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Securing cities:

Urban resilience as a technology of government

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## Abstract

Resilience has become a buzzword in policy and practice of 'securing' and 'developing' cities and urban populations. This study discusses the use of this concept in the context of governance of subjectivities. More specifically, reflecting its empirical focus, it poses critical questions about constructing and promoting 'urban resilience subjects', and scrutinizes the process of internalization of resilience as a self-governance technique, self-imposed on and by citizens for their own good. The purpose is to problematize resilience as a universal tool or strategy to govern cities and their inhabitants, be it in ordinary or extreme circumstances. The study ventures beyond the traditional critique of neoliberalism to ask questions about what resilience does in terms of a performative governance, exploring the disciplinary and biopolitical nature of this process.

## Keywords

resilience, governmentality, urban, cities, power, biopolitics

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## Declaration

This is to certify that to the best of my knowledge, the content of this thesis is my own work.  
This thesis has not been submitted for any other degree or other purposes.

I declare that the section of Chapter II dedicated to 100 Resilient Cities and the case study of Santiago in Chapter III are based on my original article titled 'Making a 'Resilient Santiago': Private sector and urban governance in Chile', published in the issue 6/2018 of the *Czech Sociological Review*, indexed in the Web of Science and Scopus.

I agree that the thesis be made accessible for study and research purposes.

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## Chapter I: Resilience and its discontents

### Introduction

The year 2016 was devastating for urban communities around the world. Thousands were displaced from Syrian towns and cities due to armed violence, Hurricane Matthew ripped through Haiti, killing 500 people and devastating infrastructure, China was hit by historic floods and central Italy devastated by an earthquake. November 2016 also marked a landmark event of the UN-HABITAT III Conference titled *The New urban agenda* held in Quito, Ecuador. The high level event brought together thousands of delegates from public administration, policy makers, NGOs and private sector, pledging to ‘empower’ urban communities around the world. Their message to the world was simple: *we need to build urban resilience*. Making cities resilient to crises and disruptions is supposed to be a top priority and the only way forward in the increasingly unstable - and urbanized - world.

Resilience has become the next big thing, while society, governance and politics have become increasingly urban. The past decade in which the term ‘urban resilience’ proliferated without precedent, was also a period of an enormous environmental devastation, conflicts and continued climate change. Extreme weather events claimed thousands of lives and left millions of poor urban dwellers in a state of precariousness. Yet the dominant economic model, the institutions and practices upon which it is based have gone unchallenged. Risks have been embraced as an inherent part of the contemporary life and governments have tried to come up with universal solutions for complex and unpredictable threats and contingencies. In this context, resilience of everything and everyone became the new policy buzzword. This study argues that the concept’s overuse must be accompanied by problematizing the material and intersubjective effects of the governmental transformation for which resilience has served as a convenient label. Resilience has been introduced and promoted as an

objective quality of individuals and systems in a sense of adaptability. This study, however, aims to discuss this concept in the context its material and ideational impacts. More specifically, reflecting its epistemological focus, the study poses critical questions about constructing and promoting the regulatory processes and networks informed by resilience which have had important material consequences. At the same time, it problematizes the related process of constituting 'resilient urban subjects', that is, the internalization of resilience as a self-governance technique, imposed on and by citizens on their own behalf.

The objective of this study is therefore to take a step back to examine and problematize what urban resilience means, to what ends and by whom it has been used. The sheer overuse of this term in public policy and business throughout the last decade has been staggering. With this inflation of resilience it is difficult to come up with a universally acceptable definition of the term. Crucially, however, resilience and its 'objective' meaning has been taken as a given, understood as a capacity to withstand conditions of adversity, a quality that is inherent to people, communities and systems. This conception is hereby challenged by opening up resilience, using a framework of Foucault-inspired governmentality, in a sense of governing through subjects and their everyday conduct. In other words, I understand resilience as means of *governance through society*, focusing on a set of governmental rationalities and practices that aim to 'empower' urban populations. Their declared objective is rather noble: to make cities resilient, safe, and inclusive to all. However, a closer look exposes a stark contrast between the dominant discourses and the actual practices of urban resilience informed by post-liberal governmentality. Behind the empowering language deployed by an assemblage of governmental and non-state institutions lies a construction of resilient subjects that are capable, responsible and reliable to take care of themselves, whatever the conditions they find themselves in. Needless to say that if they do not, it is due to their own incompetence and inadaptability. This process is complemented by

enabling a vast network of organizations, institutions and practices to ‘implement’ resilience on the ground.

Instead of focusing on entities, I look at *processes through which power and governance is enacted and deployed, and subjectivities that are thereby constituted*. This perspective is consistent with the above mentioned theoretical approach inspired by the work of Michael Foucault. Most notably, I draw on Mitchell Dean’s concept of *analytics of government* (Dean, 2010), and the concept of *governmentality* as understood by Barbara Cruikshank (1999). The theoretical framework builds upon the Foucauldian genealogical perspectives of resilience, such as the one compiled by Chris Zebrowski (2016). Many valuable post-structuralist contributions have been made that portray the transformation of power and governance along similar lines. The contribution of the present study lies primarily in its attempt to theorize the alternative, node-based ontology of the world by exposing the regulatory and constitutive effects of resilience and its enablers. While the focus is explicitly *urban*, the objective is to offer a broader perspective which could inform further research on different levels and scales, while problematizing the dominant and widely accepted meaning of resilience. In short, the study aims to explore how the current transformation of power and governance has played out within and among cities, and with what consequences for urban populations.

The unique set of case studies reflects the global scope and local impacts of the practices and technologies of urban resilience. The aim of the case studies is to understand the rationalities that have mobilized the concept of *urban resilience* in order to design, shape and implement a range of ‘resilience’ practices in cities across the world. Urban areas are argued to be increasingly vulnerable to various disruptions – from natural disasters and extreme weather events to political conflicts and terrorism. Urban resilience has emerged as a proposed solution to these problems – in view of governments, science and the academia, non-governmental organizations, civil society and private sector. A

remarkable growth of resilience-labelled practices, designed and implemented by complex networks of bureaucracies and private sector, have come under intense scrutiny by many critical scholars. Resilience is seen by its critics as means used by powerful governing actors to maintain their legitimacy, relevance and power, as well as to enable the emergence of 'resilient' urban subjects on the intersubjective level. It is the purpose of the case studies to highlight the the material and ideational techniques of 'building resilience' and thereby shaping both the physical and intersubjective playgrounds of governance on the local level.

The concept of resilience is at the core of an extremely powerful discourse, and thus attracts unprecedented policy attention and a considerable funding. It has effectively become a buzzword in governing cities around the world – from urban development and climate change adaptation, all the way to crisis response to civil emergencies. Given the enormous breadth and depth of 'resilience' and its applications, one of the objectives of this study is to challenge and problematize the concept and the ways it has been deployed as a universal solution to govern and secure cities.

The critique of 'governance of subjects through resilience' aligns the study with the above mentioned Foucault-inspired constructivist and post-structuralist perspectives. However, as will be discussed in the following sections, the theoretical framework is rather broader, linking and contrasting it to other similar perspectives. In order to capture the multiplicities of connections and networks which constitute the current forms of power and rule, I refer to the concept of assemblages. The concept has been used as a theoretical, ontological and methodological principle, based on complexity, interconnectedness and multiplicity. The principle of assemblages reflects both the networks of knowledge and power that are problematized, as well as the constitution of the studied empirical terrain.

The structure of the study consists of three principal chapters and a conclusion. As a part of the first chapter, the principal research questions are formulated below. Following is the debate about the ‘agency of cities’ in the context of the transformation of power and governance, with its far-reaching consequences on the conduct of states, non-governmental organizations and individuals. In the sections that follow, the theoretical framework and conceptualization are discussed, as well as the methodological approach. The second chapter is concerned with the emergence and evolution of urban resilience knowledge and policy networks throughout the last decade. Specifically, the role of two major policy-producing actors on the global level is discussed. The first is the United Nations Human Settlements Program, also known as the UN-Habitat, which has produced the most of global knowledge on urban development and resilience to date. Reflecting the nature of governance and the political economy of *global* resilience on *urban* level, the study then focuses on the philanthropic program 100 Resilient Cities sponsored by the Rockefeller Foundation. The degree and scale on which this initiative has been able to permeate 100 city administrations throughout the world sets it apart from all other existing projects focused on urban resilience. The third chapter is divided into three parallel case studies of cities that have become significant ‘playgrounds’ of urban resilience policies in the past decade. All three cities studied have had their resilience policies significantly shaped by the UN policy on one hand and the 100 Resilient Cities on the other, while their local attributes widely differ. The forms in which urban resilience has become the way to ‘colonize’ the urban space through policies, programs and campaigns in these cities are traced. Although the economic, political and social realities of the cases are markedly different, the type of actors and the governmental techniques deployed are remarkably similar.

The conclusion interprets the case studies in a condensed manner and discusses the outcomes in the context of the arguments regarding urban resilience as a set of technologies of governance. The relevance and usefulness of resilience in tackling problems of urban development and security are

fundamentally questioned. At the same time, attention is paid to resilience as an intersubjective mobilizer with a biopolitical and disciplinary effects.

## Research questions

In line with the epistemological position outlined in the next section, this study does not aim to formulate hypotheses to be subsequently validated or refuted, nor to establish causal relations between studied phenomena. Rather, several open-ended research questions are formulated in order to explore the following:

- What are the problems / challenges to which urban resilience is posed as a solution?
  - *Objective 'nature-induced' risks on one hand, and a lack of resilience on the other hand (exposure to risk and inability to withstand adversity).*
- What are the strategies that the dominant stakeholders have proposed to address these challenges? How is resilience 'achieved' through technology and governance in cities? That is, how does it work through spaces and individuals?
  - *Discussing the novel forms and strategies of regulatory power and bio-power (knowledge, funding and technology of resilience).*
- What does the above suggest about the ontology of the world in a sense of a governmental transformation reflected on the material and intersubjective level?
  - *How is the relationship between states, organizations, companies and citizens reconstituted along these lines? Is resilience the key to this transformation, or merely a concept overused to label its local effects? If so, what are the limits of resilience in terms of its relevance and usefulness?*



Before these questions are explored, the following section discusses the role that cities come to play *vis-à-vis* states in the context of networked global governance. The relevance of this phenomenon for the purposes of this study becomes evident in the following chapters. Starting on the international level of city diplomacy, the question is posed whether the agency of cities is challenging the established power structures and the existing forms of governmentality, or whether it is in fact reinforcing them.

### The role of cities on the global stage

In contextualizing the topic and purpose of the study in the field of International relations, one needs to ask about the kind of *agency* that *cities*, as opposed to (or in addition to) states, have in international politics. Before this question is explored, it is imperative to emphasize that states, as ‘traditional’ units of analysis in IR, by no means become ‘obsolete’ when other (non-state, private, local, transnational, hybrid, etc.) actors enter the IR playing field. What is indeed happening is a certain reconstitution of the rules of the game, in terms of *networked* power, authority and agency – both within nation-states and internationally. This reconstitution has to do with the organization of the global economy which is made possible and, at the same time contributes to, a substantial concentration of wealth, investment, influence and power in the hands of organizations and actors concentrated in urban areas. Indeed, an impressive body of literature has evolved around the notion of global cities (see Sassen, 1991; 2002) as hubs of the global economic system as we know it. Curtis goes as far as to suggest that the growing importance of cities as players in global politics is indicative of a significant shift in the structure of international society itself (Curtis, 2016, p. 455).

At the same time, states and their established agencies maintain most of their institutional and executive power, capable of setting and enforcing rules and standards for governing many aspects of contemporary social (and urban) life. Therefore, when talking about the networked and global

governance led by cities, one cannot disregard or underestimate the states-dominated international context from which these networks have emerged. Indeed, some scholars argue that the networks of global governance can actually be seen as *outcomes* of the state power (see Curtis, 2014). In this regard, neoliberal forms of organization – such as responsabilization of an individual, roll-back of the state, technocratic language, or partnership with private corporations, have come to define many of the global governance issues – from their rhetorical framing, all the way to proposing and implementing ‘solutions’. This is undoubtedly the case of the city-centred global governance network discussed in the following chapter. As argued by Acuto (2014), one can see a clash of two fundamental views of these networks: on one hand, a neoliberal-inspired approach which ties urban governance with actions and purposes of the private sector; on the other hand, the emancipatory approach that aims for ‘empowering’ formerly marginalized and powerless (urban) actors. Despite its declarations, the latter approach is also innately connected to the logic of privatization and other basic tenets of neoliberal governance. Hence the question about the challenging or reinforcing the established power structures and institutions, as posed in the previous section. Taking off where Michael Acuto ended with juxtaposing the neoliberal and emancipatory understanding of resilience, it can be argued that these two views are not necessarily contradictory. Resilience is used for both neoliberal and ‘emancipatory’ ends - oftentimes blending the two together. However, with careful scrutiny of its underlying logic, the emancipatory nature of resilience is put into question. It becomes evident that resilience has been dominantly used as a technology of government, enabling a proliferation of a vast regulatory network on one hand, while being deployed on the intersubjective level on the other. Chapters II and III will reveal how, despite its regulatory and governmentalist nature, resilience has managed to survive posing as a way to emancipate and empower urban populations.

The study focuses on resilience of *cities*, given the growing significance of urban centres in the global economy, the related power relationships, inequality and political struggles, all emblematic for

urban areas. Both in terms of political declarations and practices, cities have undoubtedly become central when dealing with pressing issues of global governance such as climate change, security or development. In other words, cities have been increasingly considered to be important actors in the environmental global governance; their role in the historical development of the international system has been discussed, and their mayors have taken on important positions in international politics (see Curtis, 2016, p. 460).

Cities have in many instances challenged states' and national governments' position of primacy on the grounds of effectiveness. Where states are seen as 'dragging their feet' in negotiating and implementing global climate agreements, for instance, cities are considered to be more effective problem-solvers. City advocates argue that due to their concentration of population, infrastructure, production and consumption, cities are often places where problems arise, and thus where these need to be addressed. With regards to climate change, cities and urban areas are by far the worst polluters due to their concentrated industrial activity and transport, while their energy consumption is substantially higher than that of non-urban areas (Ljungkvist, 2014). Moreover, significant growth of coastal cities is a major cause for the loss of wetlands, adversely affecting coastal ecosystems and the surrounding areas (Bruns, 2013, p. 22). Large cities, particularly those in low-income countries, suffer from fragmentation of governance and a lack of resources needed for planning and development (Blackburn and Marques, 2013, p. 9). These issues are raised by policy makers and researchers whose theoretical and political perspectives widely differ. However, all of these assumptions place cities at the forefront of political and academic interest, and bring the 'city question' into the discussion of the transformation of power and governance in the 21<sup>st</sup> century.

Cities as complex systems are exposed to different large-scale disruptions, from infrastructure failures to 'nature-induced' contingencies such as extreme weather events, floods and earthquakes –

as well as more chronic ones such as sea level rise and pollution. Governments around the world have portrayed these as important risk factors for public health, both in their chronic and immediate variations. Last but not least, many forms of political violence, including terrorism, are also largely urban in their manifestations, although they tend to be emphasized as national security issues by national governments (Ljungkvist, 2014). All of this turns cities into sites of concentrated risk, often interpreted and acted upon by different actors given their political agendas.

In facing what they see as complex and 'omnipresent' threats to cities, municipal governments tend to initiate partnerships with international organizations, private foundations and smart city companies. These internationalized networks of urban governance and the technocratic solutions which they propose have come to characterize urban resilience practices around the world. The need of solutions to everyday security and development challenges and a lack of recognition and resources provided for this purpose by national governments have been emphasized by mayors around the world (Acuto, 2014). As the general narrative goes, slow and insufficient response of national governments has pushed many cities to search for alternative forms of organization, funding and expertise sharing. This is what, in practical terms, has given rise to new networks of governance, in their essence both global and local, as well as public and private. These networks, the novelty of their emergence, and their 'empowerment' purposes are problematized in the following sections. This is because their purpose is not only deeply regulatory, and thus in a contrast with the emancipatory rhetoric of resilience, but it is also constitutive of resilient subjects. In this regard, the role of international city associations becomes rather indistinguishable from other state and private organizations, as they become an inherent part of the established global governance network which mobilizes the resilience concept on behalf of the non-resilient populations. In effect, these organizations act as nodes in a complex model of global-to-urban governance that is the object of this study.

## Theoretical framework

This section discusses the theoretical framework that informs the research questions posed and the methods of interpretation used to explore them. The study primarily draws on a set of Foucault-inspired constructivist approaches in International relations. More specifically, an eclectic theoretical framework is offered in which a notion of governmentality meets International political sociology (IPS), most notably in its focus on practices of government and the notion of risk. The idea of governing through resilient subjects builds on the Foucauldian scholarship about bio-power which is explored in *The History of Sexuality* (1978). Ruled on the basis of bio-power, citizens, or a liberal democratic *subjects*, are understood as both “effects and instruments of liberal governance [that is, they are constantly being constituted at] micro-levels of everyday life” (Cruikshank, 1999, pp. 4-5). Cruikshank draws on Foucault in her critique of liberal forms of power which tend to imply separation of *subjectivity* of an individual and the *subjection* by another (ibid., p. 21). In other words, a distinction between subject and subjection is a false distinction, as the two are mutually permeable.

I argue that regulatory standards and processes labelled by the resilience rhetoric therefore constitute resilient subjects. The significance of Foucault’s bio-power for exploring disciplinary effects of resilience lies in the ability of this type of power to bring “life and its mechanisms into the realm of explicit calculations [and make] knowledge-power an agent of the transformation of human life” (Foucault, 1978, p. 143). In other words, resilience has become a convenient label for a continuous, everyday micro-governance of people and sites, powered by organizations, institutions and experts who produce and enforce the regulatory frameworks.

In this context, governance is understood a conduct of conduct, that is, the “forms of action and relations of power that aim to guide and shape [...] the actions of others” (Cruikshank, 1999, p. 4). In other words, the meaning of resilience as an objective quality, attribute, or a state of affairs is

problematized. Rather than an objective to be attained, resilience is understood here as a *process* by means of which conduct of people is (self)governed. It is this process, or rather, a multiplicity of processes, that is the focus of this investigation. Challenging the assumption that the emphasis on resilience signifies empowerment, and a certain roll-back of neoliberal state, it is argued that this concept has become to represent a barely novel, subtly invasive strategy of governance. The meaning of resilience is therefore opened up and its logic and intentions are problematized. Also, the novelty or the ground-breaking nature of urban resilience for development and security of cities and citizens is called into question. Understood as means of internalizing governance into their everyday lives, thinking and practices, resilience appears to be merely a fresh label for a long-existing mode of subtle power projection.

