R+D+I) strategy for natural disasters. This action is aimed at the regional implementation of the Commission's recommendations, through the articulated work of the different stakeholders and institutions related to resilience issues, such as universities, ONEMI, the public and private sector and civil society. Among them, it is worth mentioning a territorial data and information integration system of public access, which would allow integrating existing yet fragmented information, often in incompatible formats, and it would also

enable decisions to be taken for regional investment planning and prioritization, in addition to being an important input in times of emergencies and disasters.

This policy consists of several related actions, listed below:

Related actions:

1. Designing and implementing the Policy.
2. Integrated Territorial Information System for Risk Management.
3. Map of hazards of the Metropolitan Region as an input for the territorial planning tools.



4.1.2.

Term: Medium term

Status: Proposal

Stakeholders: GORE, ONEMI, Smart City-CORFO Program and Civil Society.

Social Networks Monitoring Platform during emergencies

During an emergency, social networks play a key role in communications, since they have become easy-access, direct and fluid information tools for people and communities. Having a social network monitoring platform during emergencies and disasters, made up of members of

the civil protection network, with proper data mining technology, would generate reports and useful information from citizens to the authorities in charge of dealing with the emergency, and in turn communicate official information to citizens expeditiously.



Image source: ONEMI



4.1.3.

PRIORITY PROPOSAL



SANTIAGO

Term:

Medium Term

Status: Proposal

Stakeholders: GORE, ONEMI, SEREMI of Transport and Telecommunications, UOCT and Civil Society.

100 RC Network Reference

PORTO ALEGRE



“Specialized committee for emergency situations”

The committee will enhance the coordination of local efforts to mitigate and respond to an emergency.

Integrated Emergency and Disaster Management Centre

Managing emergencies and disasters requires an inter-institutional coordination of the city’s multiple services and agencies in charge of providing responses based on real time protocols and information. The integrated emergency and disaster management center would allow for the monitoring, collecting, analyzing, and sharing of information among institutions at a single operational point, in order to prioritize actions in times of crisis and disaster, aimed at making effective and timely decisions. This would be the operation center of the Regional Emergency Committee.

This plan consists of several related actions, listed below:

Related actions:

1. Integrating protocols at a regional level.
2. Incorporating intelligence into the Traffic Control Operations Unit (UOCT) network to manage traffic lights and allow the expeditious transit of emergency vehicles.
3. Integrating video surveillance, private camera and UOCT camera systems in order to simultaneously monitor the different areas of the city.





Objective **4.2**



4.2.1.

Term: Medium term

Status: Ongoing project

Stakeholders: GORE, ONEMI, SEREMI of Housing and Urban Planning, SEREMI of Public Works, Municipalities, Universities and Civil Society.

Recognizing and anticipating hazards in the metropolitan area

Seismic Risk Program

Due to its geographical nature, the Metropolitan Region is highly exposed to seismic hazards. As a result, adapting a resilience approach that takes the phases of the risk cycle (mitigation, prevention, reaction and reconstruction) into account is necessary. The "Seismic Risk" program intends to articulate the different seismic risk management strategies for the region in an integrated and coordinated way. Since it is understood that there are different variables affecting seismic vulnerability, existing initiatives (such as the Seismicity Monitoring Program in mountain range areas, where a sensor system was placed in ravines) and vulnerability studies are included, and new actions are proposed regarding protocols, security zones and updating of building standards. Overall, these actions form an innovative approach to earthquakes and incorporate a comprehensive and proactive metropolitan strategy.

This program consists of several related actions, listed below:

Related actions:

1. Monitoring program and seismic early warning system in mountainous areas.
2. Recognizing and incorporating seismic risk stakeholders in planning tools.
3. Creating security zones in the event of seismic emergencies.
4. Critical infrastructure vulnerability cadaster and assessment.
5. Regional systematization of protocols in the event of seismic emergencies.
6. City insurance for critical equipment and infrastructure in the event of disasters.
7. Seismic zonation revision NCh433. Of96.
8. Updating NCh433.Of96 on seismic design of buildings.
9. Studies related to the seismic hazard of the San Ramón fault.



Image source: am-sur

4.2.2.

Term: Medium term

Status: Ongoing project

Stakeholders: GORE, ONEMI, Meteorological Directorate of the DGAC, SEREMI of Public Works, SEREMI of Environment, Provincial Governments, Universities, Municipalities and Civil Society.

Hydro-meteorological Hazard Program

The Metropolitan Region is exposed to hydro-meteorological hazards, such as fluvial flooding, barrages, landslides, pluvial flooding, urban floods and water stress. The region's topography and urban configuration, specifically in the precordillera, influence the recurrence of these types of hazards. In teSMR of climate change, these events could be exacerbated by rising temperatures, precipitation variations and runoff. Excessive precipitation will also impact pluvial flooding rates. Flow rate changes could also lead to water stress situations regarding the supply to urban and agricultural areas. The flood program of the Metropolitan Region will allow for a comprehensive approach to the basin's water management, with a water-sensitive city approach. The program will take existing and proposed projects into account, in order to later define strategic water investments, including early warning systems, master plans, works and equipment.

This program consists of several related actions, listed below:

Related actions:

1. Early warning system and monitoring of the precordillera and ravines.
2. Recognizing and incorporating hydro-meteorological risk stakeholders into planning instruments:
 - Updating the map of landslide and flood geological hazards.
 - Zonation for areas where channels and ravines become flooded.
3. Protecting drinking water catchment areas.
4. Cadaster and study of critical infrastructure vulnerabilities.
5. Regional systematization of emergency protocols in the event of hydro-meteorological emergencies.
6. City insurance for critical equipment and infrastructure in the event of disasters.
7. Barrage control works.
8. Continuous system of flooded parks for the infiltration of soils in ravines.
9. Concluding investments of the rainwater master plan.
10. Acquiring and maintaining strategic equipment (motor pumps, tanks).



4.2.3.

Term: Mediano plazo

Status: En ejecución

Stakeholders: GORE, Provincial Governments, ONEMI, Fire Department, Ministry of Agriculture, CONAF, SEREMI of Environment, SEREMI of Public Works and Municipalities.

Fire Prevention and Control Program for the Metropolitan Region

The 2016-2017 season¹¹⁵ holds the country's historical fire record, with more than 570,000 hectares burnt and more than 3,000 fires,¹¹⁶ 60 times what was destroyed in the previous season (between July 2015 and June 2016). As for the Metropolitan Region, more than 38,000 hectares have been destroyed in almost 300 wildfires¹¹⁷.

In the past few years, there has been a tendency towards significantly lower precipitation and rising temperatures (which in the future will be even worse due to the intensification of climate change).¹¹⁸ This scenario implies that wildfire risk will either be maintained or increased. The Fire Prevention and Control Program for the Metropolitan Region is aimed at increasing preparedness to reduce the number of fires that affect the natural ecosystem, by updating fire protocols, through brigades at critical points such as Isolated Hills (Cerros Isla) (supported by strategic equipment), education campaigns and by updating legislation and planning tools.

This program consists of several related actions, listed below:

Related actions:

1. Monitoring program and fire risk early warning system.
2. Recognizing and incorporating fire risk stakeholders into planning instruments.
3. Critical Infrastructure vulnerabilities cadaster and assessment.
4. Fire Protocol for the Metropolitan Region.
5. City insurance for critical equipment and infrastructure in the event of disasters.
6. Updating legislation regulating forestry and monoculture industries.
7. Plan for reforestation of burnt lands.
8. Reinforcement of Conaf brigades in critical points of the city (Isolated Hills (Cerros Isla), etc.).
9. Procurement of strategic equipment: tankers, telecommunications, fire trucks.
10. Community fire prevention training programs.
11. Environmental education and awareness campaigns.



115. From July 2016 to February 2nd, 2017.

116 (ONEMI, 2017)

117. (La Nación, 2017)

118. (La Tercera, 2017)



4.2.4. PRIORITY PROPOSAL



Term:

Medium term

Status: Ongoing project

Stakeholders: GORE, Provincial Governments, ONEMI, Fire Department, Ministry of Agriculture, CONAF, SEREMI of Public Works, SEREMI of Environment, SEREMI of Transport and Telecommunications, SEREMI of Energy and Municipalities.

Generation of Prepared Santiago Emergency Protocols

The city is periodically shaken by emergencies, disasters and other impacts that affect its normal operation. During recent years, Santiago has been faced with drinking-water supply disruptions due to channel turbidity, power cuts, shutdowns and strikes that affect garbage collection and even metropolitan transport system disruptions. These situations create an imbalance that can be reduced by means of an adjusted future planning. The “Prepared Santiago” emergency protocol program is aimed at developing protocols of action in conjunction with key stakeholders in each thematic area, in order to identify gaps, define related action plans and articulate a network that can be activated in the event of an emergency.

This proposal consists of several related actions, listed below:

Related actions:

1. Drinking water supply disruption” Emergency Protocol.
2. “Power cut” Emergency Protocol.
3. “Garbage collection during emergencies” Emergency Protocol.
4. “Public transport during emergencies” Emergency Protocol.
5. Innovation in the strategy for public procurement in the event of natural disasters.¹¹⁹.



119. CREDEN, 2016



Objective **4.3**



4.3.1.

PRIORITY PROPOSAL



SANTIAGO

Term:

Short term

Status: Proposal

Stakeholders: GORE, ONEMI, SEREMI of Environment, SEREMI of Housing and Urban Planning, SEREMI of Public Works, Municipalities, Association of Municipalities Parque Cordillera and Civil

100 RC Network Reference

SAN FRANCISCO



“Community communication platform”

Prepare citizens for threats and disaster hazards.

Community Strengthening Plan in the event of Foothill Multi-Hazards

The piedmont is the area of the precordillera near Santiago, located between the Maipo and the Mapocho rivers, a territory of the SMR consisting of 6 districts. In this area, there are different ravines and channels, mainly the Quebrada de Ramón and the Quebrada de Macul. In 1982, 1986, 1993, 2005, 2008 and 2016, there were heavy runoffs and mudslides from barrages. Additionally, this area combines several hazards, since the geologically active

fault called San Ramón can also be found there. Strengthening community networks through citizen participation, communication and education are crucial for risk prevention and risk information in this area. It is aimed at developing and implementing a community strategy to collect information on risk perception in the area, in order to create a protocol to define neighborhood and local actions for the community to participate in the response to future impacts in the area.



4.3.2.

Term: Short term

Status: Proposal

Stakeholders: GORE, ONEMI, ACHM, UFEMUCH, AMUR, Municipalities and Civil Society.

Creation of a regional network of municipalities for managing and reducing the risk of socio-natural disasters

There are international risk management protocols such as those of the World Health Organization (WHO) and the United Nations Office for Disaster Risk Reduction (UNISDR), which prioritize the government’s ability to properly respond to an emergency. In this capacity, the aim is to strengthen the management, organization and coordination skills of regional and municipal officials in the

event of catastrophes. This can be done by formulating better instruments and protocols that are informed by the best practices and local knowledge, to then influence the decision-making in such circumstances. The initiative includes continuous training of public officials in conjunction with relevant universities, to work on disaster management issues.



120. CREDEN, 2016

4.3.3.

Term: Medium term

Status: Proposal

Stakeholders: GORE, ONEMI, Municipalities, SEGEOB-DOS and Civil Society.

Regional Emergency Volunteer Coordinator

After every emergency, disaster or catastrophe, thousands of people are activated to provide support, through different voluntary actions. This reality, coupled with the actions of several NGOs and civil institutions present in the territory, require a strategic

territorial coordination in order to avoid the over-intervention of territories and to effectively aid the areas most affected. It also requires monitoring interventions and coordinating voluntary work with the territory's key stakeholders.



4.3.4.

Term: Short term

Status: Proposal

Responsible: GORE, ONEMI, SEREMI of Environment, Municipalities and Civil Society

Risk Management Education Program

Disaster risk reduction education and communication take into account the relationships between impacts on the community, the environment and the economy, among others. It promotes critical thinking and improved decision-making skills. With geography such as that of the Metropolitan Region, it is essential that citizens are informed and prepared to act in the event of an emergency. Although it is a recurring theme, progress must be made in developing new strategies and instruments to promote risk education, by fostering a proactive and preventive culture. The inhabitants of each of the region's districts must be aware of their risks and vulnerabilities, including memories of past disasters and the different scenarios to which they are exposed. This can be further complemented by including

new technologies that can generate information accessible to the region's inhabitants.

This program consists of several related actions, listed below:

Related actions:

1. Community disaster risk reduction education.
2. School Security Plan.
3. Memorials commemorating disasters. Seismic exhibition, urban landmarks that serve as reminders of floods, fires impacts etc.
4. "Grand Challenges" Program or Resilience Challenge, based on resilience and disaster issues, with an annual competition and focused on students.





Local Reference. Province of Chacabuco

Territorial working group for disaster risk management and local development

This activity was led by the Government of Chacabuco, in alliance with the United Nations Development Program (UNDP) Chile. It consisted of a participatory nature with the intent of generating proposals aimed at improving provincial coordination in the event of emergencies and disasters, and at identifying measures and actions in public-private partnerships for risk management. The working group consisted of neighborhood councils, local health and environment councils, farmer and firefighters associations, private companies (CODELCO, Aguas Andinas, Polpaico, KDM, PROACER) and public bodies (municipalities of Til Til, Colina and Lampa, Carabineros, the Army, ONEMI, SAG, SERNAGEOMIN and the General Directorate of Water of the Ministry of Public Works).

Image source: UNDP, Chile

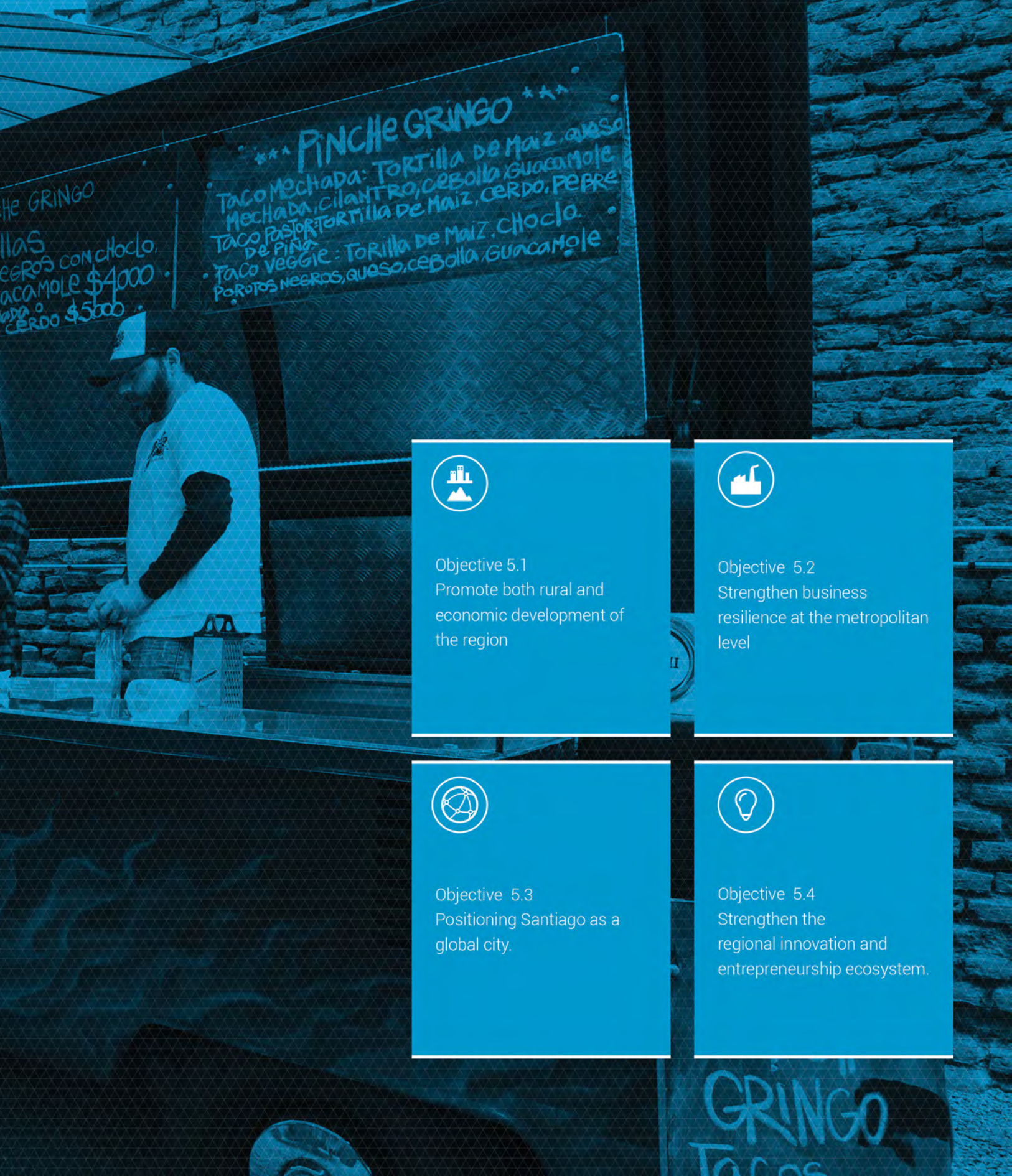
ECONOMIC DEVELOPMENT AND COMPETITIVENESS

GLOBAL AND INNOVATIVE SANTIAGO

For a territorially equitable city that fosters the creation of new opportunities, in the midst of an ecosystem of regional innovation, entrepreneurship and circular economy.

This chapter has been developed based on the inputs generated by UDD, DIPLADE Planning Department, DIPLADE Metropolitan Area Unit, SEREMI of Economy, CORFO, Private- Public Resilience Council.





Objective 5.1
Promote both rural and
economic development of
the region



Objective 5.2
Strengthen business
resilience at the metropolitan
level



Objective 5.3
Positioning Santiago as a
global city.



Objective 5.4
Strengthen the
regional innovation and
entrepreneurship ecosystem.

Status quo

The Metropolitan Region has a duality between urban and rural areas, as well as between the cosmopolitan center and the metropolitan periphery, which increases its economic complexity¹²¹. Today, a large number of micro, small and medium-sized enterprises (MSMEs) coexist in the region, along with large national and multinational companies, resulting in a diversified business scenario.

Although the Metropolitan Region is mostly urban, according to the surveys of the Ministry of Agriculture, its rural area has significant competitive advantages. Its nearly 150,000 hectares of intensive production can be found in the best soils of the country, positioning it as Chile's main vegetable producer, the third-ranking fruit producer and the main producer of swine.¹²²

The SMR is the country's main economic and functional center. It accounts for 45% of the national GDP¹²³. Its most important activities are Financial and Business Services (36%), commerce, restaurants and hotels (16%), translating as half of the region's economic activity¹²⁴. This high concentration and dependence means that there is a greater exposure to external economic changes that are not related to the region's internal governance or organization.

This scenario raises the challenge of seeking the sustainability and autonomy of the region's business development. At a national level, the SMR remains the first in ranking, despite downward trends during recent years¹²⁵. Although the region has a number of public institutions and instruments to foster economic development and business competitiveness, this has not yet generated a sustainable or incremental effect¹²⁶.

24% of Chile's innovation companies are located in the SMR, and it accounts for 17% of the technological and non-technological innovations over the last 8 years. Additionally, the total innovation rate for the SMR has dropped by 16% between 2006-2007 and 2013-2014¹²⁷. This decline contrasts with the support provided by public institutions such as CORFO, FIA, CONICYT, SERCOTEC and GORE, through their different instruments to support development, innovation and competitiveness.

Efforts should be aimed at generating regional coordination strategies with clearly defined productive areas and at positioning Santiago as a global city, linking productive sectors that hold the largest number of companies with the region's productive capacity, for a greater economic autonomy.

It is worth bearing in mind that Santiago has become a safe destination for global tourism, well connected, with diverse and innovative elements to offer. Nevertheless, public and private efforts are of little effect due to the absence of a common tourism promotion policy for Santiago in Latin American and global contexts.

121. (GORE, 2013)

122. (GORE, 2012)

123. (GORE, 2012)

124. (UDD, 2016a)

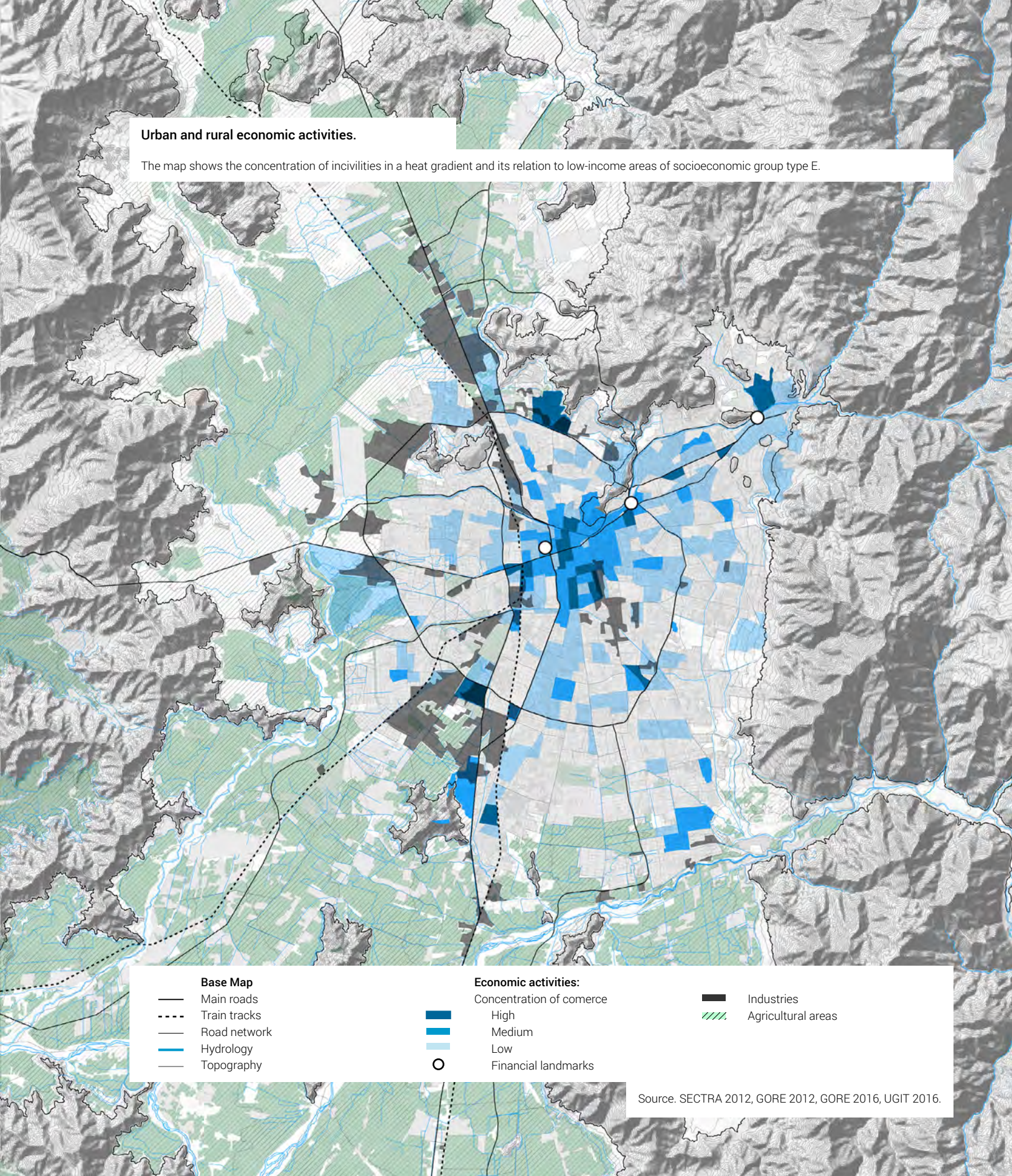
125. (UDD, 2016b)

126. (Ministry of Economy, 2013)

127. (UDD, 2016a)

Urban and rural economic activities.

The map shows the concentration of incivilities in a heat gradient and its relation to low-income areas of socioeconomic group type E.



Base Map

- Main roads
- - - Train tracks
- Road network
- Hydrology
- Topography

Economic activities:

- High
- Medium
- Low
- Financial landmarks

- Industries
- /// Agricultural areas

Source. SECTRA 2012, GORE 2012, GORE 2016, UGIT 2016.

Governance

Where we are, where we are headed to

Economic development is strongly related to cities and urbanization, including agglomeration economies, concentrations of human capital and environments that are conducive to business innovation.

To date, the national level has established macroeconomic and microeconomic development policies, measures and programs throughout Chile. Its economic development policies are compiled by different territorially concentrated institutions, all specializing in market sectors: Corfo, Sercotec, Sernatur and ProChile, amongst others. However, the Ministry of Economy is undoubtedly the predominant institution in this area.

The role of regional governments is to resolve the investment of FNDR resources and finance innovation and entrepreneurship projects through the Competitiveness Innovation Fund (FIC). In turn, Municipalities contribute to the promotion of production through specific projects, although they are generally oriented to employment and/or entrepreneurship. They are also empowered to create development corporations. These initiatives are, however, generally focused on self-employment and entrepreneurship lacking innovation.

The private sector is the driving force behind productive activities, and also generates trade associations, such as regional chambers and associations, that represent their interests and collaborate with the public world in developing and promoting different economic sectors.

Our strategy is aimed at positioning Santiago as a global and innovative city, enhancing the benefits of its metropolitan nature. Ongoing legal refoSMR will strengthen the regional economic development competencies by creating new divisions, transferring competencies in national programs and providing powers for territorial economic planning.

This new scenario will imply changes in the economic governance of the region. Creating shared visions among the multiple stakeholders, guiding the regional best use of land, will be necessary, which in turn should generate concerted strategies to enhance innovation, talent attraction and Santiago's international positioning. In this same vein, strategies that foster regional companies' sustainability will be required.



Governance Reference. Glasgow, Scotland

People Make Glasgow

Glasgow City Marketing Bureau (GCMB) is the official destination marketing organization (DMO) for the city of Glasgow. This public/private organization was created by the Glasgow City Council in 2005, and its role is to communicate its world-class value to live, work, study, invest and visit¹²⁸.

As a promoter of the **PEOPLE MAKE GLASGOW** brand, this organization works with numerous partners, interest groups and companies, in order to position and promote Glasgow in national and international markets, to contact clients, support investment and create sustainable economic benefits, as well as to position Glasgow as one of Europe's most vibrant, dynamic and diverse cities.