It is useful to consider the importance and power of knowledge and the actors that produce it, legitimizing resilience as a principle of survival and growth. One of the objectives is to explore a set of powerful and mutually interconnected organizations whose purpose is to produce knowledge, standards and regulations to define 'resilient' urban living. The power of knowledge and its role in policy making has been widely researched. As defined by Diane Stone, "knowledge networks incorporate professional associations, academic research groups and scientific communities that organize around a special subject matter or issue" (Stone, 2002, p. 2). The knowledge network identified in this study is a dynamically changing and heterogeneous one, and yet incredibly powerful. In addition to defining the organizations and actors that are part of it, this study goes one step further to link the material and non-material products of this knowledge-power mechanism. Indeed, much of the production and implementation of 'resilience knowledge' has an important material component to it. A network of organizations and agencies defines resilience standards and implements them through technology such as surveillance devices, safety barriers or flood prevention infrastructure. These become powerful tools of governing urban spaces and contribute to the realisation and acceptance of omnipresent risk by city

dwellers. This is how the regulatory and material processes become intertwined with the constitutive and intersubjective ones, dynamically evolving in time and space. Thus, instead of a concept of knowledge network, which only allows for a rather flat description of actors and links between them, the concept of assemblage is adopted in order to account for the material and non-material components.

Exploring the role of transnational bureaucracies and private actors that shape urban spaces, this study also draws on principal tenets of International political sociology, also known as the Paris school.<sup>1</sup> Everyday bureaucratic decisions on all levels of global and local governance, and the related resilience rhetoric, are critically examined in terms of their underlying purposes and consequences. As noted above, the resilience knowledge legitimizes and in turn is legitimized by a complex set of actors that produce, shape and benefit from the urban resilience momentum. These actors are public, private, governmental, municipal, non-profit, local, transnational - as well as their various combinations. By establishing strategies, benchmarks and blueprints on how to achieve urban resilience, many of these life administrators claim to facilitate urban development and empower the vulnerable – from the urban poor to the wealthier, tech savvy and digitally connected citizens, constantly aware of possible risks and failures.

Local governments, global philanthropies, corporate actors and citizens thus engage in a self-perpetuating risk - preparedness dichotomy. The expertise, policies and technologies tailored to secure cities are framed as the only viable strategies to maintain acceptable levels of security and progress in a complex, chaotic and unpredictable world. Citizens turn into subjects of governance for their own

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<sup>1</sup> The scholarship of IPS is commonly associated with critical approaches of Security Studies; however, to treat the Paris school as a sub-discipline of Security Studies would be rather reductionist. Sociological approaches and post-structuralism are principal sources of inspiration for this scholarship; especially the work of Pierre Bourdieu and Michael Foucault.

sake, striving to become responsible and resilient individuals capable of managing risk. This not only shapes their built environment, but also indirectly governs their actions and behaviour in unprecedented ways.

## Governmentality

The above leads to the central concept used for the interpretation of transformative power relations - that is, *governmentality*. Its understanding is inspired by the Foucauldian definition, in which governmentality is a form of governance characterized as “conduct of conduct” (Foucault, 2000, p. 341). Closely related to the concept of bio-power, this type of governance “includes any program, discourse, or strategy that attempts to alter or shape the actions of others and oneself” (Cruikshank, 1999, p. 4). This understanding of power and its projection alters our common conception of ‘the political’. Politics and policy is no longer deployed in a top-down and linear form, shaped by a central authority and imposed upon subjects of governance. The governance model gets rather dispersed, with different actors on different levels, which can be understood as nodes within a complex web. Given this structure, the knowledge and power flows in different directions – governance is deployed in a less structured and hierarchical manner.

As noted by Chandler, the government no longer *claims it governs* - rather, it facilitates, enables, rules *through life* rather than over life, which turns everyday governance into a ‘management of contingency’ (Chandler, 2014b, p. 104). As political agency becomes blurred, and governance becomes internalized, we can no longer clearly separate political from personal, or subjection from subjectivity. Governance on the micro-level of sites and citizens is powered by “knowledge that can be organized into governmental solutions” (Cruikshank, 1999, p. 40). This process is finalized by citizens for their own good, and thereby depoliticized. In this sense, Dean refers to governing “through freedom or capacities of the governed [which turns freedom into] a technical means of securing the ends of the



government” (Dean, 2010, pp. 23-24). This interpretation problematizes the very nature of freedom in liberal democracies. In this regard, Zebrowski argues that:

*“this calls into question the very meaning of the freedom realized by resilience strategies when subjects must be governed in order for the potential of security technologies, said to represent a precondition for liberal freedom, to be fully realized”* (Zebrowski, 2016, p. 141).

In other words, governmentality as conduct of conduct is a technique of self-governance, based on a set of universally accepted notions and standards that citizens adopt and impose on themselves. As these notions rarely become challenged or contradicted, the subject of this type of governance is largely unaware that their beliefs, thoughts and actions are indeed a form of governmental practices. Thus, citizens become vehicles for transforming and reproducing the government through society. The standards by means of which ‘citizens govern themselves are in line with various truths about their nature and existence as human beings’ (ibid., p. 27), produced by particular areas of expertise and science. In the context of contemporary democratic rule, Cruikshank observes that “citizens are not born; they are made [that is, reproduced by] democratic modes of governance and social scientific ways of knowing” (Cruikshank, 1999, p. 3).

In order to open up and problematize these subtle workings of power, Dean’s term *analytics of government* is employed. As it is remarkably relevant for characterizing this type of governmental practices, it deserves to be quoted at length:

*“An analytics of government] attempts to show that our taken-for-granted ways of doing things and how we think about and question them are not entirely self-evident or necessary. An analytics of a particular regime of practices, at minimum, seeks to identify the emergence of that regime, examine the multiple sources of the elements that constitute it, and follow the diverse processes and relations by which these elements are assembled into relatively*

*stable forms of organization and institutional practice. It examines how such a regime gives rise to and depends upon particular forms of knowledge and how, as a consequence of this, it becomes the target of various programmes of reform and change.”* (Dean, 2010, p. 31).

There are two principal reasons why Dean’s conception of analytics of government becomes particularly relevant here. First, the universally accepted and ‘objective’ notion of urban resilience as a state of affairs in which a city is safe, just and inclusive, requires some careful problematization. As opposed to being a neutral attribute or quality to be attained, resilience is a fundamentally political term in that it represents not the end-state, but rather a *process of governance through individuals*. Second, the ‘regime’ of urban resilience imposes standards, benchmarks and conduct deemed as necessary in order to develop and sustain urban life. To this end, it has given rise to a powerful, institutionalized network of governance through which these standards are created, proliferate, become universally accepted and institutionalized. It is *governance through cities and citizens*, enacted by international organizations, philanthropies, companies and individuals in accordance with a set of prescribed and science-based resilience standards.

The analysis will show how the forms of knowledge that govern thinking and practices in urban governance are assembled by different actors. This knowledge then becomes embedded and universally accepted, and therefore rarely challenged. This applies to embracing governmentality techniques accompanied by a rhetoric of facilitation, development and empowerment. This process shapes the subjectivities of urban citizens, who become both means and targets of urban resilience policies. Resilience as a technique of government takes a subtle form of power projection, far from despotic expressions of brutal physical subjection and violence. Instead, in liberal democracies, power is exercised through subjects, or citizens, with their acceptance and for their own sake. This is reinforced and legitimized by a myriad of public, private and civil society actors which act on a set of universally

accepted 'standards'. These organizations and experts, employing the knowledge-power mechanism, "exhibit a will to empower, a will to represent and speak for the interests of others" (Cruikshank, 1999, p. 29).

Governing through society is by no means a novel form of power projection. It was indeed inherent to the rationality of liberal governments throughout centuries (see Dean, 2010). What is new is the scope and depth of interconnections between different 'facilitators' of the studied *urban resilience* assemblage. These have both global and local character, as geographical distinctions cease to make sense in a context of globally-spanning technological, scientific and economic systems (Collier, 2006, p. 400). In this context, our long-established understandings of power projection, free will and their alleged separation are called into question.

### Bio-power: Making resilient citizens

In light of the above described discussion of a democratic citizen-subject, the above-mentioned Foucauldian notion of *bio-power* becomes particularly relevant. Foucault distinguished "power over life [which] evolved in two basic forms [with one of them] centred on the body as a machine [and the other] on the mechanics of life" (Foucault, 1978, p. 139). The ultimate goal of governing through subjects, that is, the conduct of conduct, which ultimately aims for 'protection and promotion of the species-life of the population [constituting] political economy of security' (Foucault, 2007). In other words, governance becomes 'internalized' on the level of individuals, both in their thinking and behaviour. The subtle 'guidance' and 'facilitation' is offered based on the universally accepted standards of what it means to live and act in a 'resilient' way. The subjective acceptance and adoption of these standards by individuals is generally understood as absolutely voluntary and reasonable. The *political* nature of resilience governance is rather side-lined. Questions about what constitutes resilience, who has the legitimacy to define it, who is resilient enough and who is not and who is to be empowered to become

resilient, are also disregarded. With respect to ontology, as the resilient subject is constructed through governmental practices, it cannot properly 'exist' - rather, it must "be understood as a product of more obscure *ontopolitical* processes" (Zebrowski, 2016, p. 88, emphasis in original). In other words, it is imperative to scrutinize the "conditions of emergence of resilient populations" (ibid., p. 78), and the political implications of this process.

In the context of cities and their populations, resilience becomes enacted by a set of campaigns and projects connected to an impressively extensive administrative and bureaucratic apparatus. The latter goes well beyond national governments and includes entities of private, public and non-profit nature, which have together formed a regulatory mechanism with important material expressions in cities around the world. Several extremely influential actors, which will be fully explored in the next chapter, have produced and reproduced the universally accepted definition of urban resilience. It is on its basis that standards and benchmarks are defined, strategies are written, campaigns and projects are launched, and technologies are deployed. This assemblage has worked to create and sustain 'resilient standards' for cities, and 'resilient conduct' for their populations. The latter trickles down to the way citizens perceive themselves and themselves and their environment, the risks inherent to it and the appropriate behaviour needed to manage those risks.

In terms of the economic logic, the intersubjective process of taking control of one's life and environment for the sake of 'a greater good' reflects the basic tenets of this type of governance. Foucault uncovered how, by emphasizing agency and responsibility of humans, neoliberalism re-defined homo economicus as an 'entrepreneur of himself' (Foucault, 2010). The new conception of the policy of growth has it that the success of the developed world is due to its wide-ranging investment in human capital. In the meantime, a lack of these investments are portrayed as the reason why the 'less developed' parts of the world are lagging behind (ibid.). This assumption has both political and practical

connotations. Controlling thinking and behaviour while portraying the governance techniques as 'empowerment', 'facilitation' and 'coordination' of the vulnerable invokes some clear parallels with the 'developmental' discourse of the 1990s. Criticized by many scholars as yet another subtle way to govern, the disciplinary nature of these government techniques was thereby exposed. Referring to practices conducted by the World Bank at the time, Cammack claims that the Bank's 'solution to poverty is to improve labour productivity in developing countries by investing in "primary healthcare, family planning, nutrition and education" (Cammack, 2014, p. 191). He goes on to add that these practices represented a "deliberate institutional imperialism that was and is entirely contrary to the idea of pluralism and responsiveness to initiatives from below" (ibid.). This was an effective way of disciplining the recipients of aid in form of loans and 'developmental' programs designed to empower the vulnerable local populations.

Clear parallels can be drawn between this approach and the one labelled by resilience throughout the 2000s. Resilience seen as a disciplinary project based on the rationalities and purposes of the donor agencies (international and non-governmental organizations, banks, governments, private philanthropies) to govern through the recipients of aid. The latter takes different forms, such as capacity building projects, campaigns, initiatives and funds - all of which come with strings attached in terms of the recipients' conduct. In this context, not only the notion of power, but also the one of personal freedom is questioned. Citizens become validated based on to what extent they can lead their lives on the basis of a set of resilient standards, concerning issues ranging from financial literacy to personal health and disaster preparedness. This way, "modern freedom is the mechanism by which security is forcefully biopoliticised in the name of promoting the life and potentiality of the species" (Dillon and Lobo-Guerrero, 2008, p. 292).

Security and freedom is thus discursively connected to empowerment, traced back by Cruikshank to the governmental social programs and movements of the 20<sup>th</sup> century in the United States. She argues that empowerment is merely a technology of government, a 'method for constituting citizens out of subjects and maximizing their political participation' (Cruikshank 1999, p. 67). The notion of empowerment comes to play an important role in the 2000s when resilience emerges as a new buzzword, a cure for the ills and side-effects of growing urban inequality. Instead of challenging the dominant economic model and the shortcomings of liberal democracy, resilience builds upon and enhances these. The answer to failures in urban governance becomes *more governance*, this time with the 'empowerment' twist to it. Presented as neutral and apolitical, resilience is constructed in discourse and practice as a quality that can be attained by 'proper' thinking and conduct. This administrative practice of measurements, evaluations and bureaucratic procedures "depoliticizes the power relationships" (ibid., 1999, p. 117). However, it is clear that implying a lack of resilience of something or someone is a profoundly political act, as it opens doors to governmental intervention.

A dichotomy of *resilience and vulnerability* assumes an important part in this construction. Again, parallels can be drawn between this dichotomy and the one that characterized the social welfare debate - *power and powerlessness*. Those who are inherently vulnerable (that is, poor, underdeveloped, inadapted) cannot be useful members of society, and thus they need to be empowered to become resilient. Resilience in this reading means self-sustainment, independence and security. *Urban* resilience narrows the focus down from one on 'poor' and 'vulnerable' individuals and communities to the ones that reside in urban areas. Entire cities, therefore, become terrains for intervention in the name of urban resilience. Empirically, the nature of these interventions varies greatly, from community action campaigns to deploying surveillance infrastructure. In any case, parallels are drawn between resilience of cities, and that of individual neighbourhoods, communities and individuals. The general narrative maintains that a truly resilient city is full of resilient and empowered citizens using resilience

technology to their advantage, while vulnerabilities on any level negatively affect resilience of the city as a whole.

### Beyond the critique of neoliberalism

Much of the critical scholarly debate about resilience has evolved around the notions of inequality and social justice. In many instances, critical debate about security and development of and in cities comes down to the critique of power relations in the capitalist world economy and *neoliberalism*. The latter has been defined as an “ideology or policy model that emphasizes the value of free market competition [and is] characterized in terms of its belief in sustained economic growth as the means to achieve human progress [and] its emphasis on minimal state intervention in economic and social affairs” (Smith, 2019, not numbered). Critics of neoliberalism point to its shortcomings in terms of social justice and unequal development, often calling for a fundamental overhaul of the social-political system. The ‘usual suspects’ include national governments, multinational corporations and international organizations such as the International Monetary Fund and the World Bank (see Cammack, 2004). Quite ironically, these actors are the ones who tend to push and embrace the ‘urban resilience’ agenda. Also, these actors do appear in the analysis in Chapters II and III as the major resilience rhetoric producers whose purposes are critically examined.

Another layer of critique of neoliberalism problematizes the alleged minimal state intervention in politics and society. In many instances, regulatory practices are an important part of neoliberal governmental techniques. Arguably, placing the blame entirely on international investment banks and governments for projecting power upon the ‘powerless subjects’ flattens out the question that in fact has more dimensions to it. It reduces the governance techniques into a top-down, linear processes and bypasses the complex question of subjectivity and the agency of the subjects. The argument here is that while theoretical perspectives such as Critical political economy offer some valuable and relevant

insights, especially in singling out some key actors, one has to look beyond the critique of capitalism and its institutions in order to grasp urban resilience as a technology of government. Subjectivities of citizens, including the urban poor, are a key component of this governance mechanism. This leads to the final point on the differences between the approach adopted by this study and the one of Critical political economy - the role of empowerment. As is made clear throughout this chapter, the governmentality approach understands empowerment as yet another tool to govern through society. Meanwhile, Critical political economy fails to problematize empowerment in this way - on the contrary, it elevates it to the position of the ultimate goal. Needless to say that by doing so, it often calls for a radical reconstitution of the existing power relations, which is not a purpose of this study.

That said, many insights of Critical political economy remain highly relevant for the objectives of this study, especially for three main reasons. First, it was already stated in the Introduction that the analysis avoids any type of black-boxing of particular streams of thought. On the contrary, in order to adequately address the issues at hand, a theoretical framework in which different schools of thought are mutually permeable, is necessary. Second, the critique of neoliberalism so emblematic for Critical political economy relates it to the broad theoretical assumptions of this study. Some basic points of critique of the contemporary capitalist system and its effects on human lives and the environment are therefore shared. Third, as will become clear in Chapter III, many local actors that were interviewed in the process of data collection share the basic views which are in consonance with the scholarly works of the 'emancipatory' critical approaches. In turn, three distinctive tenets of these approaches which are relevant to the study of resilience are discussed.

The first tenet is that scholars using perspectives of Critical political economy maintain that resilience neglects a bigger picture of power. While focusing on rather compartmentalized or sudden expressions of adversity, such as natural disasters, dominant resilience approaches fail to address issues



of economic and personal hardship and thereby avoid the fundamental political questions. In other words, the neoliberal logic of resilience completely neglects chronic economic stressors which are, in many ways, more common and destructive than disasters (see Fillion, 2014). In neoliberalism, the economy is understood as an ultimate means and the goal (i.e., prosperity), from macro-economic aspects of international trade all the way to micro-issues of individual self-conduct, expressed by campaigns such as the one to promote individual financial literacy and self-reliance (see Santos, 2017). Referring to the usual suspects mentioned above, Cammack unpacks the approach of the World Bank, in a sharp contrast with its declared objectives. While the World Bank 'represents itself as a voice of powerless, women, the 'knowledge bank' [while seeking] partnerships with non-governmental organizations and civil society [its true objective is to] facilitate capitalist accumulation and hegemony [while disguising it by] policies of controlled participation and pro-poor propaganda' (Cammack, 2004, p. 190). Based on principles of liberalization and privatization, the global developmental discourse aided by regulatory frameworks encouraging individual entrepreneurship in the face of poverty and adversity are seen as signs of "deep neoliberalism" (ibid., p. 192). Despite being portrayed as a neutral, at times even an emancipatory tool, resilience remains profoundly political. Moreover, using the *ecology-rooted* concept to 'develop' human communities outright neglects the relationships of power upon which societies are built (Phelan et al., 2013).