The organization is engaged in a wide range of activities aimed at providing economic and social benefits to Glasgow through leisure and business tourism. These activities include:

- Developing and implementing the **“PEOPLE MAKE GLASGOW”** city-brand.
- Strategic destination marketing campaigns in the main target markets.
- The bidding, attraction and management of high profile events, conventions and exhibitions.
- Logistic responsibility for conferences and events.

128. (GCMB, 2015)

Source image: SEC.CO.UK

Strategic partner: Economic development pillar



Session with municipalities
Representatives of 27 boroughs of the SMR

Session with municipalities, economic development and competitiveness pillar

"It is necessary to promote entrepreneurship and innovation with financial support, technical capabilities and facilitating the regulatory processes required to carry out these activities. In this way, we collaborate so that the community can have a better economic development."



Technical session Economy SEREMI

"It is necessary to promote a process of regional development planning for the creation of synergies among the different key agents involved in the economic development of the Region. This work process should seek the coordination of different stakeholders to avoid duplicities and optimize resources"



Academic partner
Universidad del Desarrollo

Academic report: Economic development and competitiveness

"The proposals that we designed in order to stimulate the incorporation of innovation in economic activity, go in the line of evaluating the impact of existing programs from a multidimensional point of view."



Objective **5.1**



Term: Long Term

Status: Proposal

Stakeholders: GORE, Provincial Governments, SEREMI of Environment, SEREMI of Housing and Urban Planning, SEREMI of Public Works, SERVIU, Concessions, Municipalities, Private Companies and Civil Society.

Promote both rural and economic development of the region

Regional Infrastructure Plan 2041

One of the main problems in the Metropolitan Region is that there is no relationship between infrastructure and territorial development projects at the different levels of government: inter-municipal, regional and provincial. Under an integrated and long-term approach, the Regional Infrastructure Plan 2041 proposes the construction of an innovative and sustainable region, in order to link programs and projects in an inter-sectoral and inter-municipal fashion. This will allow for the structuring of a cross-cutting, forward-looking approach, promoting investment in the SMR and its development based on comprehensive and coordinated proposals.

This plan consists of several related actions, listed below:

Related actions:

1. Developing a comprehensive regional infrastructure plan that takes into account the different sectors that operate within the territory.
2. Carrying out strategic territorial analyses to prevent the interference of different works in the same territory.
3. Creating a Regional Committee of City, Housing and Territory, to improve the coordination of the different stakeholders involved in urban space.



5.1.2.

Term: Medium term

Status: Proposal

Stakeholders: GORE, Provincial Governments, SEREMI of Environment, SEREMI of Agriculture, SEREMI of Public Works, SEREMI of Housing and Urban Planning, SERVIU, Concessions, Municipalities, Private Companies, AMUR and Civil Society.

Support and promotion plan for the agro-industrial sector of the metropolitan

The Metropolitan Region of Santiago is complex, with a territorial duality between urban and rural areas, the former being home to most of the economic activity, mainly regarding services and commerce. Although 97% of the population of the Metropolitan Region lives in urban areas¹²⁹, rural areas do indeed play an important economic, social, environmental and cultural role.

In this sense, building a communications and specialized consultancy plan is necessary in encouraging the application

to development programs and plans in rural areas, so as to foster the development and productive diversity of the region.

This plan consists of several related actions, listed below:

Related actions:

1. Promoting Regional Development Programs in Rural Areas.
2. Advice for the application to Development Programs in Rural Areas.



128. (GORE, 2016d).



Objective **5.2**



Term: Medium term

Status: Ongoing project

Stakeholders: GORE, Santiago Tourism Corporation, SEREMI Economy, CORFO, SERCOTEC, Municipalities, Private Companies, Chamber of Commerce of Santiago and Civil Society.

Strengthen business resilience at the metropolitan level

Public-Private Work Plan for Public Interest Projects

In the Metropolitan Region, there have been several public-private partnerships to build public interest projects. Depending on the type of project and the stakeholders involved, several work methodologies have been used (ESCO, APP, RSE, etc.). In this context, the idea is to expand this type of practice and create a work plan to promote public-

private partnerships in flagship projects for the region. Henceforth, business key stakeholders will work in a coordinated manner, in conjunction with the community and the different departments of government, in representative projects with a high public interest. The first step is to consolidate a work plan that defines the objectives and a collaborative work





PRIORITY PROPOSAL

5.2.2.

PRIORITY PROPOSAL



RESILIENT SANTIAGO

Term:
Short term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Economy, CORFO, Universities, System B, SME Associations, Santiago Chamber of Commerce and Civil Society.

Santiago + B Program. Social impact through SMEs

Companies are key to the process of resilience-building. This initiative is based on the project developed in the city of Rio de Janeiro, called Rio + B. The Santiago + B project is aimed at encouraging companies -with a focus on SMEs- to self-evaluate and become aware of their social and environmental impact, in order to increase the participation of the private sector in the region's resilience agenda.

The project uses worldwide-renowned instruments and certification processes for corporate environmental impact assessment, such as B Certification, and invites SMEs to integrate a business network for a more resilient Santiago that connects businesses with the needs of the city and the priorities of the Resilience Strategy.



100 RC Network Reference

RÍO DE JANEIRO



"Rio +B"
An initiative that improves corporate social and environmental impact.





5.2.3.

PRIORITY PROPOSAL



RESILIENT SANTIAGO

Term:
Medium term

Status: Proposal

Stakeholders: GORE, SEREMI of Economy, CORFO, FOSIS, SERCOTEC, Universities, SME Associations, Santiago Chamber of Commerce and Civil Society.

Business Continuity Plan for SMEs in the context of disasters and emergencies

Small and medium-sized enterprises are extremely vulnerable, rendering the continuity of their operations during emergency situations difficult. They are usually not prepared, nor do they have the support needed to resume their operations following a disaster, especially if they depend on other infrastructures in order to operate. This action is aimed

at analyzing their production chains and finding mitigation mechanisms required to reduce the impact on their operations, thus ensuring their capacity to adapt to emergencies and crises. The Continuity Plan will identify critical points and systems to better prepare the response of these companies.



100 RC Network Reference

BOULDER



“Recovery of local businesses after a disaster”
It is essential that companies access resources and get assistance to resume operations after an emergency.

5.2.4.

Plan to develop Group insurance against disasters and emergencies, focused on SMEs

Term: Medium term
Status: Proposal
Stakeholders: GORE, SEREMI of Economy, CORFO, FOSIS, SERCOTEC, Universities, SME Associations, Santiago Chamber of Commerce and Civil Society.

Disasters or crises mainly affect small and medium-sized enterprises, as they have limited resources to resume their operations in the event of service interruptions or structural damage, impacting the region's economy and employment levels. The aim is to

create a group insurance plan against economic vulnerability for SMEs, supported by feasibility analyses and legal adjustments. This would allow the recovery of the different economic activities to accelerate in the event of a critical situation.



129. UDD, 2016a.



Objective 5.3



5.3.1.

PRIORITY PROPOSAL



SANTIAGO

Term:

Medium term

Status: Proposal

Stakeholders: GORE, Santiago Tourism Corporation, SEREMI of Economy, PROCHILE, CORFO, Universities, Municipalities, Private Companies, Santiago Chamber of Commerce and Civil Society.

Positioning Santiago as a global city

Strategic Plan to promote the Santiago City Brand

In recent years, Santiago has been considered an attractive city to the rest of the world, appearing in international media such as the New York Times, National Geographic and CNN International, where it has been cited as safe, modern, etc. However, there is no campaign-related hallmark positioning it globally, as has happened with other world cities such as Madrid, London or Amsterdam, and

thus increasing their number of visits. This requires designing a strategy that enhances and positions the city as the economic and financial center of Latin America, in addition to enhancing its tourist attractions. This action is linked to the creation of the “Santiago” brand as a business-making platform and as an international communications strategy.



5.3.2.

Term: Medium term

Status: Ongoing project

Stakeholders: GORE, Santiago Tourism Corporation, SEREMI of Economy, PROCHILE, CORFO, Universities, Municipalities, Private Companies, Santiago Chamber of Commerce and Civil Society.

Strategic Plan of the Regional Tourism Corporation

The Regional Tourism Corporation is a public-private coordination body created in late 2016, aimed mainly at promoting tourism for Santiago to become Chile's main tourist destination, as well as a center of attraction for conventions and large seminars at a Latin American level. The strategic plan is aimed at positioning Santiago within the status of cities such as Barcelona or Buenos Aires, which already have tourism corporations, whilst also enabling it to strengthen its image and to create jobs in an industry that has the potential to become an economic driver for tourism at a city and regional level. The proposals include the "Santiago Ciudad Viva" program, aimed at a national and international promotion

of the Metropolitan Region's activities (culture, sports, art, seminars, etc.), and becoming a platform for information and global communication, similar to international platforms such as Time Out.¹³⁰

This plan consists of several related actions, listed below:

Related actions:

1. FIEXPO International Show of the Meetings and Incentives Market.
2. Creating the Big Data Observatory.
3. Marketing Plan Implementation.
4. Santiago Ciudad Viva Platform.



¹³⁰. For further information, please check <http://www.timeout.com/>

5.3.3.

Term: Medium term
Status: Proposal
Stakeholders: GORE, Santiago Tourism Corporation, SEREMI of Economy, SEREMI of Public Works, Private Companies.

International Convention Centre Project

Infrastructure plays a key role in business development, fostering the entrepreneurial ecosystem and creating opportunities for academic meetings and international forums.

both on academic and union sectoral issues, requires having top-tier logistics infrastructure for the development of activities. In this context, the aim is to create an international convention center, which will attract business and thematic tourism to the region, allowing it to become a development and innovation pole for the city of Santiago.

Promoting the Metropolitan Region as an economic and financial center, and also attracting visitors by generating national and international meetings

5.3.4.

Term: Long term
Status: Ongoing project
Stakeholders: GORE, SEREMI of Environment

City-city horizontal cooperation program

Since 2014, the Metropolitan Region of Santiago has been part of the 100 Resilient Cities initiative promoted by the Rockefeller Foundation, which provides support to cities in promoting strategic urban resilience issues worldwide. Since 2016, Santiago has been part of C40, a group of the world's mega-cities committed to reducing carbon emissions and adapting to climate change. The city-city horizontal cooperation program is aimed at generating collaborative alliances and work plans with other

world cities, based on their expertise and learning.

This program consists of several related actions, listed below:

Related actions:

1. Collaborative work and knowledge transfer with 100RC Network.
2. Collaborative work and knowledge transfer with C40 Network.



5.3.5.

Term: Short term
Status: Ongoing project
Stakeholders: CORFO, GORE, Ministry of Transport and Telecommunications, Ministry of the Environment, Sustainability and Climate Change Agency, Regional Public Security, Under-Secretariat of Crime Prevention, Universities, Municipalities, Private Companies and Civil Society.

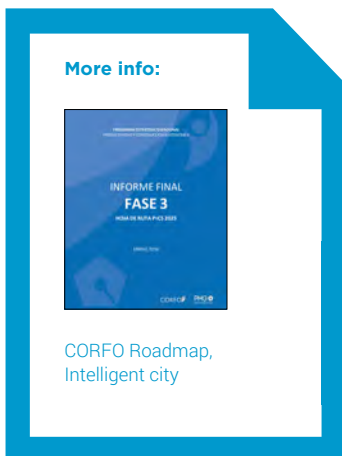
Santiago Ciudad Inteligente Regional Strategic Program

Technological development and progress can significantly contribute to the development and construction of the best use of land, strategic vision and priorities that cities have defined for themselves, facilitating relationships and communication between authorities and citizens, as well as rendering management and planning processes of the city's different systems more efficient. It also allows the improvement of services and the use of infrastructure, whilst also making progress in coordinating territorial management integration. Henceforth, this program seeks to address failures of coordination and to promote local economic development in these areas of the city, so as to become an enabling element fostering the development of a smarter Santiago, thus providing enabling elements for the development of a more resilient Santiago.

This program consists of several related actions, listed below:

Related actions:

1. Intelligence in urban freight transport.
2. Sustainable mobility.
3. Intelligent waste and recycling management.
4. Coordination of city emergencies.
5. Collaboration between stakeholders.
6. Efficiencies in the use of the city's resources.
7. Internationalization of Santiago Inteligente.
8. Human capital development.
9. Ecosystem, innovation and entrepreneurship promotion.
10. Use of crime prevention and action technologies (Mobile Apps).





Objective 5.4

5.4.1.

Term: Medium Term

Status: Ongoing project

Stakeholders: GORE, SEREMI of Economy, CORFO, Universities, Municipalities, Private Companies and Civil Society.

Strengthen the regional innovation and entrepreneurship ecosystem

Santiago Emprende Program

Local entrepreneurship is one of the stakeholders that increase resilience, as it stimulates the creation and well-being of employment.¹³¹ An example of this is the social innovation sector that is focused on improving the quality of life of vulnerable individuals or companies working in the environmental sector. The innovation ecosystem needs to promote the creation of ideas and projects to solve local problems. However, there are stakeholders affecting it, such as technological absorption, cultural acceptance, lack of funding available

and the quality of entrepreneurship networks. Several actions and programs have been proposed to strengthen the entrepreneurial ecosystem in a comprehensive way.

This program consists of several related actions, listed below:

Related actions:

1. Campaign to promote entrepreneurial action.
2. Accompaniment of entrepreneurs.



131. (UDD, 2016a).



PRIORITY PROPOSAL

5.4.2.



RESILIENT SANTIAGO

Term:
Short term

Estado: Ongoing project

Stakeholders: GORE, SEREMI of Economy, CORFO, Universities, Municipalities, Private Companies and Civil Society.

5.4.3.

Term: Mediano plazo
Status: En ejecución
Stakeholders: GORE, SEREMI of Economy, CORFO, Universities, Municipalities and Private Companies.

Impacta Santiago co-creation program

Several metropolitan solutions have been developed across the region, ranging from actions proposed by civil society and private companies to initiatives supported by government agencies built to co-create solutions to problems. This range of proposals stemming from different scales serves as an opportunity to address some of the main issues and to adapt to future changes. The sum of initiatives can generate a cross-cutting and interdisciplinary positive impact in the region from innovation and through bottom up processes.

This program consists of several related actions, listed below:

Related actions:

1. Laboratory of metropolitan challenges for an intelligent region.
2. Innovation and Competitiveness Funds (FIC) to strengthen scientific research.
3. Human and Resilient Santiago University contest: high-impact social and territorial interventions.
4. Annual prize awarded to good metropolitan practices in the aspects of the Resilience strategy.

Innovation Ecosystem Improvement Program

A multidimensional assessment of the impact that existing programs have is required in order to improve the innovation ecosystem. The aim is to generate a systematized assessment of the policies, plans and programs designed mainly by the Ministry of Economy, in order to get acquainted with their economic and social impacts beyond investment. As a result, pertinent modifications can be

made to improve entrepreneur support programs through a regional platform.

This program consists of several related actions, listed below:

Related actions:

1. Multidimensional impact assessment of innovation promotion programs in the Metropolitan Region.



Local reference. Commune of Peñalolén

Yunus employment, training and entrepreneurship centre

The YUNUS Employment, Training and Entrepreneurship Centre was created in 2005 by the Municipality of Peñalolén, aimed at becoming a neighborhood space that provides information and advice on entrepreneurship and microenterprise formation, in order to improve the competitiveness and productivity of SMEs, so that locals could be trained in various trades and find new work. The Centre is structured around three main departments: Training, Municipal Office of Labor Mediation and Business Development Department.

Source image: Municipalidad Peñalolén

SOCIAL EQUITY

INCLUSIVE SANTIAGO

For a city that reduces its social gaps, inequality and territorial fragmentation, where all of its inhabitants have access to the benefits and opportunities it provides.

This chapter has been developed based on the inputs generated by FAU U de Chile, DIPLADE Planning Department, DIPLADE Metropolitan Area Unit, Unidad Barrios Integrales, CORFO and Private Public Resilience Council.



Objective 6.1
Generate opportunities of
inclusion for those at social
risk or under violence



Objective 6.2
Guarantee access and
standards to urban property
and services to all of the
region's inhabitants

Status quo

Santiago is a highly segregated and unequal city compared to other Chilean and Latin American cities. According to the OECD¹³², the SMR is more segregated than cities like Buenos Aires, Sao Paulo and Mexico City. It is a socio-spatially fragmented, dispersed and distanced society. The urban area of Santiago contains a heavy concentration of the highest-income groups in six districts¹³³, with a spatial proportion equivalent to 18% of its surface¹³⁴. This concentration of wealth tends to become a vicious circle. The high-income level has the highest-value properties in its vicinity, which implies greater sources of municipal income and a concentration of quality services, infrastructure and equipment; whilst the rest of the city can be identified as macro areas with concentrations of poverty, high crime rates, violence, overcrowding, allegamiento and school dropout rates.

According to Arriagada¹³⁵, the concentration of residential segregation illustrated in maps (a different perspective from the typical generation of social indicators), highlights the city's spatial structure, and provides a very understandable image of the urban inequalities. Although they do not allow specified population sizes, maps do show territorial conglomerates and critical zones. Categories that include socioeconomic levels, vulnerable households, unemployed youth, unemployment, immigrants and schools with low SIMCE may correlate with maps of green areas, equipment, crime and trade, which increases the power of understanding socio-spatial phenomena.

On the other hand, since the 1990s, Santiago has experienced a growing migratory process from American countries, due to Chile's political and economic stability. Today, about 61.5% of the migrant population lives in the Metropolitan Region¹³⁶. It is concentrated in central urban areas, but under conditions of high vulnerability and segregation.

Although since the 1990s the SMR has experienced a steady decline in the population living in poverty and extreme poverty (from 42.6% in 1990 to 7.7% in 2013)¹³⁷, if we consider poverty from a multi-sectoral perspective (which understands the phenomenon not only as economic income, but also as access to education, health, labor, social security and housing), the percentage increases by 18%. Santiago must make progress in ensuring a minimum standard and equitable accessibility to the goods, services and opportunities it provides. This should be a right for all of its inhabitants.

132. (OCDE, 2012)

133. (Rodríguez y Winchester, 2001)

134. (GORE, 2016a)

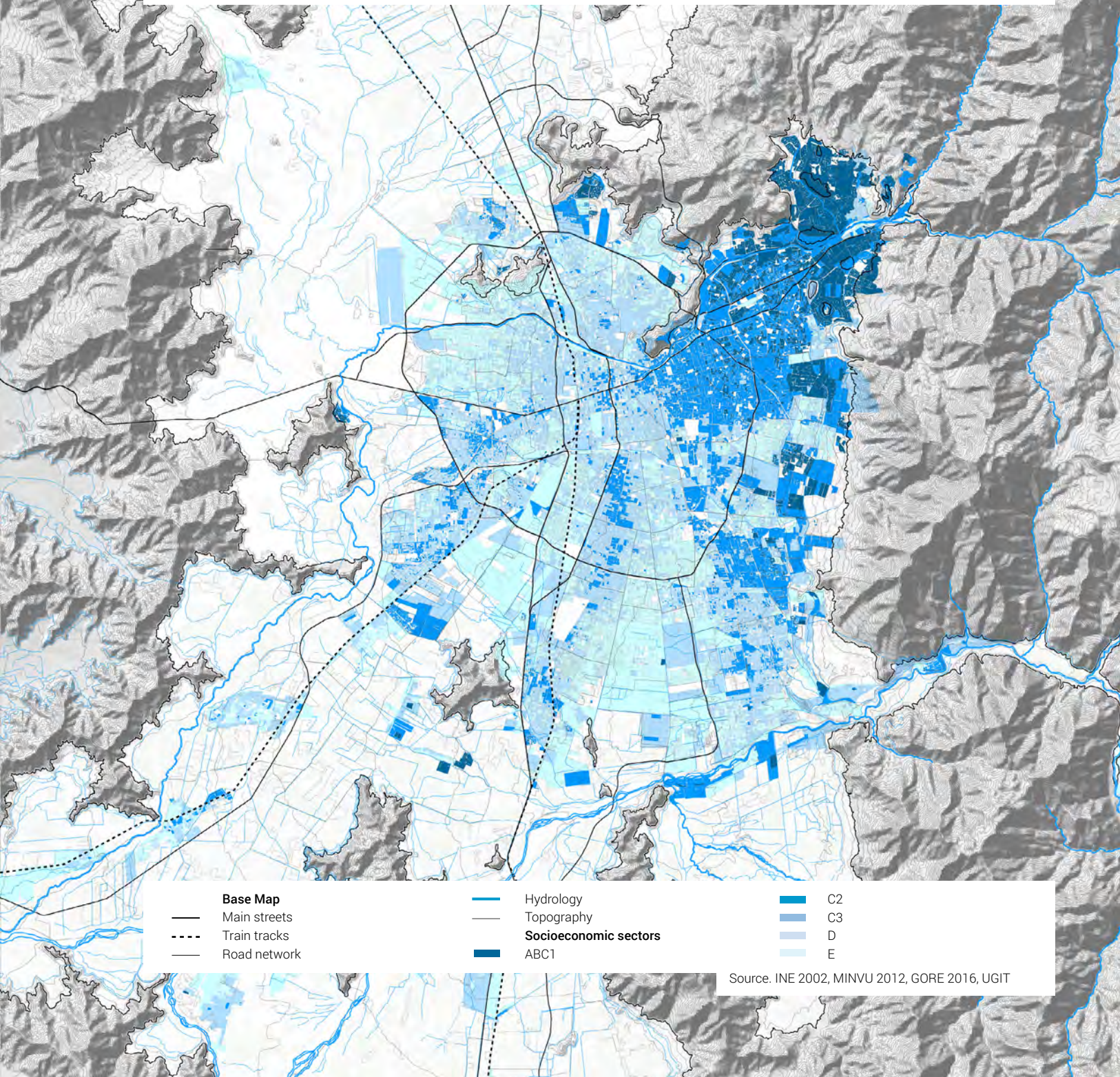
135. (FAU, 2016)

136. (Ministerio del Interior, 2016)

137. (CASEN, 2015)

Socio-economic sectors of the SMR. .

The map shows the different socioeconomic sectors and their spatial distribution in the SMR. The sector alto is concentrated in the high income area towards the east, in the districts of Providencia, Las Condes, Ñuñoa, La Reina, Vitacura and Lo Barnechea.



Source. INE 2002, MINVU 2012, GORE 2016, UGIT

Metropolitan governance

Where we are and where we are headed to

During recent years, with the creation of the Ministry of Social Development (MDS), Chile has strengthened its institutions to face poverty, marginalization and exclusion. This has partly been a response to a phenomenon that, as the country has grown and left behind the most elementary foSMR of material poverty, has diversified and adopted new faces and more specific and complex realities.

Poverty and urban marginalization have gained a whole new significance with the growth of cities. The country's progress has attracted thousands of migrants from all over Latin America, and society has become increasingly aware of, previously invisible, vulnerable and excluded groups, such as the elderly, disabled or indigenous population.

Institutions that have acted on this existing reality have been central government agencies that are dependent on the MDS, which are concentrated in the area and focus on different realities and dimensions: Solidarity and Social Investment Fund, National Service for the Elderly, National Disability Service and the National Corporation of Indigenous Development, in addition to the National Service for Youth, which is administratively dependent on the Ministry of Justice.

Some of the functions of the regional government include ensuring social and cultural development and allocating part of the FNDR to social development projects. On the other hand, municipalities contribute from a welfare-oriented role, as "gateway", to State benefits and policies.

Additionally, civil society plays an active role in this area. There are hundreds of national and international institutions working on the different social inclusion areas of the region. Over the last decades, many companies have joined this task through Corporate Social Responsibility programs and policies.

In this context, the need for governance emerges to avoid targeting and any problems in the usage of resources, such as double allocation of benefits, over-intervention of communities and the generation of dependence on people. For this, coordination, prioritization, monitoring and an evaluation of policies and projects are all indispensable.

The goals for an Inclusive Santiago require identifying the most relevant social gaps, focusing especially on those that put the city's life sustainability at risk, such as violence and segregation. In this regard, the future creation of a new Division for Social Development in the Regional Government of the SMR represents an opportunity to take an active and long-term role in this area.



Governance reference. Medellín, Colombia

Medellín Model

“Model Medellín” is a strategy that has been adopted by the city since 2004, with the arrival of the mayor Sergio Fajardo, and which brings private, academic and social sectors together to work on responding to problems that the city faces. The mayor of Medellín assumed a coordinating role of the different stakeholders with security management and coexistence responsibilities. Strategies, programs and projects were implemented simultaneously to the development of this model, which can be categorized into three:

- Institutional strengthening, through an approach of security management and legitimate presence of the State,
- Crime prevention, through the program for disabled integration, at-risk youth prevention programs and regulatory mechanisms [ASC1].
- Promotion of coexistence, with the reevaluation of public space and citizen training for self-regulation and passive control.

Source image: Plataforma Arquitectura

Strategic partners: Social Equity Pillar



Resilience Council
27 Participants

Security and social equity session

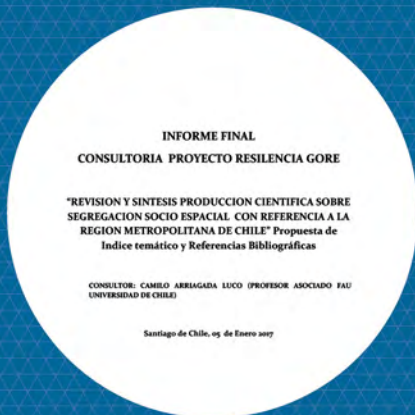
"The growth of the city with minimum urban standards and a high deficit of equipment and infrastructure associated with the new sets, have consolidated urban pockets with high vulnerability indexes"



Work with municipalities
Representatives of 27 communes

Session with municipalities, social equity pillar

"Sports and cultural infrastructure projects must be executed to contribute to community development, as well as educational workshops on equity and inclusion."



Academic Partner
Faculty of Architecture and Urbanism, U. de Chile

Academic report: Social equity

"Security is the first concern for a large part of the inhabitants of Santiago, given the daily routine and multiple expressions of this phenomenon, and its close relationship to the possibility of exercising other social and urban rights"



Objective **6.1**



6.1.1.