Second, neoliberalism empowers actors that pose as 'developers' or 'protectors' of the environment, although the effects of their actions contribute to quite the contrary. The everyday global and local effects of neoliberal capitalist economy in fact exacerbate poverty and hardship of many communities around the world. Neoliberal stakeholders readily use resilience as a 'framework', but they do so in a rather 'twisted' way. This *a priori* defeats the declared objective of resilience as a way to facilitate, develop and truly empower 'the vulnerable'. Critical scholars maintain that the effects of neoliberal societal arrangements and economic globalization exacerbate the economic and

environmental risks to which communities and individuals are exposed (Filion, 2014). They claim that natural resources depletion, chronic pollution and climate change are tied to the effects of limitless globalization and industrial activity. These practical expressions of the neoliberal economic system of thought benefit certain states and actors, while leaving many others exposed to their adverse economic and environmental effects. In their analysis, Phelan et al. point out that resilience of one can threaten resilience of others, and they maintain that resilience as used in a sense of maintaining the current model of the global economy “can threaten overall Earth system stability” (Phelan et al., 2013, p. 198). This view exposes the second face of neoliberalism which is normally concealed behind its policies and programs claiming to reduce poverty, gender inequality, economic dependency, industrial pollution or climate change.

Third, and related to the previous point, Critical political economy does not outright reject resilience, or regard it as a completely lost cause in the political struggle for emancipation. However, its usefulness depends on a fundamental rethink of the way it is deployed politically (see Filion, 2014). Some scholars argue that resilience is in fact a bottom-up process which requires a wide participation of civil society (Bach et al., 2013). In this vein, scholars adopting a neo-Gramscian approach have called for a radical change and emancipation, where the objective is to bring about a “fundamental political, economic, and cultural transformation of society” (Phelan et al., 2013, p. 203). In this perspective, Adger emphasizes the human security impacts of climate change, arguing that the dominant state-centred perspective neglects issues of human “vulnerability, adaptation and justice” (Adger, 2010, p. 276). However, it has been argued above that the problem with the ‘neoliberal resilience’ is that it already works *through* the human and, by extension, the community level.

In any case, the question of empowerment is critical in the debate about resilience. However, the approaches contrasted in this section make evident the difficulty of conducting this debate in a

context where paradigms differ irreconcilably. Empowering humans and communities in the view of neoliberal and that of critical thinkers means two completely different things. Resilience appears to have been hijacked by the developmental discourse emblematic for the 1990s of 'locking the states, communities, and poor people in [which is, at the same time] presented as liberation or empowerment [while in fact it] serves the purposes of the neoliberal project' (Cammack, 2004, p. 205). Joseph argues that resilience fits perfectly with neoliberalism which aims for "the fabrication of civil society in the underdeveloped areas and the pretence that good governance is about local empowerment when it really is about removing barriers to open markets" (Joseph, 2013, p. 51). It is because of this philosophical and functional connection between resilience and empowerment on one side, and neoliberalism on the other, that I remain rather sceptical about the potential usefulness of resilience to truly 'empower'.

### Thinking in assemblages

Throughout the analysis, I refer to an *assemblages* of urban resilience *stakeholders*, defining the latter as the rhetoric-producing organizations and individuals that design standards of resilience and thereby create the space for its implementation. Beyond defining these as merely another global knowledge network, adopting the assemblage thinking allows for connecting their regulatory and intersubjective effects. Evading specific labels by its very nature, the assemblage thinking is 'less of a theory and more of a repository of methods and ontological stances towards the social' (Acuto and Curtis, 2014). The basic tenets of assemblage thinking can be traced back to the post-structuralist work of Gilles Deleuze and Felix Guattari. Their approach problematizes the existence of fixed and stable meanings, entities, and hierarchies and instead emphasizes multiplicity and change. In *Thousand Plateaus: Capitalism and Schizophrenia* (Deleuze and Guattari, 1987), which is considered to be one of the major works of post-structuralism, they introduce a concept of *rhizomes* as an 'organizational

principle' of multiplicity.<sup>2</sup> Parts of Deleuze and Guattari's work have served as a philosophical bases of various streams of contemporary assemblage thought.

In theorizing relations and associations (as opposed to structures), many scholars make references to *Thousand Plateaus*, including Manuel DeLanda (2006). In his attempt to theorize the social complexity, he aims to formulate a coherent *philosophy of assemblages* which, according to his critics, is rather counterproductive, given the basic tenets of the assemblage thinking (Bueger, 2014). DeLanda also proposes a *realist social ontology*, which can be seen as theoretically problematic, as it is at odds with the general constructive approach that underpins the assemblage thinking. In the field of relational sociology, one of the most cited scholars to date is Bruno Latour and his *Actor-Network Theory* (ANT) (2005), which has been used as reference by many authors in Science and Technology Studies (Acuto and Curtis, 2014). For her part, Saskia Sassen uses assemblages as an *analytical tool* or a method of discovery. One of her influential works in this field explores concepts of territory, authority and rights by employing assemblage thinking (Sassen, 2006).

Reducing assemblages to a 'mere metaphor', without a deeper theoretical engagement, has been met with criticism (Bueger, 2014). However, deploying assemblages as a methodological 'tool' has not been uncommon; Abramsen and Williams make an explicit reference to Sassen's 'dissassembly' of a state, in their effort to study networks of commercial private security (Abramsen and Williams, 2009). In the field of urban studies, Farías and Bender have theorized urban assemblages (2011) in their much-referenced work. They raised various political questions about cities and urban policy making, adopting the perspective of relational sociology in order to highlight the associations between cities' social and the material components. Both ANT and the assemblage thinking have gained a considerable amount

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<sup>2</sup> Rhizome serves to illustrate the multiple, non-linear and non-hierarchical patterns of meaning, interpretation, creation and existence; the emphasis on multiplicity, change and a lack of fixed or stable entities represents a sharp distinction from positivist and reason-centred streams of social science.

of theoretical attention and empirical application in the field of urban studies (see Zaidi and Pelling, 2015; Beilin and Wilkinson, 2015).

In addition to a methodological tool, as understood by many, assemblage is also a form of *ontology*, which is the way it is predominantly used in this study. A view of the social world as a variety of relational, dynamically assembled, de-assembled and re-assembled phenomena and processes offers some appealing ways of theorization. In the ‘relational ontology’ understanding, things are constituted in associations with others. In this kind of constructivist thinking, the power of ideas is important, but not more so than that of other ‘components’ of the assemblage. Therefore, both material and ideational elements matter and are constitutive of one another. The ‘flattened ontology’ implies an absence of hierarchy (Bousquet, 2014) – that is, no component of the assemblage is dominant over others. The urban resilience assemblage is constituted by constant interactions and flows of both ideational (knowledge) and material (technology, infrastructure, finance) elements gathered around this notion.

With regards to the *epistemological* stance, the assemblage logic implies that knowing is made possible by tracing, accounting for, and thus rendering visible the constitutive associations. Collier argues that “global assemblages are the actual configurations through which global forms of techno-science, economic rationalism, and other expert systems gain significance [and thus] the global assemblage is also a tool for the production of global knowledge” (Collier, 2006, p. 400). As opposed to explaining these assemblages, an interpretive researcher here aims for understanding by tracing. Latour goes on to argue that in order to depict a traced reality, a scholar should not shy away from employing a mere description (2005, p. 137). In any case, while tracing and describing the producers of resilience knowledge and rhetoric, the researcher’s own subjectivity must also be acknowledged. This shapes the research strategy and tactics, the questions asked, and those not asked. The anti-

foundationalist stance accepts the unattainability of the 'objective truth', due to the researcher's embeddedness in the social world and her own 'constructions' of social reality (see Furlong and Marsh, 2010, p. 185).

By following the circulating resilience policies and those who enact them, the researcher is part of a dynamic and constantly changing environment (in a sense of not being static, amenable to models, or reducible to variables). Also, as an assemblage is never finite or a whole, some careful delimitation of the terrain studied is imperative. Again, the theoretical stance and the subjectivity of the researcher are vital in informing the methodological decisions, strategies of data collection and thereby also the final research outcome. In this sense, research is *performative* – that is, productive of the reality we aim to understand, as explained by John Law in *After Method* (2004). In a similar vein, Schwartz-Shea and Yanow argue that evidence in this kind of interpretivist inquiry is *co-generated*, instead of being simply *collected* (2012). This approach therefore rejects the studied object as a definite, singular, or independent of our thinking.

The basis of the assemblage approach is about tracing *associations* between actors, rather than studying structures in which the actors are embedded. Assemblage thinking allows us to look *beyond* the formally established networks (usually seen as wholes), appreciate their internal and external connections, multiplicities, and shifts in particular times and spaces. In addition to identifying the existing stakeholders, the aim is to understand their mutual associations, relations, flows of ideas, technologies, infrastructures and finance – many of which bear the resilience label. Latour argues that events and phenomena attain their existence and significance *in relation to each other*, in a "very peculiar moment of re-association and reassembling" (Latour, 2005, p. 7). He argues that ANT is a way of looking at one's empirical terrain in what could be regarded as a hybrid of theory and method, both of which are based on following actors themselves and their mutual interactions. This is particularly

useful in a context where “things accelerate, innovations proliferate, and entities are multiplied” (ibid., p. 12).

In other words, assemblage thinking is about fluidity, boundlessness, constant change and interaction. Throughout the study, the concept of assemblages will be used to explore human and material components whose associations, influence and spheres of activity make them global and local at the same time. Relevant stakeholders on different levels are identified and their mutual interactions are traced to understand the dynamic networks of knowledge production, policy making, technology and practices of urban resilience. *Associations* between *objects* in this domain, both material and non-material, are what constitutes these assemblages. Thus, we are dealing with “generative capacities of actor-networks and the new entities (objects, technologies, truths, economic actors) and dimensions (times, spaces) brought into being” (Farías and Bender, 2011, p. 7).

Tracing the global and local stakeholders of resilience allows to uncover one of the most powerful global knowledge assemblages in the last decade. Perhaps due to its conceptual breadth, resilience has been adopted and applied to deal with innumerable security and development issues from national to community and individual level. Its broad usage and universal acceptance of its problem-solving nature is yet another reason to problematize its meaning. The resilience rhetoric has penetrated general policy frameworks, specific community projects as well as corporate products ranging from consultancy to technology. The following conceptualization first discusses the dominant, problem-solving understanding of resilience, which sets the context for its subsequent problematization.

## Resilience: from a problem-solving tool to a technology of government

This section first discusses an explanatory, positivist understanding of resilience, as it has been presented in the majority of literature across different fields. The primary focus, however, will be a problematization of this concept, in line with the critical approach described in the previous sections. Subsequently, several diverging meanings or interpretations of resilience will be delineated in relation to how they are most commonly used in the field.

### Defining resilience

The concept of resilience is generally understood as “the ability of a system to absorb disturbance and still retain its basic function and structure” (Walker and Salt, 2006, p. 1). More technically, it can be defined as the extent of disturbance that can be withstood before a socio-ecological system moves to a different state (Carpenter et al., 2001). Among problem-solving approaches to resilience, one can distinguish a status quo-oriented ‘engineering’ approach inspired by resilience of materials and objects (see Boin and Eeten, 2013), and an ecology-inspired approach further explored below (see Holling, 1973). Drawing on the logic ecological systems to understand and interpret resilience, Walker and Salt argue that “operationalizing resilience thinking is, in part, about getting people to cross a mental threshold into a systems mind space” (ibid., p. 117). One of the key principles in the natural, ecological, demographic and social interconnectedness of environmental systems (Pickett et al., 2014). The systems thinking and complexity have become the key terms in much of the scholarship on resilience.

In the dominant positivist and rather technocratic approach to resilience, the concept goes unproblematicized - it is considered as a positive quality of persistence, adaptability and transformability of complex socio-ecological systems (see Folke, 2006). Scholz et al. employ a problem-solving perspective to analyse relations between the concepts of risk, vulnerability and resilience. In doing so,



they draw on Walker and Salt's distinction of resilience as *specified* vis-à-vis known risks and anticipated security events and *general* as for coping with the unknown, which requires a more proactive stance (Scholz et al., 2012). In global development policy, resilience tends to be understood in a positivist sense as a framework, broken down into categories and types. For instance, the United Nations Human Settlements Programme (UN-Habitat) has used resilience as a key term in its 'roadmap' to urban development since 2007. Resilience is seen as either a *short-term* coping capacity or a *long-term* adaptation of individuals and systems under stress (UN-HABITAT, 2007a, p. 168). Given this broad definition, one can intuitively sense the wide variety of possible applications and purposes of the term in public policy and practice.

Rogers notes that the term is rooted in the Latin word *resilientia* meaning an "act of avoiding", or an 'action of rebounding' (Rogers, 2017, p. 14). The term appeared in Glossographia dictionary by Thomas Blunt published as early as 1656, and was used by Jan Amos Comenius in reference to school systems - indeed in a sense of a capacity to 'rebound' (Alexander, 2013, p. 2709). In the 19<sup>th</sup> century, it became widely used in mechanics, and the 20<sup>th</sup> century saw it proliferate in the areas of psychology and ecology (Holling, 1973), before finding its way into other social sciences, particularly sociology and human geography (Alexander, 2013, p. 2710-2712). This is where the interconnection of resilience of populations and that of their environment began to be studied. Vulnerability and resilience of cities in the context of natural disasters was explored by Pelling (2003). Vale and Campanella analysed the issue of resilience of modern cities and their populations facing disasters and destruction (2005). Smaller-scale studies focused on disaster resilience of particular communities were conducted, based on a positivist model using quantifiable variables (see Cutter, 2008).

The imprint of ecology and related disciplines was particularly influential in shaping the concept of resilience that became widely adopted in science and policy (see Folke, 2006; Metzger and Robert,

2013). Throughout decades resilience has been applied to countless systems and their elements on different spatial scales. Regardless of the variety of meanings and the political usage of the term, it is fair to say that resilience became one of the buzzwords of public policy and academia throughout the last decade. However, scholars have warned against using resilience uncritically as a paradigm. One particular argument that stands out is that the ecological definition of resilience cannot be applied to social systems without a significant distortion, because “social interaction is not reigned by the same principles as ecological one” (Alexander, 2013, p. 2713).

The academic and policy areas to which resilience was applied were significantly broadened throughout the 2000s. The term began to be used in the context of national security (see Fjäder, 2014), emergency management (especially in the United Kingdom) and risk management in finance and insurance (especially in the United States) (Rogers, 2017). These perspectives use resilience as a general principle of a multi-layered governance which opens up risk management to a range of new actors, and thereby leaves the state behind to a certain degree. Taken up as an analytical and practical tool, resilience helps to make sense of the complexity that defines the current security environment, and ‘democratizes’ the responses by engaging – and empowering – other actors.

In urban studies and related fields, *urban resilience* capacity of cities is understood their ability to continue to function amid adversity – natural or man-induced (Jacobs, 2005). A link between this perspective and the neoliberal philosophy was discussed above. An ‘ecological’ perspective of resilience highlights cyclical processes within constantly changing adaptive systems (Campbell, 2004). This ‘ecosystem’ approach is argued to work best for cities to adapt to uncertainty with regards to possible contingencies (Caputo et al., 2015). As a result of shocks, resilient urban systems will bend but not break, and eventually *bounce forward* – perhaps changed, but still functioning. Cities, their elements and functions in this understanding are therefore not stable, and must constantly evolve (Vale, 2014).

This applies to two principal components of urban resilience: physical (infrastructure) systems and human communities, both of which determine a city's resilience (Godschalk, 2003). A constant evolution and adaptation to shocks in a resilient city is related to the concept of urban metabolism (ibid., p. 137).

The ecology-based, problem-solving understanding of resilience arguably fails to problematize resilience as a political question. It attempts to apply a logic originally developed to understand the adaptability of ecological systems, such as lakes and forests, to socio-ecological systems, such as cities and communities. The limitations of this approach were mentioned above - understanding resilience in a positivist, problem-solving way reduces resilience to a set of technocratic standards. More importantly, it entirely disregards its political effects, such as the use of resilience as a technology of government regulating urban sites and residents on a micro-scale. Also, by invoking the notion of permanent complexity, governments can in fact evade responsibility in case of failure.

### Challenging resilience

Throughout 2000s, an alternative stream of literature emerged to challenge the problem-solving approaches to resilience, especially in Political science and Sociology. The ways in which resilience is used in governments' rhetoric became scrutinized with regard to the practices it tends to legitimize. That is, political questions were raised about what resilience does and to whom. Many of these approaches understand resilience as a largely neoliberal tool, employing techniques such as quantifying, measuring and indexing which uncover its regulatory and managerial logic (see Rogers, 2013). This way, the focus on resilience is actually "useful to explain the endurance of institutions and regimes" (Bourbeau, 2017, p. 31), that is, maintaining the status quo. Despite discursive implications about novelty, this process takes place along the "political and cultural narratives of the neoliberal era" (ibid., p. 32).

Through a Foucauldian lens of disciplinary power, resilience is also seen as a neoliberal form of *governmentality* which “works from a distance through a liberal rationality of governance” (Joseph, 2013, p. 41). It is understood as being embedded in neoliberalism, with the emergence of “‘resilient populations’ [being] an effect, rather the cause, of a broader restructuring of rationalities and practices comprising liberal governance” (Zebrowski, 2013, p. 160). The realization of embeddedness in the environment forces subjects to constantly prepare themselves for the unforeseeable. In this context, Schmidt claims that the “new materialism openly rejects the idea that humans possess the cognitive abilities [...] and freedom to make autonomous decisions [and thereby] rejects the autonomous human subject” (Schmidt, 2013, p. 179). The very nature of freedom in resilience thinking is therefore questioned, as human agency is understood merely in terms of goal-oriented decision making (see Schmidt, 2015). The objective is to open up the meaning of resilience to some problematization. Scholars have argued that resilience is a relatively new approach to ‘govern’ the existing complexities, which emerged in response to failures of the earlier forms of liberal governance. Despite its emancipatory twist that is often implied, resilience is not an anti-thesis of neoliberalism - in fact, it has become a new disguise for the latter, to legitimize its role and excuse its failures. It legitimization is often tied to normative and emancipatory rhetoric, and thus is very difficult to effectively counter-argue.

Resilience bears in itself a lot of political questions – who is to be made resilient, by whom, using what measures and with what purposes (Campbell, 2004; Vale and Campanella, 2005; Vale, 2014). From an academic viewpoint, research work in this field tends to oscillate between truth-seeking and policy advocacy (see Milkoreit et al., 2014), while speaking about resilience in the sense of preservation and sustainability often bears implicit a certain normative stance (Greene et al., 2004). In practice, issues of power projection, legitimacy, decision-making and resource allocation are raised. Questions are asked about the objects and objectives of resilience policies and the effects of the latter

(Vale, 2014). In other words, this term simply “means different things to different people” (Walker and Salt, 2006, p. 37).