PRIORITY INITIATIVE



SANTIAGO

Term: Medium term
Status: Ongoing project
Stakeholders:
 GORE, SEREMI of Education, SEREMI of Social Development, SEREMI of Justice and Municipalities.

100 RC Network reference

SEMARANG



“Informal education”
 Ensure that young people who do not have access to formal education can develop their abilities and maintain their skills..

Generate opportunities of inclusion for those at social risk or under violence

School retention and reinsertion program

In the Metropolitan Region there are about 36,000 children and adolescents (niños, niñas y adolescentes)¹³⁸, the majority coming from the lowest income quintiles, who have dropped out of school for various reasons and have as such been excluded from development opportunities. They range from physical and social vulnerabilities to addictions and criminal activity. This translates into a complex social problem that requires expert professionals and specific public policies. The aims of this program range from school dropout prevention through the work of school coexistence and early risk warnings to school reinsertion of those who have dropped

out of the system, providing them with a new opportunity.

This program consists of several related actions, listed below:

Related actions:

1. Aquí Presente Program :
 - Early warnings of dropouts and a support hotline.
 - Creating coexistence between schools and the community.
2. Second Chance Schools



138 . (UAH, 2016).



**PRIORITY
INITIATIVE**



SANTIAGO

Term: Medium term
State: Proposal
Stakeholders: GORE, SEREMI of Justice, SEREMI of Social Development, SEREMI of Justice, Security Office of the Intendance.

Regional policy on children and adolescents (niños, niñas y adolescentes) (NNA) protection with a legal approach.


At the regional level, the number of children and adolescents (niños, niñas y adolescentes) in vulnerable situations and who are at risk has increased, and in some cases, NNAs end up becoming involved in criminal activities. As a result of this, a regional policy focused on reducing risk stakeholders and fostering pro-social behavior in children and adolescents is required, along with the development of the family's protective capacities and parental competences. With the 24 Hours Program, aimed at children and youth between the ages of 10 and 17 and their relevant families, the idea is to design and consolidate a policy that includes early detection and multisystem therapy components. Key to this is the articulated work between

Carabineros and Municipalities in those cases where NNA break the law or demonstrate transgressive behaviors, in order to detect risk profiles and thus act in a timely and comprehensive manner. This policy is composed of a series of linked actions, listed below:

Related actions:

1. Specialized accompaniment program for children and adolescents (NNA) first time infrastakeholders by law.
2. Specialized accompaniment program for children and adolescents (NNA) infrastakeholders by law.
3. High complexity special program for children and adolescents (NNA).





PRIORITY INITIATIVE

6.1.3.

PRIORITY INITIATIVE

RESILIENT

SANTIAGO

Term: Medium term
Status: Proposal
Stakeholders:
 GORE RM, SEREMI of Health, SEREMI of Social Development, FOSIS, SENDA, SEREMI of Justice, Undersecretariat of Crime Prevention, Security Office of the Intendance, Municipalities and Social Organizations.

Program for education and treatment of drug use and abuse, focused on young people and adolescents

Chile is the second OECD country to have increased its rate of suicides over the last 15 years.¹³⁹ Medical leaves for mental health issues has reached 40%. This implies high productivity costs due to absenteeism. In addition to this, mental health issues mostly affect vulnerable groups, such as people with lower educational levels, youth, women, and particularly impacting indigenous peoples.¹⁴⁰

regional commission in the protection of the mentally ill, and in education and early prevention programs, by providing proper information to citizens on the consequences that each type of drug has from a social and public health perspective.

This policy consists of several related actions, listed below:

Related actions:

1. Treatment center for vulnerable adolescents that have not breached the law, suffering from alcohol and/or drug abuse.
2. Toma Conciencia Program.
3. Education programs for the prevention of alcohol and drug use at schools..

Despite the magnitude of the problem, public funding for mental health programs is still very low and the availability of places for addiction treatment is very limited and practically non-existent in the case of young people and adolescents who have not broken the law. Updating mental health plans and creating addiction treatment centers that are focused on vulnerable groups, particularly adolescents and young people, is necessary. It is also necessary to strengthen the role of the



139. (UC, 2015).

140. (Superintendency of Social Security, 2016).

6.1.4.

Term: Medium term

Status: Proposal

Stakeholders: GORE, SEREMI of Education, SEREMI of Social Development, INJUV, FOSIS, SEREMI of Justice and Municipalities..

Metropolitan Youth Strategy

At a regional level, creating a Metropolitan Youth Strategy is necessary; one which includes actions and measures in key areas such as leisure and recreation, mental and reproductive health, training and studies and employability, among others, through the comprehensive and interdisciplinary work of several key stakeholders.

Forming a work program that is focused on young people from a legal perspective, and on the development of skills for their incorporation into the system,

is imperative. This program should especially focus on NINIS (young people who neither study nor work).

This program consists of several related actions, listed below:

Actions related:

1. Public-private collaboration network for job reintegration.
2. Youth employment program focused on NINIs





6.1.5.

PRIORITY INITIATIVE



RESILIENT SANTIAGO

Term: Medium term
Status: Proposal
Stakeholders: GORE, SEREMI of Education, SEREMI of Social Development, FOSIS, SEREMI of Justice, Security Office of the Intendance and Municipalities.

Regional policy on migrant population

In recent years, Chile's immigrant population has grown steadily. Although the country still has a relatively low number of immigrants in comparison to developed countries, the obsolescence of legal regulations in the area, in conjunction with the vulnerability and rights violation conditions that they face, render this subject a regional priority issue. Based on information gathering and the research conducted by the SEREMI of Justice and Human

Rights between 2014 and 2016, along with the results of the "Regional Migration Working Group" and inputs collected during citizen participatory dialogues, the aim is to generate a regional policy that will comprehensively address the reception, integration and recognition of this fraction of the population as part of society.



100 RC Network reference

BANGKOK



"Quality of life of migrants"
 It is essential that health and security standards be met in all workplaces, in order to ensure the well-being of workers. Risk stakeholders related to the housing and health conditions of immigrants will also be reviewed.

6.1.6.

Term: Medium term

Status: Proposal

Stakeholders: GORE RM, SEREMI of Social Development, FOSIS, SEREMI of Justice, Security Office of the Intendancy and Municipalities.

Regional street people policy (PSC)

One of the main dimensions of social exclusion is people living in conditions of high marginalization, such as street people. The Metropolitan Region has the country's highest percentage of street people: 47% (5,729) of the total number of people registered at the national level. The regional group has an average of 5.7 years living without a home.¹⁴¹

With the implementation of the national street people policy, the aim is to implement a regional adaptation that includes the creation of an IT platform for PSC, which generates a digital registry and allows the monitoring of each specific case. This platform will also enable

collecting and centralizing information to create better-tailored programs for this vulnerable group.

This program consists of several related actions, listed below:

Related actions:

1. Regional adaptation of the National Policy.
2. Inter-sectoral implementation of the policy (working groups, cadaster updating, mitigation actions, etc.).
3. IT platform for street people.



141. (MDS, 2011)



Objective **6.2**



Term: Medium term
Status: Proposal
Stakeholders: GORE, SEREMI of Housing and Urban Planning and Municipalities

Guarantee access and standards to urban property and services to all of the region’s inhabitants

Update the Santiago Metropolitan Zoning Plan (PSMR) for the promotion of socio-spatial equity

The PSMR is the metropolitan territorial zoning plan that guides, regulates and promotes the urban development of the Metropolitan Region. Its tasks include the identification of urban boundaries, metropolitan zoning, land use, Metropolitan and Inter municipal facilities, the determination of exclusive areas with bothersome uses, restriction areas, metropolitan infrastructure protection areas and land occupation intensity. It also poses urbanization and building requirements where appropriate¹⁴².

This zoning tool is key in the promotion of spatial equity due to its relevance in the distribution of and equitable access to infrastructure.

This program consists of several related actions, listed below:

- Related actions:**
1. **Densification policy focused on road infrastructure**

142. (PSMR100, 2008)





6.2.2.

PRIORITY INITIATIVE



SANTIAGO

Term: Medium term
Status: Ongoing project
Stakeholders: GORE, SEREMI of Housing and Urban Planning, SEREMI of Social Development, SEREMI of Public Works, SERVIU and Municipalities.

Integral project Río Mapocho

The Mapocho River is a key element in the region’s collective imagination, due to its significant presence in the history of our city and that of its citizens. It crosses a heterogeneous territory made up of 16 districts, giving an account of the regional scale from a geographical approach. The “Proyecto Integral Río Mapocho” is aimed at providing a new meaning to the river as a common space, support of activities and multiple projects, promoting urban development and fostering public-private partnerships to build a city with standards that support the regional approach.

This program consists of several related actions, listed below:

Related actions:

1. Implementation of Mapocho Limpio Project..
2. Vive Mapocho Project
3. Mapocho Pedaleable Project.
4. Mapocho Cultural Promotion.
5. Mapocho Verde Project.
6. Mapocho Culinario Project





PRIORITY INITIATIVE

6.2.3.

PRIORITY INITIATIVE



RESILIENT SANTIAGO

Term: Medium Term
Status: Ongoing project
Stakeholders: GORE, SEREMI of Housing and Urban Planning, SERVIU, Office of Comprehensive Plans Program in High Complexity Neighborhoods, Office of Security of the Intendancy and Municipalities.

Comprehensive Neighborhood Recovery Plan

The development model of our cities has led to an important group of people being excluded from the country's economic benefits, due to living in macro urban areas of high segregation and social exclusion. The Comprehensive Neighborhoods Recovery Plan is aimed at intervening territories that, due to their history, location and complexity, have characteristics that make specialized interventions necessary. They confront local problems that are linked to community, urbanization, coexistence and social and/or economic aspects, by coordinating public

institutions, government programs and private organizations that exist in the neighborhood.

This program consists of several related actions, listed below:

Related actions:

1. Comprehensive Plans in High Complexity Neighborhoods (PIBAC).
2. Program to Strengthen Commercial Neighborhoods.
3. *Quiero mi Barrio* program.



Source image. High Complexity Neighborhoods

6.2.4.

Term: Medium term

Status: Ongoing project

Stakeholders: GORE, Ministry of Culture.

Santiago es Mío Cultural Program

According to the Metropolitan Cultural Consumption Survey¹⁴³, only 6% of the population living in poverty is in contact with cultural activities such as theater, music, cinema or painting.¹⁴⁴ The “Santiago es Mío” initiative brings culture and heritage closer to different neighborhoods of the Metropolitan Region. The program includes cultural activities in public spaces, as well as the training of cultural managers, and promoting a free approach of art to the community. The project has three fundamental pillars: a network of cultural centers, cultural management and regional identity and formation of audiences. The proposal makes visible the richness and cultural diversity of the

region, and it promotes the participation and integration that can empower communities.

This program consists of several related actions, listed below:

Related actions

1. Annual Identity Carnival
2. Conducting meetings for the formation of audiences in different districts.
3. Artistic Residences.
4. Generating a Network of Public Cultural Centers that promotes relevant and quality programming throughout the region.



143. (ENPCC, 2012).

144. (Arriagada, 2017).



Local reference. Commune of Quilicura

Plan of reception and recognition of migrants and refugees municipality of Quilicura

It is a work plan that was initiated in 2014 by the Municipality of Quilicura. The United Nations High Commissioner for Refugees (UNHCR), the International Organization for Migration (IOM), the San Carlos Maipo Foundation and Universidad de Los Lagos were summoned. The Plan is aimed at promoting the integration and recognition of the migrant population, by improving the most important areas of migrant reality; these aspects were identified during a diagnostic phase as school education, health, housing, neighborhood coexistence and employment.

Source image: Revista Sur

ALBERTO CRU E
EDUARDO KNOCKAER
ARQUITECTOS
ENRIQUE ALBERTZ
INGENIERO

Claro
video
Claro-video
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Section VI

**NEXT
STEPS**



6.1. NEXT STEPS

The resilience strategy is aimed at instrumenting the debate on how to handle the city's long-term management, keeping a clear understanding of how we act today in mind, in order to face the challenges that currently stress the lifestyle of Santiago's inhabitants. In this context, it is necessary to take measures in different dimensions for the future: institutional, interinstitutional and international insertion.

Regarding the institutional dimension, we will advance in the internal articulation of instances that, with the common goal of addressing the challenges of the city, but each using a specific lens, look at the territory and lead initiatives with different agendas: that of climate change, that of intelligent cities, of metropolitan areas and of resilience, creating a Unit of Cities. The purpose of this initiative will be a long-term integration of human, material and economic resources, with special focus on connecting the efforts of multiple stakeholders that are addressing concrete initiatives to overcome Santiago's structural inequality.

Undoubtedly, the leadership of the regional public services, as thematic experts, meant that the reflection around the issues was specific enough to identify the gaps and the opportunities

for improvement, actively participating as a counterparty of the consultancies, them being more relevant to the Regional reality. In the future, this type of coordination will allow for the mobilization of external, national and international resources to execute specific projects that contribute to achieving what has been expressed in the strategy.

Likewise, we will propose a work agenda to the Regional Metropolitan Council to transfer each of the consultancies that have been an input to the diagnosis and actions to be implemented, consistent with the current Regional Development Strategy and with the regional policies that the council itself has led and others that urgently need to be incorporated into the agenda.

On the other hand, in the interinstitutional dimension, we will put a special emphasis on deepening a collaborative work model based on the explicit recognition that there is a generation of knowledge, accumulated experience and concrete practices that are beyond the usual management of the regional government, and that have addressed issues such as mobility, environment, security, economic development and risk management for years, in order to stimulate synergies and learning. In this context, the Public-

Private Resilience Council will continue meeting in order to control and monitor the implementation of the Resilience Strategy.

Beyond the Resilience Council, there is a huge challenge to make progress in a bilateral work agenda with concrete commitments to the private sector, academia, municipalities and non-governmental organization present in the territory. Thus, first of all, we will activate the network of municipalities for resilience and initiate a process of methodological transfer to other regional governments.

As for the international dimension, we believe that there is a great asset to be found in the 100 resilient cities (100RC) network, that have much to exchange with our metropolitan region, based on certain common structural shocks and stresses. This will allow us to build a specific international agenda that nurtures the discussion, based on comparative experiences, on which are the best alternative solutions to regional challenges.

A significant contribution of the network is undoubtedly the reform on the creation of metropolitan areas, since it has allowed us to know how governance is concerning

aspects that are essential for the daily life of people, such as mobility, waste and security. We have already gathered information and analyzed each of the cities that will be presented to the CORE International Commission and identify a first working stage. Likewise, the 100 RC network allows access to a platform of strategic partners made up of consultants and multilateral organizations with which a bilateral work agenda has been initiated in water, mobility, city insurance and risk management areas, among other things.

To conclude, this strategy has been structured by recognizing the institutional transition that the region will experience in teSMR of governance, specifically focused on contributing to the discussion and operationalizing initiatives that may contribute in said direction.

6.2. TEMPORALITY OF PLANS, PROGRAMS AND ACTIONS

Short term 5 years

1.3.2. Santiago Camina Plan
● 2.1.1. Regional Climate Change Program
2.1.2. Basin Environmental Monitoring Plan
2.1.3. Energy Consumption Reduction Plan
2.2.2. Nature Conservation Areas Program
● 2.3.2. Santiago Recicla
● 2.4.1. Santiago Respira
2.4.2. Zona Verde Transport Program
2.5.1. Metropolitan Responsible Consumption Program
2.6.1. Regional Energy Plan
3.1.2. Municipal Security Councils
3.1.3. Requirements of safety standards for urban intervention projects
● 3.2.1. Recovery plan for empty lots and deteriorated public spaces
3.2.5. Paradero Seguro Plan
3.3.1. Program of citizen participation and security co-production
● 4.3.1. Community Strengthening Plan for Foothill Multi-Hazards
4.3.2. Regional network of municipalities
4.3.4. Risk Management Education Program
5.2.2. Santiago + B Program. Social impact through SMEs
5.3.5. PSantiago Ciudad Inteligente Regional Strategic Program
● 5.4.2. Impacta Santiago co-creation program

● 1.1.1. ProMovilidad Urbana Regional Policy
1.2.1. Plan to Consolidate the Massive Public Transport System
● 2.2.1. Construction of new Urban Parks
2.3.3. Eradication and conversion of illegal solid waste landfills and small dump sites
2.5.2. Biodiversity and Water Ecosystem Protection Program
● 2.5.3. Rural Drinking Water Program
3.1.1. Intervention Plan in Urban Sub-Centers
3.2.2. Ruta Segura Program
3.2.3. "Cuidado con el Perro" Responsible Pet Ownership Program
● 3.2.4. Integrated Teleprotection Network Plan
● 4.1.1. Regional Risk Management Policy
4.1.2. Social Networks Monitoring Platform during emergencies
● 4.1.3. Integrated Emergency and Disaster Management Centre
4.2.1. Seismic Risk Program
4.2.1. Programa de Riesgo Sísmico
5.2.1. Public-Private Work Plan for Public Interest Projects
● 5.2.3. Business Continuity Plan for SMEs
5.2.4. Group insurance against disasters and emergencies, focused on SMEs
● 5.3.1. Strategic Plan to promote the Santiago City Brand
● 6.1.1. School retention and reinsertion program
● 6.1.2. Regional policy on children and adolescents
● 6.1.3. Program for education and treatment of drug use and abuse
6.1.4. Metropolitan Youth Strategy
● 6.1.5. Regional policy on migrant population

**Medium term
10 years**

**Long term
2041**

1.2.2. Technological modernization for urban mobility management
● 1.3.1. Santiago Pedaleable Plan
2.6.2. Mini-hydros construction project
● 2.6.3. Waste to Energy Plan
2.6.4. Santiago Solar regional solar program
3.2.6. Program for neighborhood justice and mediation for incivilities and
3.3.2. Public-private work plan for crime reduction
3.3.3. Project to Consolidate a Victim Care Network
4.2.2. Hydro-meteorological Hazard Program
4.2.3. Fire Prevention and Control Program for the Metropolitan Region
● 4.2.4. Generation of Prepared Santiago Emergency Protocols
4.3.3. Regional Emergency Volunteer Coordinator
5.1.2. Support and promotion plan for the agro-industrial sector
5.3.2. Strategic Plan of the Regional Tourism Corporation
5.3.3. International Convention Centre Project
5.4.1. Santiago Emprende Program
5.4.3. Innovation Ecosystem Improvement Program
6.1.6. Regional street people policy
6.2.1. Update the Santiago Metropolitan Zoning Plan
● 6.2.2. Proyecto Integral Río Mapocho
● 6.2.3. Comprehensive Neighborhood Recovery Plan
6.2.4. Santiago es Mío Cultural Program

1.1.2. Commuter Rail Network Project
1.1.3. Urban-Rural Mobility Integration Plan
1.1.4. Urban Freight Transport Program
1.1.5. Orbital Ring Road Projectv
1.2.3. Intermediate bypass project for public transport
● 1.2.4. Nueva Alameda Providencia Project
2.3.1. Waste management technology center
5.1.1. Regional Infrastructure Plan 2041
5.3.4. City-city horizontal cooperation program

● Iniciativa priorizada por Santiago Resiliente



Section VII

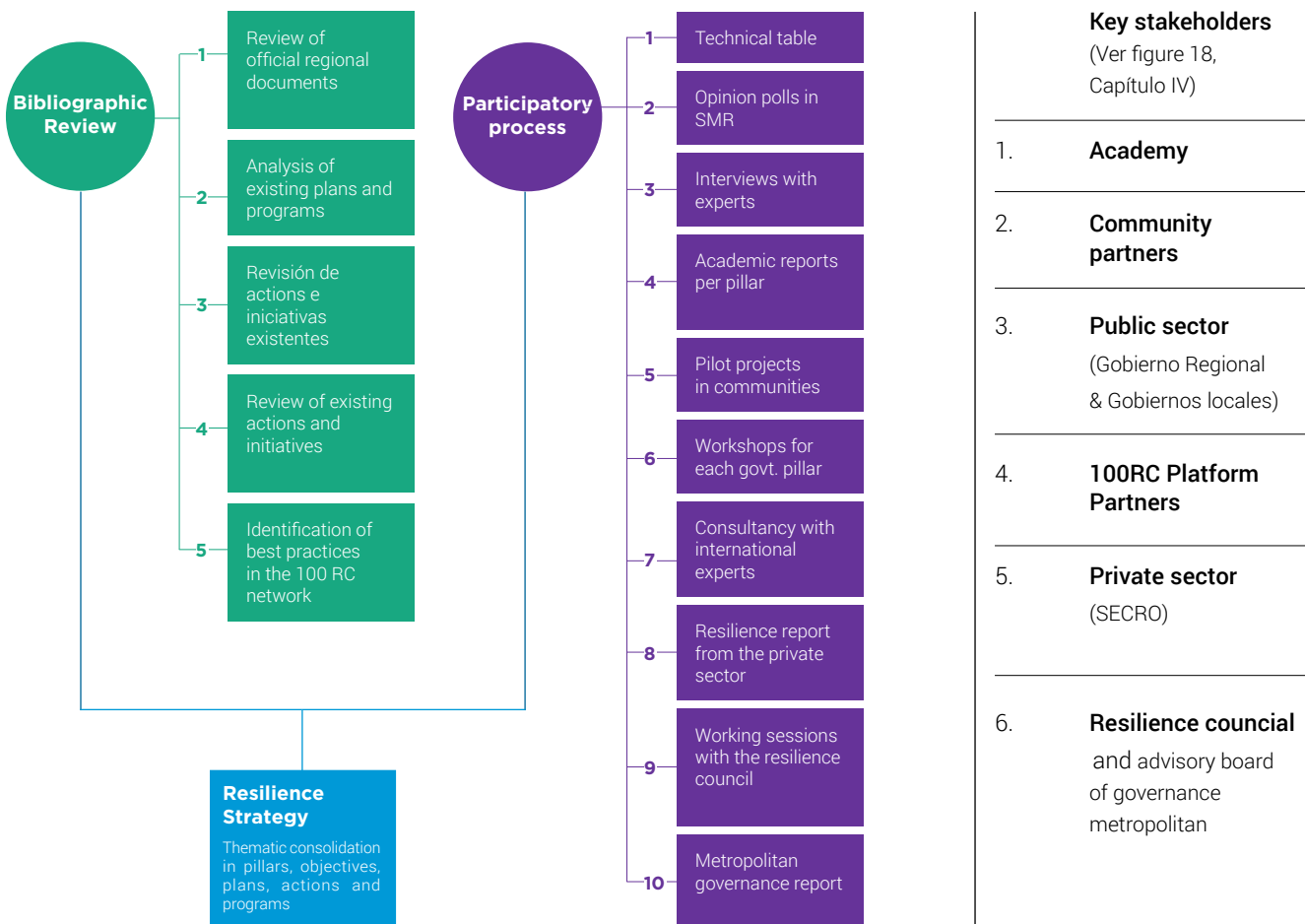
APPENDIX

7.1. METHODOLOGICAL PROCESS OF THE HUMAN AND RESILIENT SANTIAGO STRATEGY

As described in Chapter IV, the Human and Resilient Santiago Strategy had a participatory and innovative methodological process. The process is summarized by the integration of two main milestones: a) bibliographical review and b) participatory process. Each one was developed with the participation of the key stakeholders (See diagram of key stakeholders, chapter IV) and was associated to different tasks described below:

- a) Bibliographic review.**
- b) Participatory process**

Figure 19. Detail of components of the methodological process of the Santiago Strategy



a. BIBLIOGRAPHIC REVIEW.

1. Review of official regional documents. Strategic planning documents that could potentially guide the development of the Resilience Strategy were analyzed, including strategies, development plans and programs prepared by different public divisions that included certain guidelines to build a regional approach. Among others, the documents described in figure 16 stand out.

Figure 20. Base documents

1. Regional Development Strategy
2. Regional Policy for the Development of Isolated Localities
3. Regional Policy of Green Areas
4. Regional Innovation Strategy
5. Regional Diagnosis of the Metropolitan Region of Santiago. DIPLADE 2012
6. Diagnosis PSMR 2012
7. Urban and Territorial Infrastructure Plan
8. Perception and Public Opinion Study, SMR
9. National Survey of Urban Safety ENUSC
10. Proposal for Adaptation to Climate Change



2. Analysis of existing plans and programs. By means of official letters sent to different units and departments, information was gathered on plans, actions and programs that the city was developing. This was carried out in order to understand how resilience actions were being implemented in the region and who by.

Figure 21. National and international plans and programs

10. Participation in C40
11. Sendai Framework for Disaster Risk Reduction 2015 - 2030
12. National Action Plan on Climate Change
13. Towards a Chile Resilient to Disasters
14. Urban Pro-Mobility Policy
15. Santiago Camina
16. CORFO Roadmap
17. Regional Strategy for the Conservation of Biodiversity
18. Energy 2050. Chile's Energy Policy
19. National Water Resources Strategy
20. Santiago Respira



3. Review of existing actions and initiatives. A list of 659 public and private actions that are under development were compiled. From the information gathered, a characterization and grouping by common themes could be developed. The main actions identified served as a basis for the formulation of several initiatives under this strategy.