The practical application of the term is highly diverse and context-specific. This is why across disciplines, questions began to be asked about how variables for measuring resilience are chosen (Prior and Hagmann, 2013), that is, if resilience can be measured to begin with. Some have accused resilience of being too vague to be analytically useful (Friend and Moench, 2013; Gleeson, 2015, p. 97). For others, resilience is simply an excuse to give up on sustainability<sup>3</sup> (Gleeson, 2015). The concept has also been problematized because of its acceptance on constant and unpredictable risks, connecting “security to insecurity”, which makes the former practically untenable (Kaufmann et al., 2015, p. 11). In other words, security becomes a “process of adaptation, of dealing with insecurity [by] the self-organised individual” (Kaufmann, 2013, p. 68). In this perspective, security is a continuous process carried out by its subjects, based on mitigating vulnerabilities to threats, rather than eliminating the latter (Zebrowski, 2016, p. 108). It is a promise of security by enhancing adaptive capacity of systems that are already ‘privileged’ (ibid, p. 100). Constant adaptation to risks and threats is now required on a day-to-day basis, from individual preparedness to handle austerity or extreme weather, to tackling strategic environmental issues. By mobilizing resilience, governments focus on managing effects of climate change on the grounds of its inevitability (Methmann and Oels, 2015). They can also claim resiliency of people and sites which is in fact non-existent (see Heath-Kelly, 2015).

Simply put, resilience is much more than a neutral quality or attribute of a system or an individual - it is political, above all in cases where a ‘lack of resilience’ is implied. This is because absence

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<sup>3</sup> Sustainability is also a term widely deployed by neoliberal thinkers and policy-makers. However while sustainability implies a possibility of achieving a relatively stable equilibrium, resilience takes over as a principle of constant adaptation to changing conditions (i.e., bouncing forward instead of bouncing back). It no longer problematizes the notion of constant, necessary and unlimited growth - it embraces it. This logic has some fundamental political and environmental implications.

of resilience requires a kind of external intervention. In this context, resilience-labelled security measures can be seen as undermining security of some people and populations rather than enhancing it (Coaffee and Fussey, 2015). In other words, resilience can contribute to an “(un)intended scientific justification of particular policies, projects and practices” (Olsson et al., 2017, p. 58). What resilience means depends “on the context in which it is encountered [and thus the understanding of the concept is] a moving target” (Rogers, 2017, p. 19), while one man’s resilience may be other’s vulnerability (Alexander, 2013). Articulations of resilience and their ‘objects’ vary - in this context, scholars have pointed out that there are “particular *resiliences*’ (Randals and Simon, 2017, p. 41, emphasis added). Various types of resilience have been suggested and theorized, such as the epistemic and intersubjective (Powell et al., 2014), or ‘resilience as renewal’ (see Bourbeau, 2013; Bourbeau, 2017), in order to engage the issue of emancipation.

The critique of the developmental approach to populations emblematic for resilience can be traced back to scholarly arguments inspired by Foucauldian bio-power. Focusing on a development of the underdeveloped engineered by institutions such as the World Bank in 1990s, Cammack argued that their intent was “disciplinary rather than empowering” (Cammack, 2014, p. 191). As noted above, one can observe a clear connection between the developmental discourse of the 1990s and the 2000s resilience of everything and everyone. Focusing on the everyday bodily aspects of lives of individuals, resilience is connected to bio-power both philosophically and practically. As the object of bio-power is a constant “self-repair and regeneration” of a subject (Dillon and Lobo-Guerrero, 2008, p. 287), the ability for self-improvement and adaptation is what determines whether individuals are ‘fit’ and ‘worthy’, that is, resilient (ibid., p. 291). This individual adaptability to the standardized frameworks and strategies to face complex contingencies is the basis of the biopolitical nature of resilience.

A commonly used binary of ‘vulnerability and resilience’ as the ‘problem and solution’ also deserves some problematization. Resilience-labelled policies, as well as actors who design and implement them, are informed by their own specific interests and purposes. Claiming that something or someone is vulnerable, or lacks resilience, comes with political implications. Rogers argues that resilience embeds “diverse, and sometimes contradictory, logics into the practices which it informs [while] each emergent understanding [is] embedded in the goals of those who encounter it” (Rogers, 2017, p. 13). On one hand, resilience is deployed following a neoliberal logic, designing programs and policies to ‘empower’ actors to protect high value assets and infrastructure, while disciplining marginal sites and populations, often by using rather technocratic measures. Increasing surveillance by means of CCTV cameras in British cities in the name of anti-terrorism, targeting Muslim neighbourhoods in particular, is one example (see Coaffee and Fussey, 2015). Thus, resilience comes with important material interventions in urban sites, deeply affecting their populations. Certain security and urban development measures labelled by resilience can either neglect, or outright target some populations and communities, that is, contribute to the very vulnerability that they claim to reduce.

On the other hand, resilience is used as a form of self-government in a rather subtle, but not any less invasive ways. In this vein, Chandler argues that resilience actually blurs the dividing lines between individual agency and governance (see Chandler 2014a, 2014b). Liberal governments tend to adopt the language of complexity and uncertainty, and emphasize the *responsibility* and *capability* of individuals to deal with adversity. In fact, this strategy makes it possible for governments to *evade responsibility* in case of failure. Resilience therefore enables liberal governments to shape the intersubjective processes in the minds of the public by emphasizing complexity and risk, and thereby influence perceptions and self-governing of local actors and their everyday practices ‘for their own sake’ (see Chandler and Hynek, undated). This is consistent with the view of resilience as a technology of ‘government through contingency’ (Methmann and Oels, 2015) that works by using citizens as both

means and objects of governance. Resilient populations therefore ‘emerge in order to support the existing power and knowledge [that underpins] liberal governance’ (Zebrowski, 2017, p. 73). In the meantime, ‘resilient subject’ is constantly aware of threats and thus can never feel entirely secure (Evans and Reid, 2013). In this understanding, resilience is seen as ‘an internally generated capacity for the self-regulation or the self-policing of security risks’ (Chandler, 2016, p. 2). Referring to Foucault in *Postscript on the Societies of Control*, Deleuze discusses the emergence of ‘societies of control’ and the processes used to ‘internalize’ self-governance in new ways (Deleuze, 1992). It is clear that resilience is seen by its critics as yet another tool used for this purpose. At the same time, government agencies ‘in charge’ of resilience policies readily use the language of facilitation, enabling, capacity-building, and – above all – *empowerment*, primarily as a legitimization strategy.

### Effective reading of resilience

I have argued that resilience has become a firmly embedded governance technique. It has been used as a “powerful depoliticising or naturalising scientific concept and metaphor when used by political regimes” (Olsson et al., 2017, p. 59) in legitimizing their agendas and constructing resilient subjects. Understanding the conditions of emergence of resilience is key. In this context, a number of valuable scholarly contributions have been made to problematize resilience by employing the genealogical perspective, which is based on:

*“critical inquiry of into the historical conditions enabling the emergence of values .. [which] aims to render explicit the historical conditions under which resilience has risen to prominence as the principal value orienting neoliberal security practices in the twenty-first century”* (Zebrowski, 2016, p. 4).

Following the parallels between neoliberalism and ecological resilience, Walker and Cooper look back at the ecological push emblematic for the 1990s. In this context, the *market* was portrayed as the only viable solution to the undeniable effects of climate change and adversity that affected many



parts of the 'developing' world. The answer of global governance institutions such as the World Bank was a widespread "securitization and financialization of the biosphere" (Walker and Cooper, 2011, p. 155). Opening up for the private solution providers was - and continues to be - regarded as an effective way of dealing with failed development, lack of security and of resilience. However, the goal is no longer to bring the post-colonial world to the level of development enjoyed by the West. Rather, the goal is the mere *survival* of the South, overcoming the effects of unprecedented growth and modernization of the fortunate parts of the world. The notion of resilience, and the related concept of sustainability, have lost so much of their original meaning that it becomes almost cynical to use them in the context of development. As it is no longer possible to claim that development and relative affluence are for everyone, the focus moves to the ability of the resilient individuals (represented by poor urban populations of the Global South) to thrive in and despite of the conditions of constant adversity. Walker and Cooper conclude their genealogical analysis by arguing that:

*"the resilience perspective demands not so much progressive adaptation to a continually reinvented norm as permanent adaptability to extremes of turbulence [...] whether we look at discourses of 'sustainable development' or the regulation of global finance, resilience risks becoming the measure of one's fitness to survive in the turbulent order of things. The criteria of selection may well have shifted. Yet, in the last instance, for all its flexibility, the resilience perspective is no less rigorous in its selective function than Darwinian revolution"* (Walker and Cooper, 2011, p. 156).

The authors also discuss the emergence of resilience in the United States in the fields of financial markets and homeland security. They trace the interconnections between the above mentioned ecological concept of resilience, rooted in complex adaptive systems, and neoliberal philosophy, specifically that of Friedrich Hayek (ibid., p. 144). They also draw on Holling to show how

the basic principles of resilience align with neoliberalism in that they both depart from an assumption of “inherent crisis tendencies of complex adaptive systems” (ibid., p. 147). Emphasizing complexity and rejecting government interventions are therefore seen as prerequisites for the ‘natural’ adaptive capacity, a ‘non-linear emergent self-organization’ (Zebrowski, 2016, p. 87). In other words, neoliberalism can use resilience as a functional principle that defines contemporary economy and society. Markets and populations are both seen as complex systems which perform best when left alone to cope with adversity. It is based on the assumption that crises will inevitably occur - when they do, both markets and communities have an innate resilience capacity to cope with their effects.<sup>4</sup> A direct interference of governments in this process does nothing to help - on the contrary, it can be jeopardize the natural resilience mechanism. Walker and Cooper point out that the complex systems theory endorsed by neoliberalism generates the conviction that the

*“perturbations of greater or lesser force are not only inevitable; they are also necessary to the creativity of organized complexity. Here we in essence the anti-environmentalism of the neoliberal think-tanks when they insist that social and ecological systems will evolve most productively once liberated from the counter-evolutionary control of the interventionist state”* (Walker and Cooper, 2011, p. 150).

Much of the governmental resilience rhetoric builds on the assumption that citizens possess an innate resilience capacity to overcome adversity. At the same time, there is in fact a powerful network of regulatory organizations designed to build resilience of the non-resilient subjects. One of the public policy fields in which this thinking has become apparent is domestic or national security, witnessing a strong resilience rhetoric on both sides of the Atlantic. In tracing the evolution of emergency management in Britain, Rogers documents the way policies and practices changed over the

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<sup>4</sup> This principle was practically defied by enacting the ‘emergency economic stabilization’ measures, commonly known as bailout of banks, following the financial crisis of 2007. The measures were legitimized on the basis of alleged extreme circumstances requiring extraordinary measures.

years, reflecting both the economic and political realities at any given time.<sup>5</sup> While 1970s and 1980s were dominated by a focus on internal crises, the regional and international emergency crises of 2000s resulted in merging civil defence and civil protection into “civil contingencies” (Rogers, 2017, p. 18). These would encompass all kinds of crises and disasters - natural or man-induced - such as infrastructure failures, extreme weather, floods or terrorism. It is in this context that the term of resilience appears in the *Civil Contingencies Act* of 2004 (see The National Archives, 2004). Building on the concept of network society, Zebrowski explored how the UK contingency policies reflected the ones adopted at the time by the British military, all geared towards the notion of the “UK resilience” (Zebrowski, 2016, p. 115). The policies of the 2000s were aimed to enable multi-agency collaborations to mitigate impacts of adverse events by “empowering the local responders” (Rogers, 2017, p. 18), optimizing government expenditure in the process. Similarly, addressing Homeland security in the United States, Walker and Cooper observe that post 9/11, the dividing lines between civil contingencies, ecological disasters and terrorism became increasingly blurred. The creation of the Department of Homeland Security in 2002 under the Bush Jr. Administration represented an institutional expression of this process reflected in the “culture of preparedness” (Walker and Cooper, 2011, p. 153). The impressive merger included agencies from across numerous Departments of the Federal Government, including customs, immigration, transport, emergency management, and cybersecurity (DHS, 2018). The sheer breadth of fields and issues that were thereby placed under the authority of a single Department was unprecedented. The subsequent strategic documents of the United States Federal Government adopted the notion of ever-present risk. The “culture of resilience [turned] crisis response into a strategy of permanent, open-ended responsiveness” (Walker and Cooper, 2011, p. 154). This is consistent with the principle of designing resilience into both physical sites and subjective behaviour,

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<sup>5</sup> A valuable genealogical analysis of the British civil contingencies system can also be found in Zebrowski - *The Value of Resilience* (2016).

in order to face and withstand contingencies. Again, while this might seem to indicate a decisive roll-back of the state, pushing for resilience still amounts to governance, although the form of its projection is radically different and the regulatory mechanism becomes transformed.

The question of whether resilience can be truly emancipatory can, in this perspective, can hardly be answered with a resounding yes. Despite its undeniable potential, it appears that resilience has been hijacked by governments, international institutions and private sector to be deployed on their own terms. Community resilience serves as a tool designed to empower communities in a top-down manner and, at the same time, one that is accepted by citizens on an intersubjective level. This constitutes a win-win situation for contemporary liberal regimes, as it allows them to use resilience to connect the “positivism of social science with the emancipatory project of liberalism” (Zebrowski, 2017, p. 64). This in turn nullifies the value of empowerment, as it is not philosophically and practically underpinned in a way that could lead to a systemic change. Empowering the vulnerable cements the place for the latter at the bottom, where they require a helping hand in order to become valuable resilient subjects, fit to survive and thrive against all odds. This not only degrades the value of human agency, as was discussed above. It also diminishes the responsibility of governments, and in fact legitimizes this move as a step toward an unprecedented liberation of citizens undertaken by their own means and for their own good.

The cynical perspective of resilience invokes many of the arguments discussed in previous sections. The second chapter will discuss the role of some key stakeholders that have become part of the global assemblage of urban resilience. Their practices have been criticised for failing to bring any workable solutions to the issues of profound inequality and a lack of social justice. Although this critique is valuable, it disregards the fundamental disconnect of purposes and functions of governments on one side and a true emancipation on the other. Criticising neoliberal forms of government on the grounds

of emancipation simply misses the point, as the latter was never an objective of neoliberal governments in the first place, regardless of their rhetoric. Constructing resilient subjects continues to be, in this sense, the antithesis of freedom.

Be it as it may, terms like empowerment, facilitation and enabling have become widely used in policy and practice, under the broad umbrella of 'resilience'. We now turn to the extent to which resilience has become the buzzword of the 2000s and beyond, both in different areas of policy and in the academia. The empirical context of the time, marked by crises, disasters and terrorism, helped pave the way for the adoption of a term that would be able to encompass all kinds of contingencies, while implying the key role of citizen subjects in adapting to the latter.

### The momentum of the 2000s

The political realities of the 2000s, with prolonged conflicts, devastating urban terrorist attacks and far-reaching effects of climate change, coupled with the aftermath of the 2007 financial crisis, brought the study of resilience - of systems, populations, and individuals - on to a new level. A new vocabulary was necessary to reframe - and reinforce - the ways of governing economies, societies and the Planet.

Much of this freshly labelled policy was produced in the field of climate change and its many related areas. Adverse effects of environmental disbalances, such as extreme weather, natural disasters, or chronic pollution, were newly addressed by using resilience as a means and a goal to ensure continuous growth and progress. In many ways, it is possible to draw parallels between the discourse of global resilience and the earlier programs or neoliberal development based on problem-solving regulatory frameworks designed to manage innumerable areas of social and economic life. Much of the global resilience rhetoric has been produced on the level of international organizations whose mission is to manage disasters and their effects on the environment and populations.

The key one of these continues to be the United Nations Office for Disaster Risk Reduction. Its *Hyogo framework for Action*, approved in Japan in 2005, was subtitled as *Building the resilience of nations and communities to disasters*. A relatively brief, 25 pages long document mentioned resilience 19 times (UNISDR, 2005). It called for a creation of a 'solid institutional framework' in order to overcome effects of disasters on all levels (ibid, p. 16). In addition to identifying and evaluating potential risks, it emphasized the need to utilize knowledge, innovations and education "to create a culture of security and resilience on all levels" (ibid., p. 18). It is implicit that the suggested resilience framework would not be of much use unless resilience is accepted and *internalized* by organizations, communities and people and incorporated into their everyday operations and conduct. This applies to both constant preparation, as it does to responding to particular events. The Hyogo framework therefore adopts a highly technocratic perspective of resilience, treating the latter as the capacity to absorb hazards and stresses.

From the very start of its application in 'global policy of development', resilience was used as a symbol of economic viability of communities and individuals. In July 2008, an expansive policy document was published under the title *Roots of Resilience: Growing the Wealth of the Poor*, as a result of a collaboration between the United Nations Development Programme, United Nations Environment Programme, World Bank and World Resources Institute (World Resources Institute, 2008). It offered an ambitious framework of solving global poverty, based on three principal tenets: building ownership, developing capacity and connecting rural enterprises. By highlighting examples of local entrepreneurial initiatives from across the Global South, it implied that people and communities possess an innate capacity of resilience that is expressed by their entrepreneurial skills developed amid some difficult economic and environmental conditions. The thesis of the report is that 'income from sustainably managed ecosystems can act as a stepping stone in the economic empowerment of the poor' (ibid., p. vii). The prerequisites to make this happen include 'removing barriers to rural enterprises, such as lack

of competitive markets, lack of transportation infrastructure, and lack of financial services', and building 'capacity of local organizations to manage natural resources and create viable enterprises'. This would make the poor 'economically, socially, and biologically resilient' (ibid., p. ix). This ambitious anti-poverty program resembles earlier developmental, poverty-fixing international initiatives, underpinned by regulatory frameworks of neoliberalism and bio-power. The World Bank highlights the 'deficits' in human social and institutional capital, which constitute the key difference between rich and developing countries and the primary obstacle to economic development of the latter (ibid., p. 25). In other words, poverty something that can be managed by sufficiently developing the human capital. To enable the poor, governments, funders and the communities themselves must "establish, nurture, and grow [...] natural resource-based enterprises [and thereby] culture resilience and resourcefulness" (ibid., p. 200).

Tackling the *inevitable* climate change in order to ensure lasting economic development resonated in the context of Western economies as well. The United Kingdom stands out in this respect as one of the key Anglo Saxon producers of resilience rhetoric throughout the 2000s. Its 2008, the UK Climate Change Act was the first legally binding document that set carbon emissions limitations by and for a country in order to 'prepare for climate change risks' (Committee on Climate Change, undated). In *The National Adaptation Programme: Making the Country Resilient to Climate Change* published in 2013 (Her Majesty's Government, 2013), resilience is equated with the economy and prosperity. The objective is to 'overcome the challenges [and] harness our natural resources to support growth [by means of, for instance, the] advanced breeding techniques and genetic modification [in order to] manage natural resources backed by engineering skills to enable UK to succeed in the global race'. Putting a price tag on development, the report claims that 'every £1 spent on increasing resilience now could yield £4 in damages avoided' (ibid, p. 1). This type of reductionist, monetized notion of resilience is to be achieved by a combination of government regulation, private investment and citizen participation. Five years on, not much has changed in terms of its general logic. However, the natural

science-informed perspective of climate change prospects has had a more profound and sombre effect on policy. In preparation of the National Adaptation Programme for the UK in early 2018, the focus was the ‘worst case scenarios’, implying a certainty of adverse effects of climate change in decades to come, underpinned by data concerning global temperature rise and its environmental effects (APPCCG, 2018). The acceptance of the inevitable adversities and the emphasis on individual and community adaptation remains to be at heart of resilience as used in contemporary British public policy. The focus has shifted from how to *prevent* climate change to the *mitigation* of its inevitable effects, a key to which is to be found in enabling people and cities to adapt to whatever adversities they may encounter.

This regulatory approach does not differ from the one adopted by the United States Federal Government and its various agencies. The Climate Change Adaptation Plan published by the U.S Department of State in 2014 refers to resilience 46 times throughout its 23 pages (Department of State, 2014). A significant Obama Administration imprint can be noted, especially relative to the current Administration, in that the report sustains that climate is changing as a result of human activity (ibid, p. 2). These politically relevant claims notwithstanding, the general narrative puts this report in consonance with similar documents produced across the Anglo Saxon sphere. The Department of State and its related agencies aim to develop robust resilience policies and programs to confront climate change. In doing so, they pledge to work with partners such as the United Nations technical agencies in order to increase ‘ecosystem resilience’. They also identify concrete principles of implementation, including reporting, planning and training (ibid., p. 3). The language used reflects the regulatory, institution-dominated logic and the unproblematic notion of resilience as a problem-solving pathway towards environmental and economic development and prosperity.

In the meantime, resilience continues to be posed as a counterweight to vulnerability of countries, communities and populations - most importantly, the developing ones. The United Nations



Office for Disaster Risk Reduction continues to draw on insights informed by international economic institutions which monetize risk and vulnerability, and thus to put a price-tag on resilience. In its most recent *Framework for Action* signed in Sendai in 2015, UNISDR mentioned resilience 39 times on its 27 pages. The UN Office claimed that between 2005 and 2015, disasters caused 700 thousand people to lose their lives, 1.4 million were injured and around 23 million made homeless, and more than 144 million were displaced. It calculated the damages to be at over \$1.3 trillion, with the developing countries being disproportionately affected, adding that this may compromise their ability to 'meet their financial and other obligations' (UNISDR, 2015, p. 4). The logic of economic viability permeates analyses of this kind, from countries unable to pay their debts to individuals not resilient enough to take care of their own and their families' future. The latter particularly refers to rural and urban poor that continue to be targets of the empowerment programs.

Beyond issues of climate change and economic vulnerability, resilience was not spared in the area of national security. It was not until the 2010s when the concept gained momentum in national security strategies across the board. In the North Atlantic area, explicit references appeared in national security documents of the United Kingdom, USA, Canada, or the Netherlands. In addition, Australia also started to refer explicitly to resilience in outlining its national security objectives at around the same time (see Fjäder, 2014, p. 118). Domestic security, and the related fields of emergency management and civil protection, also widely referred to resilience, as was discussed above. Despite all this, the true centre of gravity for resilience policy remained the broad arena of global governance and economic development, where policy makers across the world widely adopted resilience as a key term in fields from climate change to urban planning. The effects of this resilience push on cities and urban populations will be discussed in the following sections.

In the academia, a more widespread adoption of the term began around the year 2008, and by 2014, it became a true ‘buzzword’, as illustrated by Chart 1 below. The resilience concept started to appear more frequently in fields such as psychology, ecology, health, engineering, social work and economics. At the same time, it gained more ground in political science, sociology and many related areas and ‘subfields’ throughout the last decade. One of the indications of this trend was the establishment of a dedicated journal titled *Resilience: International Policies, Practices and Discourses* in 2013. In early 2017, *Routledge Handbook of International Resilience* was published, edited by David Chandler and Jon Coaffee.

Chart 1 below summarizes the absolute number of references to ‘resilience’ in both ‘Title’ and ‘Topic’ in the entire database of the Web of Science between the years 2007 and 2017. The horizontal axis represents the years of publication; the vertical axis represents the number of times resilience was used either in titles of publications (blue columns) or in topics of publications (red columns). It is clear that resilience appeared, though not relatively as frequently, in publications throughout the 2000s. As was noted previously, this was the time period in which many crises and disaster events took place and, at the same time, resilience was gaining ground in international and domestic policies of finance, development, security, disaster reduction and others. A steady and significant growth of references to resilience in Web of Science entries is apparent from around 2010 on. It can be argued that while the academia reacted to the rising significance of the term in policy and public discourse, this came with a certain delay. This might have been caused by the time necessary to apply for relevant grants, conduct research, and subsequently publish the academic papers, in which there is a steady increase of resilience references between 2008 and 2013, and a more significant increase in each of the years following.

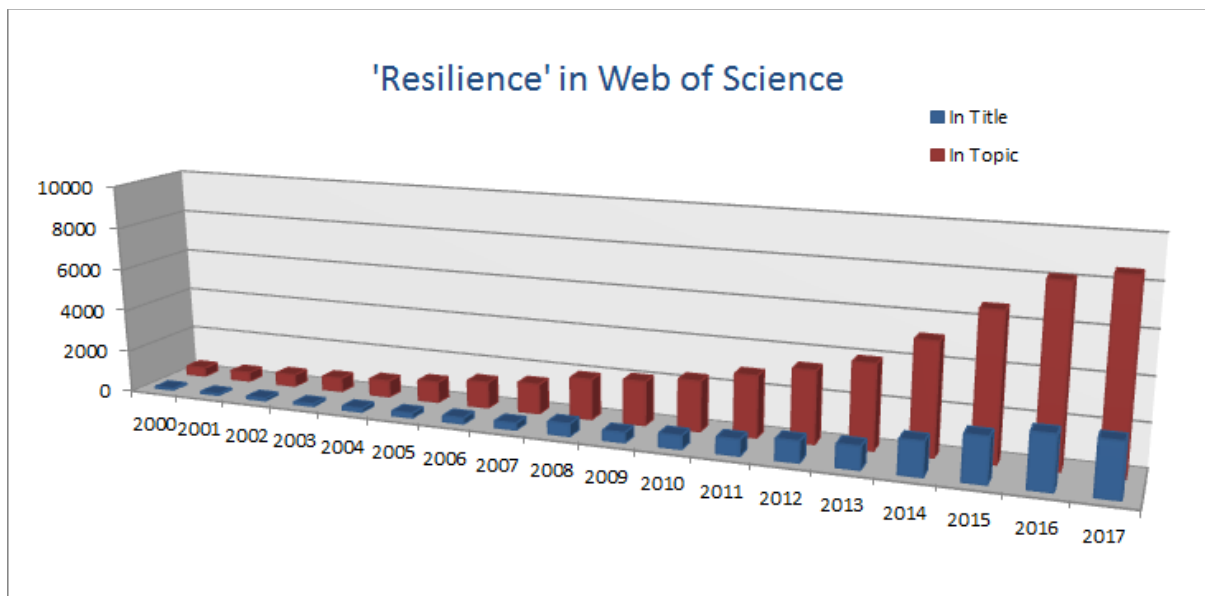


Chart 1: 'Resilience' in Web of Science. Source of data: Web of Science, author's elaboration

One could hardly find a concept that has been applied as widely as resilience has been throughout the last decade. It has been used as an all-fitting solution to problems of companies, markets, organisations, cities, communities or individuals. From the macroeconomic effects of financial crisis all the way to poverty and unemployment; from strategic challenges of urban development to a lack of basic services and affordable housing; from tackling climate change to dealing with extreme weather, chronic pollution or deforestation of specific regions and places - resilience has been advertised as a framework for action, the way forward, and the way to empower.

Upon taking a closer look, different purposes and rationalities behind the political usage of this term become evident, as will be discussed at the end of this chapter. We now turn to the 'emergence' of *urban* resilience in order to examine how this conceptual momentum has affected cities and their populations across the world.

## Urban resilience

This section is dedicated to how *urban* became the key adjective connected to resilience, and the effects it has had for policy, business and the academia. 'Urban' life and its risks have been regarded as a separate category from rural; this is because life in cities is more 'commodified, complex and socially fragmented' (Pelling, 2003, p. 60). By adding 'urban' to resilience, one manages to connect various levels of governance and urban localities across the world. With a leverage of global philanthropies and their corporate donors, cities have become the new playgrounds of resilience policy and practice throughout the last decade. Urban resilience is portrayed as a new, universal solution to all kinds of urban issues and problems. An uncritical adoption of resilience as a framework for governance of urban life is problematic due its philosophical and practical connotations explored throughout this section. As policies in this field have proliferated, so have critical scholarly analyses of the effects of resilience-labelled measures on urban spaces and populations.

Formal and informal urbanisation is booming, cities and people become increasingly connected and innovations proliferate, while inequalities remain. Urban areas around the world continue to grow amid environmental hazards, technological dependencies, societal pressures and political conflict. From earthquakes and climate change-triggered extreme weather events to infrastructure breakdowns and terrorism, cities' preparedness for the unpredictable is increasingly tested. While cities can hardly ever become "fully resilient against any conceivable threat" (Coaffee et al., 2009, p. 2), local governments are looking for novel ways to address the omnipresent urban vulnerabilities.

This type of vulnerability is expressed on multiple levels, and in multiple ways. *Human vulnerability* can be defined as exposure of an individual to risk is composed of external (structural) and internal (agency) component (Pelling, 2003, p. 55), that is, the outside risk factors and a lack of one's capacity to deal with them. It can be noted how this non-politicized understanding opens avenues for

regulatory and interventionist governance mechanisms. On a systemic level, *urban vulnerability*, or susceptibility of a city to disruption due to internal or external catalysts, is defined by complex social-ecological risk (Prasad et al., 2009). The physical concentration of people and infrastructure typical for cities leads to multiplication of risk, be it chronic or immediate, natural or man-induced, or their combination.

Urban disasters of natural origin pose conceptual and practical challenges in their own right. As noted by Vale, there is “*no such thing as a natural disaster*” (Vale, 2014, p. 200, emphasis added). Rather, natural disasters in cities are a product of opportunist governance and planning, poor choices regarding urban infrastructures and resource allocation and an irresponsible approach to the environment at large. This is in line with critical arguments about ‘environmental risk in a city [being determined by] political interests and struggles over power that shape urban environment and society’ (Pelling, 2003, p. 4). At the same time, adverse effects of global environmental change hit developing cities the hardest, while its underlying causes often originate in wealthy nations and cities (Gleeson, 2015). Largely ignoring the structural conditions that determine global revenue and income disparities, neoliberal institutions continue to prescribe standards which place the agency and responsibility with the vulnerable communities and individuals themselves. In this vein, the UN-HABITAT considers urban disasters as ‘products of failed development’ and argues for an on-the-ground, proactive approach and preparedness *ex-ante* (UN-HABITAT 2007, p. 164). This seems to be a common normative ground that shapes the policy in this field.

‘Urban resilience’ as a concept first gained its global momentum at the beginning of the 21<sup>st</sup> century, in relation to several key urban events<sup>6</sup> that can be termed as catastrophic. In addition to life loss and property damage, each of these events served as an impetus for a change of direction in policy,

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<sup>6</sup> ‘Urban’ refers to the zone of impact, more significant in urban areas due to concentration and density.

practice and academia, albeit in different ways, based on the nature of threat. This impetus has been truly global, related to the discourse of interconnectedness, complexity and unpredictability, with a pressing need to find an all-fitting framework to respond. The terrorist attacks of 9/11, the Northeast blackout of 2003, Al Qaeda-orchestrated terrorist attacks in European cities in 2004 and 2005, and the Hurricane Katrina in 2005, were among the most important disaster events of the early 2000s with significant impacts in urban areas. As a result, civil contingency planning gradually began to incorporate issues from storms and floods to mass shootings. This approach called for the involvement of local actors - including the first responders and civilians - to collaborate and mitigate effects contingencies, anywhere and anytime.

A powerful, globally assembled epistemic community has evolved around urban resilience. Across different institutions and stakeholders discussed below, one can observe a general acceptance of the inevitability risks, dangers and crises inherent to urban life. While embracing the notion of complexity, this approach has sought to design policies, programs, and measures to secure urban spaces and populations. We now turn to a set of important knowledge-producing stakeholders in order to understand the ways they have appropriated the term of urban resilience. Subsequently, perspectives of many scholars critical of the concept are brought together to explore the (un)intended consequences of this process.

### Urban resilience and global economic governance

In the policy area of urban development, the United Nations Human Settlements program, or UN-HABITAT, has established itself as key global authority. It coined the term 'urban resilience' in the Global Report on Human Settlements of 2007. Another key program came from the area of global philanthropy - 100 Resilient Cities (100 RC), funded by the Rockefeller Foundation. Since 2013, this program has served as a platform to bridge city governments and private sector, using a framework of

city resilience designed by one of their corporate partners. Due to their significance in mobilizing urban resilience on the global level, both UN-HABITAT and 100 RC will be discussed in detail in Chapter II.

Measuring, quantifying, and creating roadmaps and blueprints for urban resilience has found its way into the agenda of other influential international institutions. In addition to UN-HABITAT, other United Nations agencies and programmes have focused on urban issues, such as the United Nations Development Programme, or the United Nations Global Compact Cities Programme. International networks of cities concerned with urban resilience in different capacities are also on the rise. Examples include United Cities and Local Governments, Sister Cities International, Pacific Cities Sustainability Initiative, La Red focused on Latin America, or C40 Climate Leaders Group designed to curb carbon emissions of major cities and metropolitan areas.

Beyond these regional initiatives, global development banks have asserted by far the most powerful influence over the existing rhetoric on urban resilience. Large-scale and resilience-labelled urban development programs have been undertaken by institutions such as World Bank, accompanied by rigorous research and knowledge production along these lines. In a 2009 publication titled *Climate Resilient Cities: A primer on Reducing Vulnerabilities to Disasters* commissioned by the World Bank, it is argued that the three ‘major movements’ shaping the world today are urbanization, decentralization and the rise of domestic capital markets (Prasad et al., 2009, p. XIII). Resilience is herein explicitly linked to “the access of funds through capital markets [which is seen as] an important [climate change] adaptation initiative” (ibid., p. XIV). Concrete steps to enhance resilience of cities include “the knowledge of risks and resources, active collaboration between different stakeholders and building disaster-resistant urban infrastructure” (ibid., p. 34).

In *Building Urban Resilience: Principles, Tools, and Practice* published four years later, the World Bank yet again embraced the language of inherent complexity and risks, and introduced a ‘roadmap’

for East Asian cities to deal with the latter. The Bank's approach to urban resilience remained largely consistent, with the more recent reports focusing on the importance of data collection and processing, integration of 'risk-based approaches into urban governance', and an emphasis on investments in urban infrastructures (Jha, Miner and Stanton-Geddes, eds., 2013, p. xi). It becomes apparent that the World Bank applies the finance management language and principles to governance of cities by advocating for 'open-source risk assessment tools' in order to measure and evaluate urban resilience (ibid., p. xiii). It flattens out 'social resilience' as an ability of communities to adapt to disturbances and their 'capacity for learning and adaptation' (ibid., p. 4). It continues to quantify and monetize the suffering of the urban poor, while rendering them 'resilient', no matter the extent of disturbance that they experience. In the 2016 report *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*, impacts of disasters on well-being of the urban poor were calculated at \$ 520 billion, measured on the basis of 'consumption losses' (Hallegatte et al., 2016, p. 87). In managing the unavoidable, the World Bank suggests that the urban residents focus on 'revenue diversification, remittances, savings, market insurance and other financial instruments available' (ibid., pp. 135-136). Universal access to financial instruments is portrayed as a way to enhance resilience of the urban poor. In other words, the answer to urban vulnerability is a combination of state-designed interventions and the market.

The World Bank tends to use examples of concrete disasters and their impacts on cities and urban populations. In doing so, it draws on the resilience concept in listing the lessons learnt and outlining blueprints for everything from disaster preparedness to emergency response, recovery and relocation (see Ranghieri and Ishiwatari, 2015). Many other programs applying a similar logic can be found in the agenda of other international institutions. In Latin America, characterized by high levels of urbanization, the Inter-American Development Bank has used the term of urban resilience to imply the necessity of infrastructure investment in vulnerable urban locations, often referring to adverse effects of *el Niño* phenomenon (see Schloeter, 2017; Gallego Lizon, 2018). Urban resilience has become



a buzzword for investment banks across the world - a basic search for this term on the website of Asian Development Bank yields 9510 entries, including projects, articles, speeches, and jobs (ADB, 2018). For its part, the Organization for Economic Cooperation and Development runs its own Resilient Cities program, focusing on urban economy, society, governance and environment (OECD, undated).

Overall, it can be argued that urban resilience has gained a firm ground in the agenda of global investment banks, their rhetoric, programs and initiatives. The resilience momentum is evident worldwide, characterized by connecting the macro-economic analyses and tools to everyday behaviours of vulnerable urban populations. The analysis conducted in Chapter II will show just how similar their neoliberal approach to resilience is to the one pursued by the key actors studied, the UN-HABITAT and the 100 Resilient Cities of the Rockefeller Foundation. Before these are examined, we turn to the ways in which urban resilience spilled over into research and development and discuss the impacts of this process in terms of institutional design and knowledge production.

### Urban resilience in science and research

University research centres, think tanks, businesses and consortia have increasingly competed for funding in the field of urban resilience. Governments, private donors as well as transnational organizations have supported programmes and strategies to develop resilient and smart cities. These initiatives are focused on different domains and functions, such as urban development, infrastructure protection, disaster preparedness, governance, community engagement, sustainability, urban transportation, policing and law enforcement, communication technologies, digitalisation and data mining – often a combination thereof.

Universities from around the world have taken part in city resilience-related projects and initiatives – be it as members of consortia, or independently. In order to illustrate this trend, only a partial account of such organisations is offered here: Boston University Smart Cities Research, RMIT

University Global Cities Research Institute in Melbourne, Harvard University Working Group for Sustainable Cities, King's College London Cities Group, Loughborough University Globalisation and World Cities Research Network, Oxford University Future Cities Programme, London School of Economics Cities Programme, International Growth Programme of Oxford and LSE, Massachusetts Institute of Technology City Science, University College London Urban Laboratory, University of Berkeley Smart Cities Research Center, Trinity College Dublin Future Cities, University of Glasgow Future Cities, University of Strathclyde Future Cities Institute, University of Virginia Urban Dynamics Research Initiative, Virginia Tech Shrinking Cities Studio, or the University of Warwick Sustainable Cities. For its part, the Urban Resilience to Extremes Sustainability Research Network brings together 16 universities from across the Americas. International research centres, some of which are long-established, include Stockholm Resilience Centre based at Stockholm University, Resilience Alliance which also launched its Resilience Connections Network, or Sustainable Cities Collective which brings together policy makers and researchers in the field.