Figure 22. Sample list of public and private actions

PRINCIPIOS PRELIMINARES	TEMAS EMERGENTES	PLANES PROGRAMAS	CODIGO	ETAPA POSTULACIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	ACCESIBILIDAD UNIVERSAL PARA ESTACIONES DE LA RED DE METRO (ASCENSORES EN	MULTIPLES CODIGOS	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	ACCESO NOR-ORIENTE A SANTIAGO	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	AMPLIACIÓN CASA DE LA MUJER EMPRENDEDORA DE HUAMACHUCO RENCA	30074676	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	AMPLIACIÓN DEL SISTEMA DE BICICLETAS PÚBLICAS	NO TIENE	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	AMPLIACION, REHABILITACION Y MEJORAMIENTO AMERICO VESPUCCIO NORTE	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	AMPLIACION, REHABILITACION Y MEJORAMIENTO AMERICO VESPUCCIO SUR	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	AMPLIACION, REHABILITACION Y MEJORAMIENTO SISTEMA NORTE SUR	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	BICESTACIONAMIENTOS DE CORTA ESTADIA	30400223	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CAMPAÑA DE CONVIVENCIA VIAL	NO TIENE	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	CAPACITACION EN EMPRENDIMIENTO INDIGENA MAPUCHE, COMUNA EL BOSQUE	30124763	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION AMERICO VESPUCCIO NOR-PONIENTE	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION AMÉRICO VESPUCCIO ORIENTE PRÍNCIPE DE GALES - LOS PRESIDENTES	NO TIENE	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION AMÉRICO VESPUCCIO ORIENTE TRAMO EL SALTO - PRÍNCIPE DE GALES	NO TIENE	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION AMÉRICO VESPUCCIO ORIENTE TRAMO PRÍNCIPE DE GALES - GRECIA	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION AUTOPISTA COSTANERA CENTRAL, TRAMO AMÉRICO VESPUCCIO - LAS VIZI	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION AUTOPISTA COSTANERA CENTRAL, TRAMO ISABEL RIQUELME - AMÉRICO	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION AUTOPISTA NORPONIENTE SANTIAGO - LAMPA	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	CONCESION CENTRO DE JUSTICIA	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION CONEXION VIAL RUTA 78 HASTA RUTA 68	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION ESTACIONAMIENTOS SAN CRISTÓBAL	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION PROYECTO ORBITAL SUR SANTIAGO	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION RUTA G-21 ACCESO A CENTROS DE ESQUÍ	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION SISTEMA AMERICO VESPUCCIO ORIENTE	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESION TELEFERICO BICENTENARIO	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	CONCESION TORRE ANTENAS CUMBRE SANTIAGO	NO TIENE	FACTIBILIDAD
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESIONARIA AUTOPISTA DEL ACONCAGUA: CONVERSION A ESTÁNDAR URBANO	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	DEL ACCESO A SANTIAGO DE LA RUTA 5 NORTE	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESIONARIA COSTANERA NORTE: PROGRAMA SANTIAGO CENTRO ORIENTE	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	TÚNEL KENNEDY, ENTRE AMÉRICO VESPUCCIO - ROTONDA PÉREZ ZUHOVIC	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESIONARIA COSTANERA NORTE: PROGRAMA SANTIAGO CENTRO ORIENTE,	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	EXTENSIÓN DE LA COSTANERA NORTE ENTRE EL PUENTE LA DEHESA Y LA CALLE	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	PADRE ARTEAGA	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESIONARIA COSTANERA NORTE: PROGRAMA SANTIAGO CENTRO ORIENTE,	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	MEJORA AV. PRESIDENTE RIESCO Y AMÉRICO VESPUCCIO	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESIONARIA COSTANERA NORTE: PROGRAMA SANTIAGO CENTRO ORIENTE,	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	MEJORAMIENTO CONEXION ENTRE AUTOPISTA NORTE SUR Y COSTANERA NORTE	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONCESIONARIA COSTANERA NORTE: PROGRAMA SANTIAGO CENTRO ORIENTE,	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	MEJORAMIENTO ENLACE LO SALDES - ROTONDA PÉREZ ZUHOVIC	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	CONCLUSO 11 BARRIOS COMERCIALES	NO TIENE	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONEXION GENERAL VELÁSQUEZ CON COSTANERA NORTE	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSERVACION CAMINO PERIMETRAL PONIENTE DIEGO BARRROS ORTIZ, AEROPUERTO	30459324	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSERVACION MAYOR PISTA 17R-35L AEROPUERTO ARTURO MERINO BENITEZ	30459322	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSERVACION MENOR AEROPUERTO ARTURO MERINO BENITEZ	30447685	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSERVACION RUTINARIA AEROPUERTO ARTURO MERINO BENITEZ, AÑO 2016, ETAP	30135517	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	CONSTRUCCION COLUSEO MULTIFUNCIONAL PARQUE O'HIGGINS POR CONCESION	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSTRUCCION ESTACION DE INTERCAMBIO LOS LIBERTADORES L3	SIN INFORMACION	DISEÑO
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSTRUCCION EXTENSION LÍNEA 2 A EL BOSQUE	SIN INFORMACION	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSTRUCCION EXTENSION LÍNEA 3 A QUILICURA	SIN INFORMACION	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	CONSTRUCCION NUEVO AERÓDROMO PELDEHUE, COLINA	30084724	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSTRUCCION SERVICIO FERROVIARIO DE PASAJEROS ALAMEDA-MALLOCO	30130466	DISEÑO
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSTRUCCION SERVICIO FERROVIARIO DE PASAJEROS ALAMEDA-MELIPILLA	30431472	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSTRUCCION SERVICIO FERROVIARIO DE PASAJEROS MAPOCHO-BATUCO	30136428	DISEÑO
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	CONSTRUCCION SERVICIO FERROVIARIO DE PASAJEROS RANCAGUA EXPRESS	30116378	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	CONSULTORIA INTEGRAL TEMPLO VOTIVO DE MARIJU	30210672	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	CORPORACION REGIONAL DE TURISMO	NO TIENE	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	DIAGNOSTICO ENERGETICO DE LA REGION METROPOLITANA. ETAPA I PLAN	30480672	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	ENERGETICO REGIONAL	30145472	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	DIFUSION PROGRAMA DE TURISMO CULTURAL Y EXPRESIONES ARTISTICAS	NO TIENE	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	EXTENSION L3 DE METRO	NO TIENE	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	MOVILIDAD	EXTENSION LÍNEA 2 A EL BOSQUE Y LÍNEA 3 A QUILICURA (DISEÑO)	30395774	DISEÑO
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	GAM II	30310626	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	GÉNER (AES GENER): LÍNEAS DE TRANSMISIÓN ELÉCTRICA S/E MAITENES - S/E	PRIVADO	EJECUCIÓN
DESARROLLO, COMPETITIVIDAD E INNOVACIÓN	DESARROLLO ECONÓMICO	ALFALFA Y CENTRAL ALSALFA II - S/E ALSALFA	PRIVADO	EJECUCIÓN

4. Review of Resilience Strategies of the 100 RC Network. A comparative study of the published Resilience Strategies was carried out, in order to identify the essential components of both their content and structure.

5. Identification of best practices included in Resilience Strategies. Based on the review of the existing Resilience Strategies, best international practices were incorporated into each of the thematic axes. This reinforces relations and collaborations with other member cities of the 100RC network that share challenges similar to those faced by the SMR.

Figure 23. Revisión de estrategias e identificación de mejores prácticas



b. PARTICIPATORY PROCESS

1. Technical working groups with different sectors. The workshops were developed based on the methodology of 100 RC, to define the impacts, stresses and main challenges of the SMR. Subsequently, working groups were organized for each of the pillars. A total of 96 stakeholders from the public and private sector, civil society and academia participated.



2. SMR Opinion Survey.

Citizen perception was obtained by analyzing the Perception and Public Opinion Survey in the Metropolitan Region of Santiago with a sample of 750 people¹⁴⁵.

3. Interviews with experts. 22 experts and outstanding professionals were interviewed. The information was supplemented by inputs from two workshops, which included 115 stakeholders from the government, private entities and civil society.

4. Academic reports by pillars. It required the work of 8 academic or research institutions¹⁴⁶, who each delivered a report that deepened the information on the performance of the SMR in regards to the different resilience issues.

Figure 24. Academic reports per pillar

1. Academic report pillar: Movilidad.CEDEUS
2. Academic report: Climate Change in Santiago's Metropolitan Region, Global Change Center UC.
3. Academic report pillar: Seguridad. UAH.
4. Academic report pillar: Risk management. CIGIDEN.
5. Academic report pillar: Risk management. PRS CITRID.
6. Academic report, pillar: Economic development and competitiveness. UDD.
7. Academic report, pillar: Social Equity. FAU, UCH.



5. Pilot projects in communities. Through the implementation of applied practical experiments and citizen participation methods¹⁴⁷, the experiences of different communities were identified, and there was a mutual reflection on the future implementation of the Resilience Strategy at a regional level.

Pilot Workshop mountain foothill, Junto al Barrio Foundation.



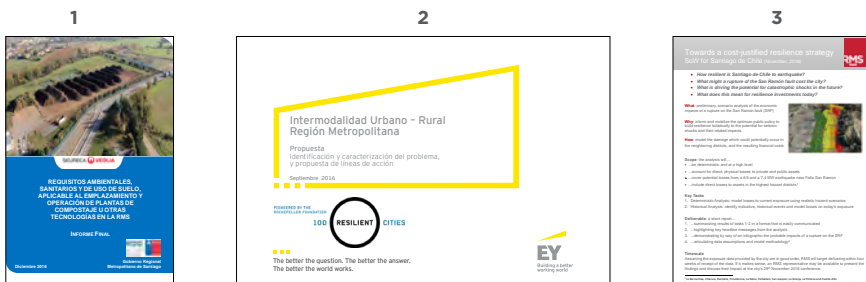


Intervention in pedestrian crossing, Ciudad emergente

6. In-depth thematic process and validation with Government representatives. With the support of the regional teams and SEREMIS, 8 in-depth thematic reports on the performance of the SMR in different resilience issues were carried out from a public perspective. Further to this, led by the Resilient Santiago Team, a workshop was held with representatives of several municipalities in the region, aimed at identifying resilience needs from a local governance perspective. Through thematic meetings, the various pillars, objectives, plans and programs were analyzed with various key stakeholders of the public sector.

7. Consultancy with international experts of the 100 RC network. Thanks to the network of platform partners provided by 100RC, in-depth reports on mobility (Ernst and Young), environment (Veolia) and a risk management assessment (Risk Management Services) were prepared.

Figure 25. Base documents



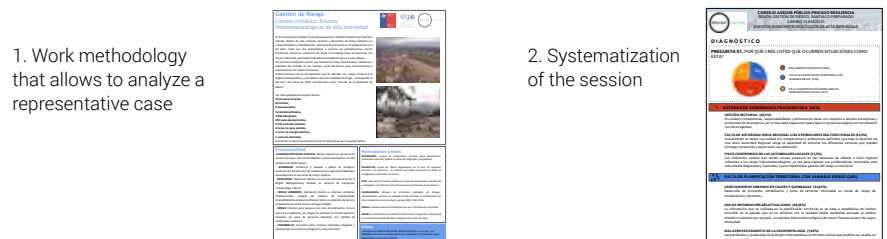
1. Environmental, sanitary and land use requirements applicable to the location and operation of composting plants or other technologies in the SMR. Veolia.
2. Urban Rural Intermodality Metropolitan Region. Identification and characterization of the problem, and proposals for lines of action. Ernst & Young.
3. Towards a co-justicized resilience strategy. Report for Santiago de Chile, Risk Management Solutions.

8. Private sector resilience report. A network of companies concerned with crisis management and resilience, named SeCRO (see “outstanding action” below), developed an input for the Strategy, which enhanced the role of the private sector in building resilience for the country.

SeCRO was created on 26th March 2015. It consists of the companies Abertis Autopistas, Aguas Andinas, CGE Distribución, GNL Quintero, Metrogas, Telefónica, Transbank and Copec. SeCRO is based on a collaborative approach on crisis management, since it is rooted in the principle that there is no single actor who has the capacity, knowledge and resources to face one by itself. SeCRO’s main priorities are to foster collaboration regarding crisis management, between companies and between them and the public sector. This is a medium and long-term initiative. The SeCRO wants to contribute to improving the channels of dialogue and communication between all stakeholders involved in crisis management, either directly or indirectly, through an innovative and proactive business culture, committed to quality of service, business continuity and the well-being of the Chilean society.