On the national level, governments around the world encourage research and development in the broad arena of city resilience. Countless universities, businesses, research clusters and networks operate in the United States, such as Urban Institute based in Washington D.C., National League of Cities which focuses on applied research, or Living Cities based in New York which is focused on social security. The United Kingdom leads this trend in Europe, reflecting a high degree of interconnectedness of resilience theory, policy and business. Technology companies clustered in London (and also elsewhere in the UK) compete in designing security solutions for sustainable, green and smart “cities of the future” (see Antrobus, 2011). Think tanks such as Centre for Cities have focused on resilience of the UK urban economies. Throughout 2000s and beyond, attempts to ‘design out’ terrorism have been on an unprecedented rise in London and other British cities (see Coaffee and Fussey, 2015). Much of research and investigation has been conducted by universities and businesses in this arena, reflecting

their underlying motives ranging from critical academic research to corporate research and development.

Urban resilience funding initiatives have also grown on the European level. The European Forum for Urban Security supports research, education and cooperation of local and municipal authorities across the EU (EFUS, undated). Governments of more than 140 major European cities participate in the Eurocities initiative which works as a city advocacy platform aiming to influence decision-making on the level of the European Union (Eurocities, undated). Major Cities of Europe is a tech-oriented initiative that brings together local governments in collaboration with universities and private sector, most notably ICT-oriented businesses. Its primary area of focus is technological innovation, most notably data-related, in the context of cities (see Major Cities of Europe, undated). Research funding platforms in Europe witnessed a significant surge of resilience-related projects. For instance, between 2013 and 2016, the European Commission's research and innovation programme funded a € 4.89 million worth HARMONISE project – *A Holistic Approach to Resilience and Systematic Actions to Make Large Scale Built Infrastructure Secure*, focused on European cities (CORDIS, 2017). Within the EC's funding scheme Horizon 2020, more than € 92 million in 2014 and € 108 million in 2015 was allocated to smart city projects (Eurocities, 2013).

### Urban resilience and the private sector

The role of the private sector in designing and benefiting from urban resilience is also apparent. Various forms of private-public partnerships between state and private organizations have been widely researched in the context of cities (Lewis and Mioch, 2005; Coaffee et al., 2009, p. 258; Booher and Innes, 2010; Chen et al., 2013). A variety of consortia and hybrid research networks have been established, such as Cities Research Cluster at the Institute of Development Studies based in Brighton, ETH Zurich Future Cities Laboratory with its branch in Singapore, or Future Cities Catapult based in

London. Smart city systems and surveillance technologies based on real-time urban data collection and analysis have proliferated. For instance, the IBM-designed “control room” constantly monitors traffic, weather, or power cuts, in the City of Rio de Janeiro (Singer, 2012). City governments around the world have commissioned global technology companies to design similar centres to monitor urban spaces and coordinate operations from policing to garbage collection. From technology to consultancy, urban resilience domain is booming with companies like ARUP, CISCO, Microsoft, Deloitte, or Siemens gaining ground, to name a few. The fact that the practical implementation of resilience is increasingly being outsourced to private companies has been widely acknowledged (Prior and Hagmann, 2013). This has been echoed with different degrees of enthusiasm in local communities and the academia. In some cities, the role of private corporations has gotten to unprecedented levels in terms of urban social and spatial control, as shown by Mitchell and Beckett on the example of New York City (Mitchell and Becket, 2008). Regardless of the critique, the role of private businesses in urban security governance now seems to be widely accepted and openly embraced.

Many local governments around the world have incorporated resilience thinking into their various functions and operations, and have pushed for outsourcing the latter by involving private companies. This long-term trend became further strengthened in the context of budget cuts to public expenditures following the global economic downturn of 2008 and onwards (see Fitzgerald and Lupton, 2015; Platts-Fowler and Robinson, 2016). As a result, city governments have increasingly pursued initiatives of coordination of local organizations, instead of top-down management of issues and contingencies. In other words, cities have been placing a bigger share of responsibility for security and development on service providers, urban communities and individuals.

A limited transformative power of resilience in terms of governance is apparent here; while relations of power and agency become reconstituted to a certain degree and political accountability is

spread out across different actors of private and public nature, the local government still remains in the role of a coordinator. Permeating through the whole of society, the responsibility to self-govern according to the scientific standards of resilience is reinforced and reproduced by a range of different actors, from international donors and private companies to civil society organizations.

The academia has not been excluded from the urban resilience assemblage - on the contrary, it has become one of its constitutive parts. Many scholars have taken a triple role in research, policy advocacy and corporate consultancy. The academic expertise from all sub-fields of urban and security research, including social and natural-oriented science, is drawn to policy making on all levels, think tanks and – crucially - business. Specific pieces of research continue to inform policy advocacy across different levels as was described above. The assumption that cities are full of risks is now universally accepted – however, the nature of these risks, and their local effects, have become increasingly scrutinized. When crucial political questions begin to be asked, different rationalities behind urban resilience discourses come to light.

### Scholarly critique of urban resilience

The 2000s also witnessed a proliferation of academic work focused on urban resilience, as was apparent in the Web of Science Chart. The literature on resilient cities and urban resilience first started to appear in two streams; first, the one of natural disasters, the occurrence of which became increasingly intertwined with human activity; second, the one of terrorism, with its spatial and social consequences for cities. Focusing on major cities of the developing world, Pelling explored the issue of urban vulnerability and resilience in the context of natural disasters (Pelling, 2003). In 2005, Vale and Campanella described the evolution of the resilience concept in the context of cities and raised the issue of *narratives of resilience* which they argued are a political necessity (Vale and Campanella, 2005). Many can recall the resilient city discourse presented in the media following the 9/11 terrorist attack

in New York, or in the aftermath of Hurricane Katrina in New Orleans in 2005. While much of the relevant academic discourse of the 2000s became dominated by terrorism, other types of natural-social contingencies and disasters proved to be much more damaging in terms of their absolute impacts (Coaffee, Wood and Rogers, 2009, p. 263).

On a more general level, scholars have analysed the multiple ways in which urban and human resilience is used politically, and what it means to act as a democratic urban subject. The historical significance of the *urban* in studying security was brought to the forefront; specifically, the interconnections between wealth, power and justice in cities (Rogers, 2012), often discussed with regards to control and surveillance of urban populations (Coaffee, Wood and Rogers, 2009, p. 4). With sudden interest in the concept of resilience came an effort to critically challenge its spatial practices, such as militarization, modernization, and managerialization (ibid., p. 218). Much of the relevant literature tends to unpack and problematize resilience of cities on the grounds of practices it informs, and the rationalities of actors that have pushed the urban resilience agenda.

Asking how resilience is used politically, critics paid attention to the everyday security practices designed to protect cities from a wide range of threats. That is, they started asking *what resilience does* to cities and urban populations. The tendency of elected officials to prefer quick fixes, visible measures, and quantifiable solutions to complex urban problems, came under scrutiny. Physical manifestations of this approach have in many instances led to a powerful securitization of urban space in the first decade of the 21<sup>st</sup> century (see Coaffee et al., 2009). As a response, the interconnections between urban infrastructures, security and politics became to be critically examined (Graham, 2010). The impacts of securing urban sites at all costs are wide-ranging, visible, and oftentimes disruptive for urban landscapes and populations. Anti-terrorist measures were incorporated into the ways cities are designed and used (see Coaffee, 2003). The strategies to deter and mitigate terrorist attacks were firmly

established in public policies throughout the 2000s, largely in response to major terrorist incidents in New York, Madrid, London and Mumbai. The techniques and tools that these policies called for were, however, often challenged on the grounds of privacy and justice. Much of the relevant scholarship offered a critical reflection of urban anti-terrorist measures ranging from defensive urban planning (Coaffee, 2009) to surveillance of urban public space (Lyon, 2003), particularly the kind that is targeting specific, already marginalised urban communities (Coaffee and Fussey, 2015). Additionally, the gradual militarisation of cities, that is, the use of military techniques and technologies employed to secure urban spaces and populations, was also challenged (Graham, 2011).

Indeed, the questions of securing urban spaces extend well beyond the anti-terrorism agenda. More chronic and structural challenges have also become subject to resilience policies and interventions. In addressing urban crime, the role and purpose of the neoliberal resilience-promising crime-consulting industry has been problematized (Mitchell and Beckett, 2008). In the context of various security interventions labelled by resilience, it is clear that this catch-all phrase is not only immensely lucrative, but also “politically exploitable” (Beilin and Wilkinson, 2015, p. 1206).

In addition to asking what resilience does, or how it is used in the field, one must also ask *by whom*. Attempting to understand the rationalities informing resilience policies in cities, it is useful to consider the types of knowledge-producing actors at play, many of which were mentioned previously. A useful summary of the latter is provided by Pelling (2003, pp. 72-83); the actors include ‘international financial institutions, national governments, private sector, international and ‘Southern’ NGOs, local NGOs, local governments, private and public international networks of cities and community-based organizations’. The array of interests and stakes of these actors, temporarily assembled around specific issues of urban governance, is considerably broad and not necessarily openly stated.

The problem is that there is no end to making cities resilient – rather, it is a constant, never-ending process, domestic and international, and used by all types of actors for all types of threats. This broad and vague understanding allows the above mentioned organizations to legitimize their preferred agendas in the broadest possible sense. Urban governance decisions are shaped by individuals and interest groups with vested interests (see Campbell, 2004). In other words, what resilience is in each city is determined by certain actors in positions powerful enough to set priorities and influence political decision making, as will become evident in the following chapters. While these actors claim to be making their cities greener, sustainable and inclusive, the policies they tend to advocate for are geared towards individual and corporate responsibilities for individual survival, risk management and economic growth. The dominant understanding of resilience consistently calls for self-reliance and individual capacity-building, while the latter is seen as a matter of will rather than any structural conditions that apply. In this vein, resilience-informed policies often imply self-help and cutbacks on social support to those in need (Beilin and Wilkinson, 2015, p. 1213).

It is clear that cities are places of unequal distribution of wealth, opportunity, poverty and risk. If resilience is understood as an ability to overcome, withstand, and learn from adversity, the structural conditions to make this possible deeply vary across cities and neighbourhoods. In this perspective, to assess resilience often implies to evaluate the social and economic capital of its referent objects. The dominant approaches to resilience do not consider this approach to be problematic. As will be illustrated in the following chapters, this prevalent paradigm breaks down city resilience into quantifiable, measurable and technical standards that can be prescribed, traced and evaluated. Their deeper meanings and effects go largely unnoticed. In the meantime, many of the existing city resilience models are based on principles of ecological resilience, which tends to disregard the socio-economic considerations which are key in cities (see Vale, 2014). Critics have pointed out that the ‘neoliberal resilience’ assumes that all city residents have an inherent power to overcome emergencies (Beilin and



Wilkinson, 2015, p. 1206). In this vein, Pelling argues that the advocates of technical and engineering approaches to resilience tend to outright ignore the ‘political, economic and social forces and disparities which define contemporary cities’ (Pelling, 2003, p. 46). In other words, resilience policy questions that still remain to be answered are “for what purpose and whose benefit” (Friend and Moench, 2013, p. 111).

It is noteworthy that some authors do indeed see a certain potential and usefulness of urban resilience as a general principle or value for the organization of lives and systems. These hopeful views tend to be connected to certain conditions regarding the concept’s use. For instance, resilience is seen as valuable as long as it becomes used as more than a catch all phrase; that is, if it challenges and engages the existing political interconnections between the environment and society in cities, and thereby brings true change (Vale, 2014, p. 198). Somewhat less political, and more ‘pragmatic’ commentators fail to problematize urban resilience, and simply equate it to cities’ ability to “self-organize and respond to crisis situations” (Godschalk, 2003, p. 138), which reflects the flattened, problem-solving understanding described earlier.

As will become evident in the following chapters, this seemingly de-politicised understanding is used in cities around the world to design and enforce standards of resilient urban life. Its implementation is carried out simultaneously on the material level, enabled by the established network of regulatory organizations, and on the ideational level, where resilient knowledge powers self-governance of individuals. Resilience is therefore used as a legitimizer of unprecedented technological and governmental interventions in cities, which is why it can be considered a technology of government. Before the channels of this governmental transformation are explored, the following section introduces the methodological approach employed in Chapters II and III.

## Methodology

The methodological approach adopted for the purposes of this study is of interpretive and qualitative kind, in line with the assemblage thinking. The set of concrete methods includes quantitative and qualitative ones, described further below. The theoretical eclecticism adopted in this study goes along with a perspective of methodological pluralism, an approach that is embraced by critical resilience scholars (see Olsson et al., 2017). This perspective is useful to study the elusive, multi-layered and political concept of resilience. The anti-foundationalist ontology mentioned above is innately connected to an interpretivist epistemology, which in turn has important methodological implications (Furlong and Marsh, 2010, p. 186). That said, there is no objective to postulate hypotheses or verify any cause-and-effect relations by measuring concrete variables. Neither does it aim to 'explain' any segment of the social reality as understood by positivist social science. Instead, the chosen methodology allows to *problematize resilience as a solution to pressing problems of urban development and security, uncover the rationalities of different actors in its use and discuss its implications on urban spaces and their residents*. The concept of resilience is critically engaged by pointing out several substantially different meanings that it acquires in the field (based on different actors and their social and political positions). The analysis of primary sources critically engages the dominant resilience narrative, along with its purposes and means of action. A critical interpretation of the findings allows for developing arguments about the transformation of power and agency in the context of the resilience momentum.

Thus, two basic tenets of interpretive research are followed: sense-making and context (Schwartz-Shea and Yanow 2012), in order to unveil the hidden dynamics which constitute the international urban resilience regime. As policy ideas and funding circulate in and among cities, it is imperative to look at how resilience is reassembled in different sites, which actors gain primacy as enablers, which are enabled, and how the process plays out in different contexts. This is possible by

deploying the assemblage-based concept of *policy mobilities* (Ward and McCann, 2012; Baker and Temenos, 2015), which allows for studying of policy circulation, challenging a policy's status as "technical, rational, neutral, and apolitical" (Ward and McCann, 2012, p. 34). Indeed, resilience is *always* a political issue, and 'following policy actors through particular sites and situations of knowledge production, political struggle and legitimation' (Temenos and McCann, 2013, p. 351) can provide some powerful clues in this regard. The policy mobilities scholarship aims to unbind the policy research from a rather rigid conception of policy transfer dominant in political science (for a summary of this critique, see Cook, 2015). The approach adopted in this study aims to highlight multiplicity, dynamism, change and proliferation of the resilience assemblage, as opposed to focusing on stabilized definitions and a rational choice framing. The focus is on its implementation across different contexts, the actors that are mobilized in the process and the differing local outcomes of this endeavour.

Drawing on the concept of policy mobilities, Chapter II is dedicated to interrogate the approaches and rationalities of two key global actors in the assemblage of urban resilience. The first is the United Nations Global Settlements Programme, or UN-HABITAT for short. The second is the 100 Resilient Cities Project of the Rockefeller Foundation. The global relevance of these two organizations in forming the resilience discourse and informing policies, programs and practices worldwide is explored in Chapter II. A two-staged content analysis of key documents produced by these organizations throughout the last decade is conducted, in order to discuss the first and second research questions posed in the Introduction. Additionally, this allows for designing an analytical frame in an inductive fashion which is in turn applied to case studies in Chapter III.

In tracing the localized mobilizations of resilience in Chapter III, a set of additional methods is adopted, drawing on McCann and Ward (2012, pp. 46-48). These include following relevant actors in situations in which policy knowledge is mobilized and assembled, such as conferences, seminars,

workshops and guest lectures. In addition, interviews with the resilience actors (primarily, but not exclusively, policy makers) and a content analysis of relevant policy documents referent to the three studied cities is carried out. Following the key actors and analysing policy outputs provides the essential basis for the arguments regarding the material and immaterial effects of resilience in cities and upon populations. On one hand, resilience of the latter ‘for their own sake’ is implied and pushed in the analysed rhetoric. On the other hand, tracing the policy ‘in the making’ allows for grasping the extent to which resilience is enacted physically and mentally, turning cities and citizens into its vehicles of implementation.

Production, mobilization and deployment of resilience-related knowledge through technology is an absolutely critical component of the analysis. In summarizing the main tenets of *cognitive assemblages* of resilience, I draw on a chapter by Srnicek (2014, pp. 40-47) from the collection edited by Acuto and Curtis (2014). He argues that epistemic communities in the technological era, with both their human and technological elements, are best understood by employing the assemblage thinking. According to Srnicek, the intersubjective social knowledge is comprised of a heterogeneous set of materials, and thus the ‘materiality of knowledge’ has to be taken into account. He maintains that “[i]n this sense, questions about a divide between the material and the ideational can also be recognized as false problems. The ideational is always material, and the constructivist is also materialist” (Srnicek, 2014, pp. 42-3). A purely ‘social’ analysis of epistemic communities therefore disregards important material elements that make cognitive assemblage possible in the first place.

Government officials, emergency management practitioners, private companies, sponsors, consultants and the empowered community actors become (temporarily) merged in this assemblage with a global scope, and, at the same time, significant local impacts. These epistemic regimes and communities which create and justify knowledge are one of the reasons why resilience has gained such

prominence globally (Ardau, 2014). However, the knowledge that is thereby generated, reshaped and deployed is by no means tied to a particular geographic location. Resilience-related ideas, policies and technologies are highly mobile across sites and scales, as becomes apparent in Chapter III. This mobility is traced by studying the similarity of the rhetoric that they produce and the globally relevant actors involved in the process. These cognitive assemblages and the actors they consist of become the major means of legitimizing the urban resilience assemblage. Citizens and communities that are the recipients and the vehicles of programs underpinned by this shared knowledge become complicit in maintaining and reproducing this assemblage.

In Chapter III, case studies of three cities and their respective networks are conducted; rather than a comparative study, these are conducted as parallel case studies. Although certain generalizations can be formulated inductively, the primary objective is to pin down the context-specificity of the three networks and their inherent dynamics. This empirics-driven and actor-following strategy is in line with the epistemology described earlier. Three case studies are structured in the same way – after exploring a set of specific resilience challenges for each city, the analytical frame designed in Chapter II is applied, focused on three principal strategies of power projection. The latter is legitimized by several broad discursive statements which are traced systematically across the three case studies, distinguishing the material and non-material expressions of resilience. The analysis also sheds light on the interconnections of the resilience assemblages within and beyond the studied cities, emphasising their geographically unlimited scope.

### Methods: Data co-generation and analysis

The concrete methods adopted in this study include quantitative and qualitative analysis of relevant documents. Chapter II is dedicated to identifying and uncovering the urban resilience assemblage on the global level, enacted in particular by two major international players: a UN

Programme focused on human settlements and a global philanthropic organization. Chapter III in turn focuses on the three parallel case studies of specific cities. As the institutional setup of the cities' governing structures differs greatly case by case, attention is paid to their historic and political contexts and the particularities of their local political landscapes. The municipal agencies and departments whose agendas are focused on resilience policy making and implementation in each city are explored. The first objective is to produce a qualitative description of the urban governance network in each case, which sets the context for the case study of the networks of public, private, local and international actors in place. Crucially, the subsequent interpretation suggests how resilience is implemented on the material and intersubjective levels in the studied cities.

The quantitative method consists of word frequency queries conducted on a carefully selected body of policy literature on urban resilience produced by the UN-Habitat and 100 Resilient Cities, respectively. This method is employed in Chapter II, paying attention to the patterns and contexts of usage of key concepts and categories within studied texts. A quantitative analysis of all the collected materials produced by the UN-Habitat and 100 Resilient Cities is conducted using NVivo 11 Starter program. In order to bring together, analyse and break down the large amount of textual material, word frequency queries relative to the key concepts are performed. This technique allows for extracting the relevant categories and elements of resilience rhetoric. In turn, a qualitative analysis and interpretation is carried out, exploring the meanings of the identified concepts and the contexts of their employment. This allows for formulating and discussing the analytical framework that is further used in Chapter III. That is where the analysis explores the understanding and appropriation of resilience in the unique contexts of the three studied cities.

The qualitative methods include content analysis of selected documents produced by the two organizations. The content analysis is employed because the most of the analysed material is purely

textual, and this method allows their “content, that is, the meaning of symbols [to be] systematized” (Bos and Tarnai, 1999, p. 660). The interpretation of the meanings is done on an intersubjective level; it connects “observation and document analysis [in which the] content of the message forms the basis for drawing inferences and conclusions” (Prasad, 2008, p. 175). The analysed material includes international and local policy papers, reports, government frameworks, strategies, declarations, press releases, conference booklets, presentations and speeches. Chapter III focuses specifically on city resilience strategies, sponsored by municipal governments and private companies, and to local policy documents focused on different aspects of urban resilience. The collected documents originated throughout the period from 2007, when the UN-HABITAT Global Report on Human Settlements introduced urban resilience as a key term, to 2018 when the study was concluded.

Among the primary sources are also 32 interviews with professionals from within the local urban resilience networks, conducted in between 2015 and 2017. These interviewees include (but are not limited to) representatives from international organisations, government officials on the municipal level, including policy makers from the city governments, or the cities’ urban planning and emergency management departments. Key private companies, universities and research centres in the fields of consultancy and technology, which participate in the local governments’ resilience-labelled platforms and projects, are also included. In addition, the representatives from community and non-governmental organizations are also interviewed. Thus, the local resilience networks are explored in terms of their rhetoric and practices by analysing policy documents, studies, reports and interviews, with a particular emphasis on the latter.

Additional research methods include attending and observing relevant conferences, events, workshops and seminars in order to trace urban resilience rhetoric in the making (see McCann and Ward, 2012, pp. 46-48), that is, the ways it is shaped and reproduced in and among different

geographical sites. As was mentioned above, the presence of the researcher on sites and in places where relevant knowledge is designed, and transferred is also important. This includes, but is not limited to, events such as international conferences, workshops, guest lectures and fairs at which urban resilience policies and practices are discussed. These events are focused on best practices and policy transfer, involving policy makers from city governments, urban emergency practitioners, as well as the private sector. Field notes and interviewing are carried out in order to capture the mobilization of resilience policy across different sites.

In the process of analysing the collected material, implicit and explicit meanings of resilience and other key concepts are explored. To address the research questions, the goal is to find out what kind of *problems or issues* are connected to (a lack of) urban resilience, and what *strategies to build resilience* are proposed to address the identified issues. Particular attention is paid to the diverging understanding of the term and the purposes of its deployment. It discusses how the adaptability of resilience is used by different actors to reinforce their positions and legitimize their actions and agendas. These attempts, in their many variations, can be found in the urban resilience assemblage across different levels of governance, actors and localities. Throughout Chapters II and III, it will become evident that resilience has been employed as a tool to strengthen and enhance the existing socio-political structures and to affect resource allocation. The concept is also used as a powerful political mobilizer and a tool of leverage on the level of local politics.

## Ethical considerations

The question of ethical considerations becomes especially relevant when it comes down to personal communications with the interviewees. The government officials, policy makers and practitioners, as well as the private sector representatives that were engaged were largely receptive of the goals of the research, and willing to be interviewed. This might be due to the fact that speaking to



the public about their policies and strategies is largely a part of their everyday work. Their information about relevant actors on the city level, their roles and mutual interactions was invaluable in tracing the local networks. The interviewees provided some priceless accounts regarding the functional and material linkages, authority, politics and governance structures – as well as problems and discrepancies they identify in their respective organizations.

However, comments on the latter was often shared in a rather reluctant manner, which is understandable given the interviewees' concerns about associating some critical comments with their names, and the impact that could have on their professional positions. This is a critical point because it was precisely the (sometimes problematic) nature of the actors' mutual interactions that the study follows. Thus, when it came down to the purpose of the research, the interviewees were informed about its focus on resilience *networks* in the respective cities, without stating explicitly that *they themselves* were one of the many *actors* whose associations, interactions and purposes were subject to tracing. This is due to the fact that if this purpose was explicitly stated, the interviewees would probably not speak as openly. In cases when their comments might affect or compromise their professional positions or their relations to other organizations, the interviewees' names are substituted by their approximate affiliations which do not allow for their identification. Consequently, at the beginning of each case study, an outline of the actors that were interviewed is provided, but the above are not explicitly identified. In any case, the opinions expressed are of the interviewees themselves, and not of the organizations that they represent.

### Possible challenges and limitations

Resilience is studied here by means of tracing its official institutional networks on the local and global level. Thus, focusing on these actors to map and depict the urban resilience assemblage might be seen as legitimizing the former. This might contribute to a certain bias that must be stated here.

Looking at the terrain studied through the optics of the actors whose rationalities and actions are subsequently subject to critique might appear as problematic. This view might be supported by the fact that no ethnographic work is done with the marginalized communities on the ground in order to reflect on the ways they understand what resilience is and the related policies mean to them. While this is identified as a possible drawback, it appears that one of the feasible starting points for problematizing a phenomenon is *understanding* the networks, actors and their mutual interconnections. The objective is to grasp, in the greatest possible detail, the urban resilience assemblages, a task that is inherently difficult due to the ontological and functional multiplicity. However, the set of methods described above is employed to uncover the ways they emerge, operate and reproduce themselves. It is this basis that, subsequently, the meaning of resilience is opened up for critical analysis through the empirical lens of the three cities.

The lack of 'ethnographic' work mentioned above can also be a point of critique. While covering this aspect would be a valuable contribution to the existing scholarship on urban resilience, it is not undertaken in this study due to time and space limitations. Instead, the focus is on the complex, partially formalized governance tool and its local expressions in three major cities across the world. A rather strategic 'macro' level of analysis is pursued here in order to explore the general patterns and conditions of emergence of resilience as a powerful discursive tool. The critical interpretation is then focused on the impacts of this phenomenon - both material and intersubjective. In the meantime, many ethnographic studies of resilience of specific communities have been conducted, which have greatly contributed to our understanding of the (lack of) impacts of this buzzword on the ground. In this vein, other valuable studies using an ethnographic lens can further showcase the failures of the nominal resilience approach on the micro-level.

## Case selection

The case selection for the purposes of Chapter III was carried out in line with the tenets of the interpretive approach, summarized as sense making, context and access by Schwartz-Shea and Yanow (see 2012). Making sense of and understanding, instead of measuring or predicting, of social and political phenomena is the case in point. To do so, it is considered how processes, actors and phenomena attain their meaning in relation to others. This makes the considerations of context crucial for this type of inquiry, as was noted previously. In this vein, Chapter III develops three parallel case studies which allow the author to explore the ways in which resilience has been mobilized in contexts that are rarely brought together; that of international organizations, global philanthropies, state, regional and local governments and private and community organizations situated between and among these levels. Another basic tenet of interpretive research lies in the access to the key actors from within each case, which was another one of the requirements for selection. Additionally, the aim was to identify cases that are geographically, historically, socially and politically distinct, and then highlight the similarities in their political and business rationalities that inform the ways resilience is deployed. The local effects of this process are indicative of a wider post-liberal transformation of governance which disrupts the modern structures of political and organizational functionality. Tracing the concept of resilience and its extraordinary mobility and adaptability allows the study to witness a part of this transformation from within.

In studying ideational, human and material components of the resilience assemblage, the above mentioned access to relevant individuals, sites, institutions, agencies and events was crucial. The availability of open source materials and policy documents, contacts in the field of resilience policy making, as well as potential access to key events and sites led to identifying key 'leader cities' in their respective regions. This way, parallel case studies of cities markedly different in terms of geography,

economy and politics allow for contrasting of how urban resilience policy is adopted, reshaped and deployed, regardless of the objective differences. The regional and global relevance of these cities in the arena of urban resilience, in addition to the above mentioned access and data availability, were the key ‘variables’<sup>7</sup> which led to the selection of Barcelona, San Francisco and Santiago, Chile as the case studies to be included.

Barcelona is a complex case in its political and administrative structure *vis-à-vis* the Regional Government of Catalonia, the central Government of Spain and the European Union. The specific circumstances and legacies of its historical developments, including the role of resistance during the Franco era and its strong current political and economic interconnections with the EU have influenced local political rationalities in multiple ways. Several Barcelonese administrations have pushed to design a ‘resilience agenda’ for the city and liaised with a range of private corporate actors and transnational organizations for this purpose. A powerful alliance of knowledge, policies and practices has emerged, closely connected to the city administration and several Spanish infrastructure companies. The vulnerability of Barcelona as a major coastal metropolis threatened by aging infrastructure, climate change and ‘social ills’ such as poverty and unemployment has served as a basis for urban resilience to emerge as a strategy to manage and mitigate, connecting the city administration to private sector and the UN agencies.

San Francisco is another case that allows for tracing the effects of its unique political and administrative setup, connected in different ways, functionally and politically, to the City and County, the State of California and the Federal Government. Traditionally a hub of capitalism, neoliberalism, the birthplace of key global financial institutions and of present-day philanthropy, the context of the United

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<sup>7</sup> The ontological and epistemological position of the researcher does not allow for using a set of ‘objective’ criteria used to filter a database of cities based on a set of quantifiable variables, common for a positivist-informed case selection.

States is highly relevant for many of the phenomena critically examined throughout the study. The City and County of San Francisco was historically an important infrastructure hub and now represents one of the key hotspots of information technology development worldwide. Its specific geographic location also leaves it vulnerable to earthquakes and sea level rise along with other effects of climate change. It was in this context that the former Mayor Edward Lee's priorities were defined under the overarching umbrella of urban resilience. The Resilience Office was created within the Mayor's Office, funded directly by the Rockefeller Foundation. The knowledge alliance that assembled around the notion of resilience continues to be dominated by engineering, construction and IT sectors, which reflects the current leadership of the Resilience Office.

Santiago is the only capital city among the case studies. The metropolis of Chile was historically a key site of political struggles and revolutionary changes and a seat of a brutal dictatorship of Augusto Pinochet for decades. Throughout this period, restricting political and civil liberties was coupled by a macro-economic restructuring, privatization and foreign investment which benefited many but marginalized even more. Today's Santiago brings together the highly developed, high-income, cosmopolitan face of Latin America on one hand, and under-development, urban density, poverty and inequality on the other hand. It is extremely problematic to advocate for urban resilience in ways that has been done by the City and Region authorities without considering the political implications of the resilience assessments. More evidently than in the cases above, resilience seems to have been planted directly from UN disaster management organizations into Chile's ministerial and sectoral agendas, from which it has been pushed on to lower administrative levels such as the Regional Government (Intendencia) and the Communes of the Metropolitan Region. It was an eager political sponsorship of the resilience agenda by the Intendencia and its former Governor with presidential ambitions that helped Santiago become a member of 100 Resilient Cities of the Rockefeller Foundation.

The above cities are particularly relevant to the concept's deployment – both in terms of discourse and policy – and they are engaged as three parallel case studies. The first objective is to understand different contexts in the sense of their governmental and institutional setup, and in their historical, economic and political realities. The analysis then turns to consider the principal risks and threats of both natural and anthropogenic origin which the cities' administrations claim to be building resilience against. Subsequently, the case studies discuss how the urban resilience assemblage has in fact re-connected these cities on the global level with regards to the discourse and practices that have evolved around the term, and the trans-national public and private actors involved in the process. While the cities are highly specific in the sense outlined above, the existent discourses, funding mechanisms and practices are strikingly similar (in some aspects, identical). This attests to the power of the global resilience assemblage which blurs the traditional local-to-global and private-to-public dichotomies.

When focusing on the constant circulation of funding, technology and expertise of urban resilience, the three cities become substantially interconnected. The term's mobility across continents and borders becomes apparent, as does its rhetorical and practical proliferation within and among international, private and civil society actors that operate there. Upon conducting the case studies in Chapter III, a summary table identifying all of the key actors is offered in order to bring them together in a structured fashion. It will become clear that Barcelona, San Francisco and Santiago have posed as urban resilience leaders in their respective regions, especially in terms of policy rhetoric. The specific ways and directions in which the resilience-informed policies and practices are deployed in these cities are discussed and interpreted in the context of the second research question.

Before the case studies are developed, the following chapter turns to explore the conceptual underpinnings of resilience as designed and reshaped by two key global organizations explicitly focused on urban resilience. A quantitative and qualitative of its policy publications throughout the last decade

is conducted in order to design an analytical framework for the strategies of power employed under the banner of resilience. This framework is then used in Chapter III to interpret the local manifestations of resilience as a technology of government in the three studied cities.

## CHAPTER II: Urban resilience as an emerging industry

The objective of this chapter is to study resilience as a term related to an unprecedented transformation of urban governance. For this purpose, it focuses on two organizations whose influence has been truly global in this regard. As the title of this section suggests, urban resilience in practice can be understood as a type of industry; that is, as a set of people, organizations and activities assembled in a particular field for a profit-making purpose. To be sure, in addition to a purely economic incentive, the actors involved systematically search for ways to survive and evolve, as well as to legitimize their activities with a specific kind of higher purpose. The latter could be defined as facilitating and enabling development of cities and urban populations. The knowledge that is hereby produced, the funding that enables the process, and the technology which serves for its implementation are three major components this type of subtle, yet highly invasive, form of governance.

This chapter therefore takes a closer look at different ways resilience knowledge is produced, implemented and funded. It examines two major organizations that have operated on a global level to 'make cities resilient', yet their nature and function are fundamentally different. The two are the principal producers of urban resilience rhetoric on a global scale. They have not only mobilized the concept to fit their strategic purposes, but also enabled countless other public and private organizations to do the same in their local contexts.

The first one is the United Nations Human Settlements Programme, commonly known as UN-Habitat. UN-Habitat is the principal United Nations agency focused on urban settlements and their development. It promotes and designs standards for 'sustainable development' in cities and towns across the world. It has also built up a global network of stakeholders from public authorities to multinational corporations from across sectors and levels of government and industry. This position has



reproduced the role of UN-Habitat as a major global authority in the field of human settlements, urbanization and development. As a leading organization in this field, it is powerful enough to shape the global discourse, introduce concepts, frameworks and assessments that influence lives of billions of urban dwellers worldwide. Adopting the concept of urban resilience in the late 2000s, UN-Habitat has used its global leverage to push resilience in policy making. It has also given the concept the necessary legitimacy by turning it into a philosophical and functional framework in line with its strategic objectives. In other words, it has turned urban resilience into a basic framework for policy makers responsible for planning and governance of cities across the world. As discussed later in this section, UN-Habitat is also a key facilitator of knowledge networks, composed of countless public and private entities on multiple levels that reproduce and implement resilience policies in urban settings.

The second organization to be studied is 100 Resilient Cities (hereinafter 100 RC), a non-profit organization founded, financed and 'pioneered' by the Rockefeller Foundation. The primary objective of 100 RC is to direct and manage a global urban resilience initiative which connects 100 major cities, such as New York, Mexico City, Seoul, Buenos Aires, Sydney, Lagos, Nairobi, and many other capital cities and regional urban hubs across the world. 100 RC aims to act as a facilitator of connections between local administrations and citizens with the corporate providers of urban resilience solutions, typically technology, consultancy and insurance multinationals, which are partners or sponsors of the program. In the global context, 100 Resilient Cities is the largest and the most prominent philanthropy project focused specifically on urban resilience. Due to its global appeal and the specific program design, 100 RC has managed to shape and influence the ways resilience is understood and implemented in 100 cities worldwide. It represents the transformation of city governance and development by bringing together the rhetoric shaped by influential international organizations on one hand, and the capabilities and interests of private sector on the other hand. At the same time, these entities are brought together on a unique scale; politically and functionally, city administrations enhance their

connections to private sector, while using resilience as a legitimizing signifier. Although bringing public and private together in urban governance is far from novel, the scale and depth of this project and its ability to infiltrate public administrations of cities has been unprecedented.

UN-Habitat and 100 RC are chosen as objects of the analysis because of their prominence and their powerful connections to the key non-profit, public, private and community actors that bring the local and global scales of resilience together. While UN-Habitat strongly influences the global policy by providing standards and guidelines and building knowledge coalitions on the global level, 100 RC carries out this mission on a rather operational or tactical level by ‘enabling’ local stakeholders and ‘facilitating’ connections to the corporate partners of the initiative, and their services and products labelled by urban resilience. Figuratively speaking, UN-Habitat can be regarded as global brains of urban resilience, while 100 RC often acts as the local hands and feet when it comes down to practices in specific cities. However, clearly separating the function of these two organizations is rather impossible, as many of its elements, partners, and activities are overlapping.