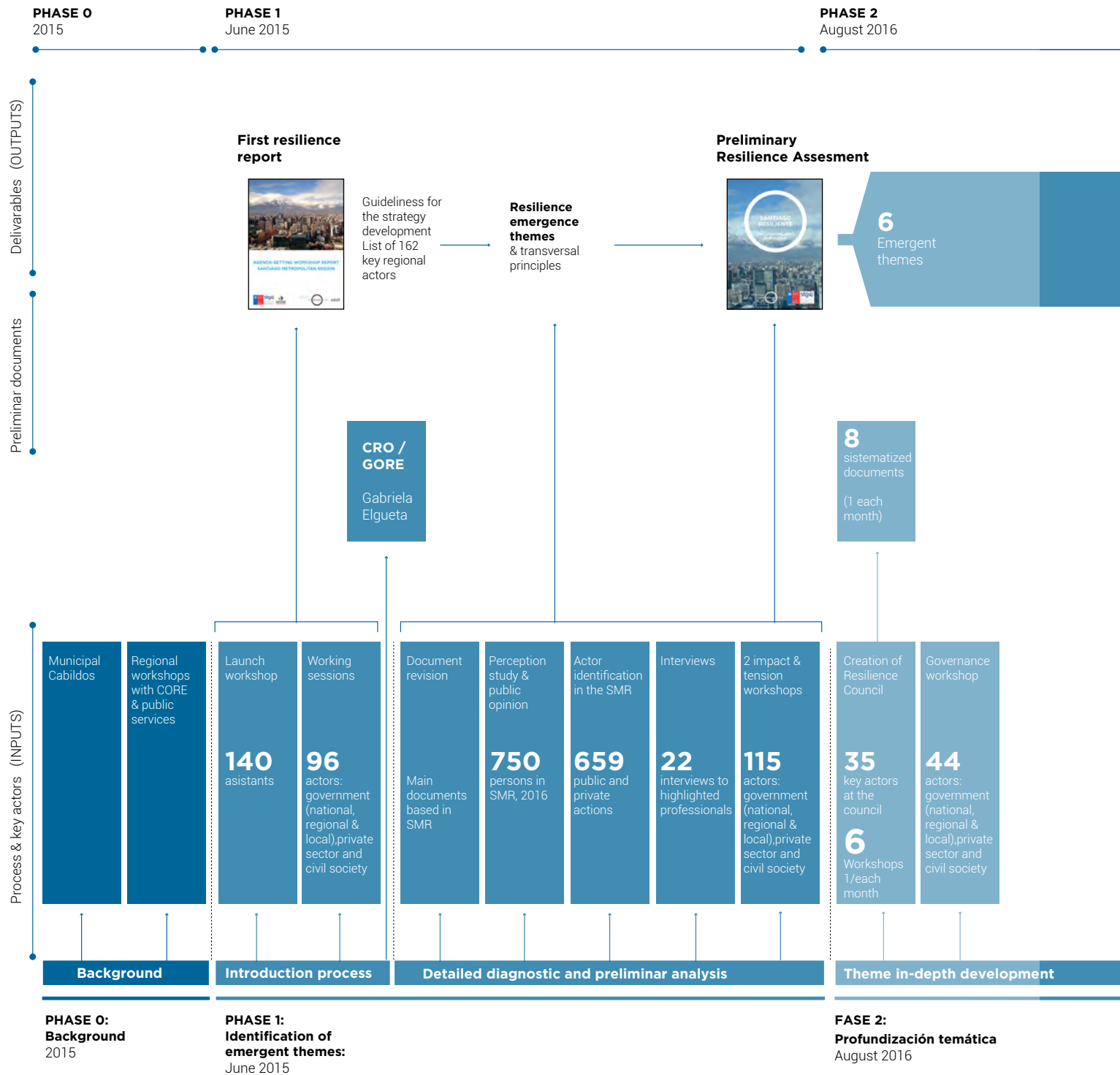
9. Work meetings with the Resilience Council. Monthly thematic meetings were held with members of the Resilience Council. The meetings were conducted in accordance to a methodology specifically created to coordinate inputs for each of the topics. In addition, systematizations were carried out to then be used as direct inputs for the development of the strategy. In order to include the city’s different key stakeholders in decision-making on issues related to shocks and stresses, a Public-Private Advisory Council has been formed. The latter meets once a month. It is made up of representatives of the public sector (SEREMIs, representatives of local governments and the Intendance), private sector (utility companies, chamber of commerce Chilean Chamber of Construction), academia, unions and social organization (For Council composition, see next page). For the meetings, the Resilience team has developed a working methodology that entails analyzing a representative case for each problem, and identifying specific lessons, recommendations and actions that can then be implemented at a regional level. This information is systematized after each meeting and sent to the participants of the working group, to then direct the proposals to the relevant stakeholders.

Figure 26. Methodology of six sessions with the resilience council



10. Metropolitan governance report The strategic partner of Santiago, ARUP, prepared a report on comparative governance systems, with successful cases from other metropolitan cities, along with an in in-depth document on Metropolitan Governance. A specific governance workshop was also organized with the Private-Public Resilience Council.

Figure 28. Process timeline of the development of the Resilience Strategy



PHASE 3
March 2017

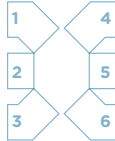
Resilience Strategy



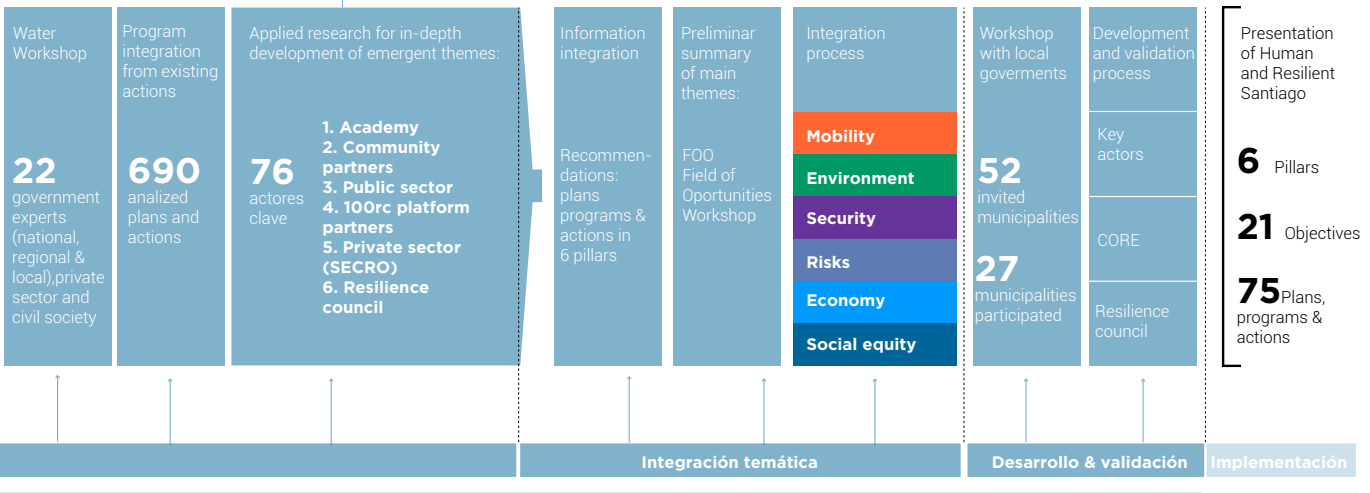
- Movilidad
- Medio Ambiente
- Seguridad
- Gestión de Riesgo
- Desarrollo Económico
- Equidad Social

See detail on Figure 19.

- 16 reports generated for emergent themes:
1. Academic research (7)
 2. Community partners (5)
 4. 100rc platform partners (3)
 5. Private sector (1)



1. Academy.
2. Community partners
3. Public sector
4. 100rc Platform Partner
5. Private sector (SECRO).
6. Resilience Council



PHASE 3: Implementation
Marzo 2017

7.2. ACRONYMS

100RC	100 Resilient Cities
ACHM	Chilean Association of Municipalities
UNHCR	United Nations High Commissioner for Refugees
AMUR	Association of Rural Municipalities
BAC	High Complexity Neighborhoods
IDB	Inter-American Development Bank
WB	World Bank
C40	Cities Climate Leadership Group
CASEN	National Socioeconomic Characterization Survey
CCHC	Chilean Chamber of Construction
CEDEUS	Center for Sustainable Urban Development of the Pontificia Universidad Católica de Chile
ECLAC	Economic Commission for Latin America and the Caribbean
CIGIDEN	Research Center for the Integrated Management of Disaster Risks
CITRID	Program for Risk and Disaster Reduction of the Universidad de Chile
CNID	National Council of Innovation for Development
COE	Emergency Operational Committee
CONAF	National Forestry Corporation
CONAMA	National Commission for the Environment
CONICYT	National Commission for Scientific and Technological Research
CORECC	Regional Climate Change Committee
CORFO	Chilean Economic Development Agency
CREDEN	National Committee for Resilience to Disasters of Natural Origin
CRF	City Resilience Framework
CRO	City Resilience Officer
DCRO	Deputy City Resilience Officer
DGA	General Directorate of Water
DGAC	General Directorate of Civil Aviation
DIPLADE	Regional Planning and Development Division
DOH	Directorate of Hydraulic Works
DTPM	Metropolitan Public Transport Directorate
EFE	Empresa de Ferrocarriles del Estado
EIU	Economist Intelligence Unit
ENPCC	National Survey on Cultural Participation and Consumption
ENT	National Transparency Study
ENUSC	National Urban Citizen Security Survey
ERNC	Non-Conventional Renewable Energy
FAU	Faculty of Architecture and Urban Planning of the Universidad de Chile
FIA	Foundation for Agricultural Innovation
FIC	Innovation Fund for Competitiveness
FNDR	National Fund for Regional Development
FOSIS	Solidarity and Social Investment Fund
GCMB	Glasgow City Marketing Bureau
GORE	Metropolitan Regional Government of Santiago
INE	National Statistics Institute
INJUV	National Institute of Youth

MDS	Ministry of Social Development
MIDEPLAN	Ministry of Planning and Cooperation
MINVU	Ministry of Housing and Urban Planning
MMA	Ministry of the Environment
MOP	Ministry of Public Works
MRI	Metropolitan Research Institute
MTT	Ministry of Transport and Telecommunications
OECD	Organization for Economic Co-operation and Development
IOM	International Organization for Migration
WHO	World Health Organization
ONEMI	National Emergency Office
NGO	Non-governmental organization
PCSP	Municipal Public Security Plan
PER	Regional Energy Plans
GDP	Gross domestic product
UNDP	United Nations Development Program
PPP	Public-Private Partnership
PRA	Preliminary Resilience Assessment
PSMR	Santiago Metropolitan Zoning Plan
PROCHILE	Program for the Promotion to the Chilean exports
PRS	Seismic Risk Program of the Universidad de Chile
PUC	Pontificia Universidad Católica de Chile
PYMES	Small and medium sized enterprises
SMR/RM	Metropolitan Region of Santiago
RSD	Household Solid Waste
SAG	Agricultural and Livestock Service
SCL	Santiago de Chile
SECRO	Crisis Management and Organizational Resiliency Service
SECTRA	Secretariat for Transport Planning
SEGEOB	Ministry General Secretariat of Government
SENDA	National Service for the Prevention and Rehabilitation of Drug and Alcohol Consumption
SERCOTEC	Technical Cooperation Service
SEREMI	Regional Ministerial Secretariat
SERNAGEOMIN	National Service of Geology and Mining
SERNATUR	National Tourism Service
SERVIU	Housing and Urbanization Service
SISS	Superintendence of Health Services
SOFOPA	Chilean Federation of Industry
TIC	Information and communication technologies
UAH	Universidad Alberto Hurtado
UCH	Universidad de Chile
UDD	Universidad del Desarrollo
UFEMUCH	Union of Municipal Officials of Chile
UNISDR	United Nations Office for Disaster Risk Reduction
UOCT	Traffic Control Operations Unit
WRI	World Resources Institute

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PUBLIC-PRIVATE RESILIENCE COUNCIL

Carlos Escobar, Aldo Ramaciotti, Fernando Soto, Velanok Vasquez, Jorge Canals, José Miguel Arriaza, Matías Salazar, Ricardo Toro, Miguel Muñoz, Rodrigo Rojas, Paulina Fernández, Sebastián Vergara, Claudia Amigo, Guillermo Muñoz, Ricardo Montecinos, Loreto Wahr, René Díaz, Pillar Urrejola, Juan Luis Quer, Claudio Muñoz, Rodrigo Pedreros, Narcis Berberana, Rodrigo Azócar, Fernando Rivas, Jorge Mas Figueroa, Fernando Herrera, Mauricio Morales, Hernan Muhlenbrock, Jorge Cáceres, Tomás Riedel, Peter Hill, Juan Francisco Velasco, Sofía Covarrubias, Francisca Riveros, Cristóbal Reveco, Javier Vergara, María Elena Ducci, Carlos Kaiser, Gonzalo Bacigalupe, Juan Carlos Muñoz, Ignacio Irarrázabal, Pía Mora, Franz Vandershueren, Carlos Guajardo, Jaime Campos, Julián Cortés, Laura Gallardo, Iván Poduje, Luis Eduardo Brescianni, Luis Valenzuela, Genaro Cuadros, Pablo Allard.

REGIONAL GOVERNMENT

Lucía Tomic, Luigi Brignardello, Loreto Wahr, Valeria Lopez, Jaime Gallardo, Álvaro Jordán, Carolina Eíng, Ana Perez, Fernando Rodriguez, Marcial Marín, Marcelo Dussert (Phase 01), Nelson Morales (Phase 01) (DIPLADE); Luis Angulo, Ignacio Saffirio (Metropolitan Area); Pablo Acuña, Mauricio Olave, Maria Jose Gaona (Communications), Darío Cabezas, Cristina Castro, Matías Paredes, Andrea García, Guadalupe Martinez

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Aldo Ramaciotti, Sergio León, Andrés Signorelli (Housing); Jorge Canals, Paola Cofré, Álvaro Ríos (Environment); José Miguel Arriaza, Sergio Versalovic, Juan Olguin (Energy); Fernando Soto, Claudio Waghorn (Economy); Matías Salazar, Pedro Vidal (Transport)

INTENDANCE

Carolina Castro, Isabel Flores, Paulina Fernández, Sebastián Vergara, Claudia Amigo, Hernán Ortega, Eduardo Alfaro, Marcelo Salinas, Fabiola Toledo, Graciela Alcayaga,

CORFO RM

Claudia Labbé, Elizabeth Diaz

ONEMI

Rodrigo Rojas, Miguel Muñoz, Macarena Silva, Katherine Lewin

UNIVERSITIES

Juan Carlos Muñoz, Víctor Rocco (CEDEUS) Jorge Gironás, Jorge Sandoval, Gonzalo Bacigalupe (CIGIDEN); Jaime Campos, Juliette Marin (CITRID); Sebastián Vicuña Muñoz (UC CENTER FOR GLOBAL CHANGE), Franz Vandershueren, Carlos Guajardo (UAH URBAN SECURITY CENTER) Camilo Arriagada (FAU) Vesna Mandakovic, Víctor Martínez, Cristian Mundaca, José Fernández (UDD); Pablo Allard, Sergio Ortega (UDD)

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PRIVATE SECTOR

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