The analysis in this chapter specifically focuses on research questions one and two as discussed in the previous parts. In order to systematically engage the collected material, quantitative analysis is conducted by using nVivo Starter to carry out word frequency queries using a vast body of resilience-focused material which includes documents, reports and other written outputs produced or commissioned by UN-Habitat and 100 Resilient Cities, as is detailed in the following sections. Following the queries, the main concepts relevant for research questions one and two are extracted, traced and interpreted in the two sections that follow based on the collected content, respectively for each organization studied. This inductive method is applied in order to extract an analytical framework which is later applied to the case studies in Chapter III. The conclusion of this chapter in turn provides a summary of the findings and a discussion of similarities and differences identified within the studied

policy material. Adhering to the general argument of this work, not only general definitions, but also the rationalities and legitimations behind them are problematized. In other words, the interpretation of the empirical data aims to question resilience as a universal solution to the ills and failures of contemporary development.

The research questions that this chapter addresses are:

- *What are the problems / challenges to which urban resilience is posed as a solution?*
- *What are the strategies that the dominant stakeholders are proposing to address these challenges? How is resilience 'achieved' through technology and governance in cities? That is, how does it work through spaces and individuals?*

In addition to engaging the two research questions, this chapter also serves to explore the agendas of the most important public and private stakeholders that make up what I refer to as the global urban resilience assemblage. While the networks are regarded separately in analysing UN-Habitat and 100 Resilient Cities for the purpose of systematization, the extent of their mutual interconnections becomes evident.

## UN-Habitat

Before addressing the agendas of UN-Habitat specifically, this section sets the context by summarizing the role of resilience in the post-2015 global development agenda dominated by several key UN programs and agencies. Several major international organizations and key agreements in the area of climate change and disaster risk reduction are mentioned here. While resilience gained a considerable position in the global development discourse, its understanding has remained predominantly problem-solving, adhering to a conventional distinction of engineering vs. ecological resilience (see UN-Habitat, 2017, p. 5). It has also increasingly emphasized the role of private sector in

combating climate change and enabling local communities to do the same. This is the case with the most UN-sponsored programmes and policy documents addressed below.

The Sendai Framework for Disaster Risk Reduction set the blueprint for implementation of resilience-focused disaster management in the timeframe of 2015 - 2030. Largely adhering to previous similar documents in its purpose and structure, the Sendai framework is novel in the degree of emphasis on incorporating the private sector into implementing solutions to climate change and its adverse effects on the environment and populations. The 27 pages long text refers to resilience 39 times, turning it into the key concept in the global risk reduction policy (UNISDR, 2015). Shortly after the launch of the Sendai framework, a number of existing private sector initiatives under UNISDR were merged to form *Private Sector Alliance for Disaster Resilient Society* (see ARISE, undated). This move reflects the degree of functional and philosophical interconnections between the UN global development policy and business entities in the realm of resilience.

The UN Sustainable Development Summit held in New York in 2015 was no exception in this regard. Among the 17 key priorities for global development agreed on during the Summit, one can find the noble causes of gender equality, environmental sustainability, ending global poverty and hunger, reducing inequality, as well as promoting sustainable consumption and production. In order to tackle the challenges of unemployment, natural resource depletion and climate change, the UN proposes to partner with private sector to promote “resilient agricultural practices” through investing in seeds, fertilizers and mechanization to “increase productivity [and thereby achieve] food security” (United Nations, 2015a, p. 2).

Following the conference, the UN General Assembly adopted *The 2030 Agenda for Sustainable Development*, building on the *Millennium Development Goals* and pledging to end poverty and hunger worldwide by 2030 and “empower those that are vulnerable” (General Assembly, 2015, p. 7). It is

difficult to overlook the similarities among concepts and ideas continuously pledged and recycled since the *Rio Declaration on Environment and Development* of 1992 (United Nations, 1992). The trends of climate change and global inequality throughout the last two decades question the feasibility of these objectives in the current global economic context. What is new, however, is the degree of emphasis on the capacity of private sector innovation and investment to counterbalance adverse effects of climate change and empower citizens to benefit from this process. This goes hand in hand with ‘healthy, productive, and well-educated workforce [which is said to contribute to] sustainable development and decrease inequality’ (General Assembly, 2015, p. 8).

The Paris Climate agreement of 2015 adopts very similar language to the above referenced UN Agenda (see United Nations, 2015b). It underlines the role of cities in building resilience and the need for *adaptation* to climate change. While setting concrete milestones for greenhouse emissions limitations is commendable, the fact that the agreed regulations are non-binding puts the agreement’s implementation at risk. Be it as it may, the ambitious agreement set the wheels of climate finance in motion, bringing private investors in as key participants and engines of change. The *Green Climate Fund framework*, headquartered in South Korea, was set up “to create new models for climate finance [by] channelling investment from both public and private sectors” (Green Climate Fund, undated). The purpose of the fund is “to cushion the unavoidable social impacts of climate change” (UN-Habitat, 2017, p. 21). With climate change unproblematized, resilience is used in the current global development policy as a plaster, a principle of action that will ensure adaptation and continuity. Adverse effects of climate change on the poorest communities are seen as something that can be mitigated by increasing resilience capacity of the vulnerable populations. The concrete ways in which this is done are discussed below.

Global development policy patterns remain stubbornly consistent across decades, recycling the old goals by using trendy concepts such as resilience. However, the feasibility of achieving these goals with the suggested tools remains questionable. The global climate change is progressing, and with it all the adverse effects on livelihoods of the poorest people and localities that are the losers of globalization. Failures to fulfil similar policy priorities in the past put the future ones in question and in many ways reveal the limited capacity of the UN agencies and governments to deliver on the promises made.

The traditional strategies of development agencies include highlighting the agency of poor communities to gain legitimacy, using them as case studies to test and shape good practices, while networking with the private sector to implement policies effectively and efficiently. It is in this context that the UN-Habitat has fortified its position as a global authority on urban development policy and practice, with its 406 programs currently running in 53 countries, with combined value over 305 million USD (UN-Habitat, undated c). Prior to the birth of UN-Habitat as a UN programme, the First United Nations Conference on Human Settlements (commonly known as Habitat I) was held in Vancouver in 1976. One year later, two UN entities were created to set the urban development policy agenda on the global level - *United Nations Commission on Human Settlements* and *United Nations Centre for Human Settlements*.

Headquartered in Nairobi, Kenya, UN-Habitat has gained a unique position over the 40 years of its existence due to its “universally acknowledged expertise in all things urban” (UN-Habitat, undated a). Throughout the years, it has developed programs dedicated to urban development, sustainability, housing, energy and transport, working with countless agencies, companies and NGOs to carry out projects around the globe. The mission of UN-Habitat has been continually reformulated at key international conferences taking place every 20 years. The Second United Nations Conference on

Human Settlements was held in Istanbul in 1996 (commonly known as Habitat II). Its high level policy (yet non-binding) document output was adopted by 171 countries and listed more than 600 recommendations regarding urban development for years to come, calling for sustainable urban development and equality for all (see United Nations, 1996).

Upon being granted the official status as a UN programme in 2002, UN-Habitat started using resilience in its programs and publications in the late 2000s. Focusing on cities in particular, an explicit linkage between *urban* vulnerability and resilience began to appear. The 2007 Global Report on Human Settlements (UN-Habitat, 2007a) is seen as a landmark policy document on the international level, which conceptualized and operationalized the binary terms of vulnerability and resilience in a context of cities. Everything from climate adaptation programmes to solving the issue of crime and violence in cities was then rephrased and reintroduced in the agenda, newly deploying the all-encompassing term of resilience. It implied the principles of governments' facilitation efforts in order to empower citizens and cities to become more resilient.

In 2015, resilience of cities explicitly appeared in the eight update of Millennium Development Goals, reformulated in the above referenced 2030 Sustainable Development Agenda. Out of 17 goals, number 11 pledged to "Make cities and human settlements inclusive, safe, resilient and sustainable" (General Assembly, 2015, p. 14). One year later, the Third Global Conference of UN-Habitat, known as Habitat III, was held in Quito, Ecuador. Its primary policy output titled *The New Urban Agenda*, yet again reaffirms the UN goals on the path to green, smart, healthy and sustainable urban future (see UN-Habitat, 2016). In addition to a high level networking and photo opportunity for public officials and business leaders, it became a fair for private companies to market their services and products promising to make cities resilient. This appeared to be a prime platform to do so, given that 30 thousand participants attended the conference, including 2 thousand officials from regional and local

governments (Habitat III, undated). New tools for resilience standardization were introduced, such as SuRe@ developed by Global Infrastructure Basel Foundation and an international investment bank Natixis (see GIB Foundation, undated). Financial institutions, donors and development banks were called upon to mobilize funds for housing and real estate (UN-Habitat, 2016, p. 140).

Beyond high level conferences, long term city resilience initiatives have been established and developed, such as the *Urban Resilience Programme* of the UN-Habitat. One of its main pillars is the Barcelona-headquartered *City Resilience Profiling Programme*<sup>8</sup> (see UN-Habitat, undated b). The aim of this initiative is to develop a City Resilience Profiling Tool, which is a resilience assessment framework, similar to other existing tools in its technical diagnostic approach to cities. Partner cities of this programme include Barcelona, Beirut, Tehran, and Wellington, among others. The programme defines resilience as an “ability of any urban system to withstand and recover quickly from the impact of all plausible hazards - both shocks and stresses - and maintain continuity of functions” (UN-Habitat 2017, p. 30). The conceptual and functional pillars of the programme can be summarized as empowering cities to make wise investment decisions to ensure growth and continuity of services (i.e., governance and business) and providing standards, indices and measurements as a basis for the assessment of success.

In addition to technical tools, advocacy and knowledge are key components of urban resilience as it is constructed by UN-Habitat in collaboration with its programme partners and donors. Among the most prominent UN-Habitat-coordinated advocacy initiatives are *Global Alliance for Urban Crises*, *Medellin Collaboration of Urban Resilience*, *Making Cities Resilient Campaign*, and *IASC Reference Group*

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<sup>8</sup> Joan Clos, the Executive Director of UN-Habitat and Under Secretary General of United Nations, who is a big proponent of urban resilience, also happens to be a former Mayor of Barcelona. The concentration of resilience-labelled projects and initiatives in the Catalan capital is significant, as is discussed in the case study of Barcelona below.



on *Meeting Humanitarian Challenges in Urban Areas* (ibid., p. 34). The common denominator of these initiatives is the engagement of a multiplicity of public and private actors in order to address complex vulnerabilities of cities, their infrastructures and populations. In order to harness the academic insight into urban development, the *Urban Resilience Institute* was launched in Barcelona, bringing together ten major universities under the auspices of UN-Habitat (Urban Resilience Hub, 2017).

Acting as a global policy authority in urban development, and capitalizing on its unique position of the main UN program with such focus, UN-Habitat has been able to secure major funding from various governments of developed countries world-wide. The government contributions account for the majority of funding available to UN-Habitat and its programs. In order to illustrate this, Chart 2 below focuses on income sources, bringing together the proportions of contributions by type of contributing entity, that is, the kind of donors UN-Habitat relied on in 2017 (the overall distribution remained relatively similar in years prior). It is evident that government contributions are key (71 % of overall funding in 2017), followed by UN agencies (14 %), civil society (6 %), local authorities (5 %), private sector (4 %) and inter-governmental organizations (<1 %).

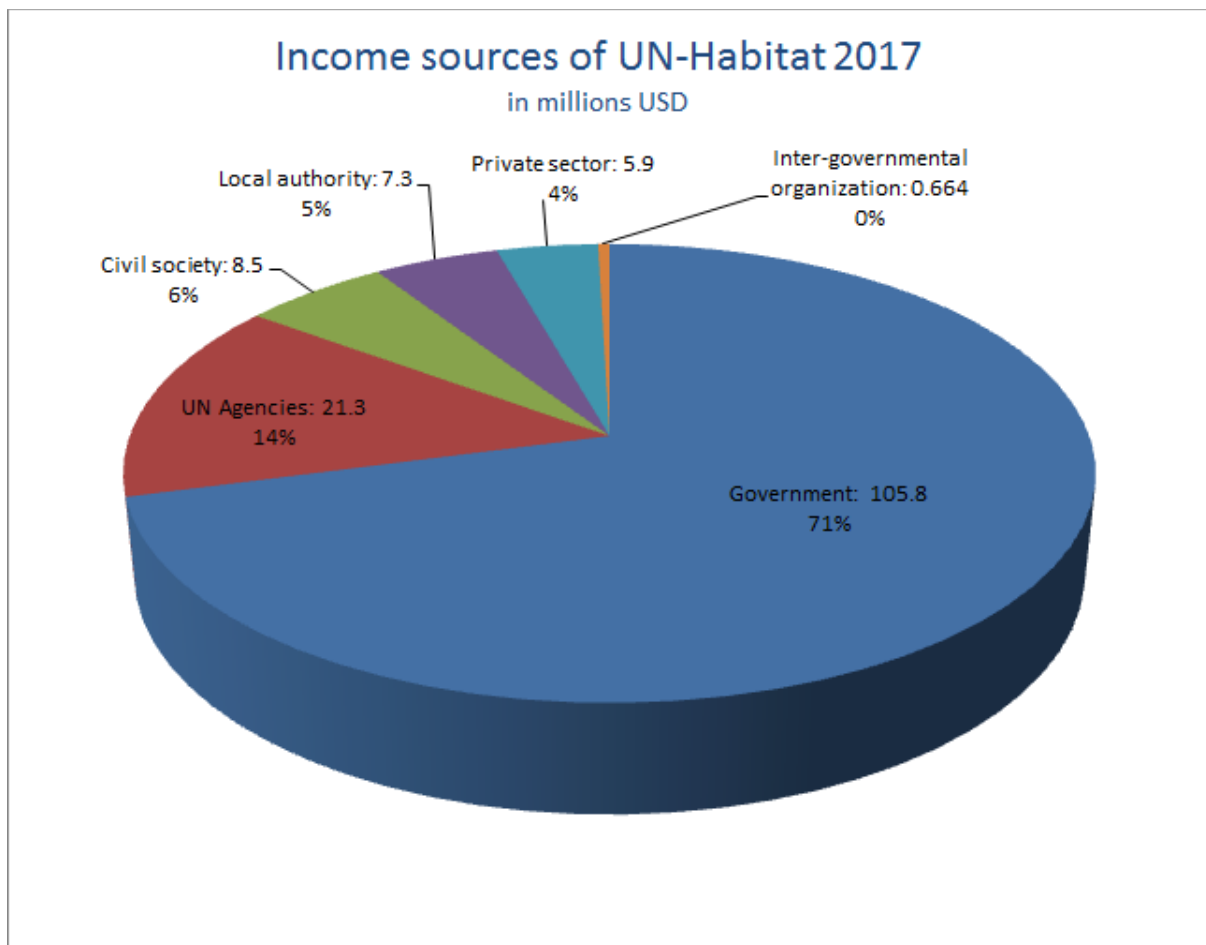


Chart 2: Income sources of UN-Habitat 2017. Source of data: UN-Habitat Financial overview, author's elaboration

Regarding the government funding, major donors in 2017 included the European Union as a whole (20.7 million USD), complemented by individual donations from particular EU members such as Germany (18.6 million USD), Sweden and Denmark (12 million USD respectively). In years prior, USA used to be the biggest donor (54.5 million USD in 2016), with Saudi Arabia, Norway and Spain providing significant (yet less consistent) support throughout the last decade (see UN-Habitat, undated d).

A closer look at income sources by fund reveal that a large majority of funding leveraged from these donors is earmarked, that is, set aside for a specific purpose or project (see Chart 3). This may not be surprising as a practice commonly used in fundraising, yet it provides some interesting insights

in terms of relations between specific governments building their ‘resilient brand’ on one side and UN-Habitat on the other. These connections will be further explored in Chapter III, particularly in the case of Barcelona.

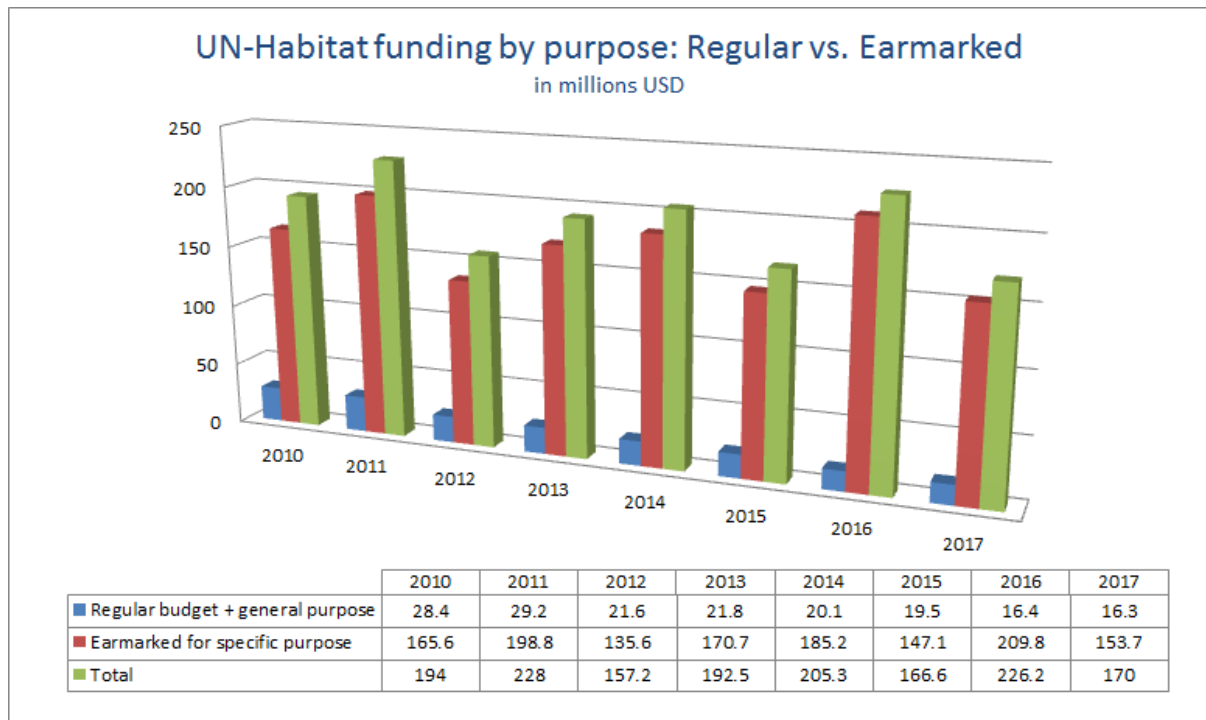


Chart 3: UN-Habitat funding by purpose: Regular vs. Earmarked. Source of data: UN-Habitat Financial overview, author's elaboration

In addition to sources and purposes of UN-Habitat funding, the actual distribution of funding among themes or ‘policy and practice’ areas indicates much about the current development policy. The language of capacity development of vulnerable urban populations, the related risk reduction and strategic planning, design and governance, permeates UN-Habitat policy analysed in the next section, and is reflected in the 2017 budget distribution summarized in Chart 4 below.

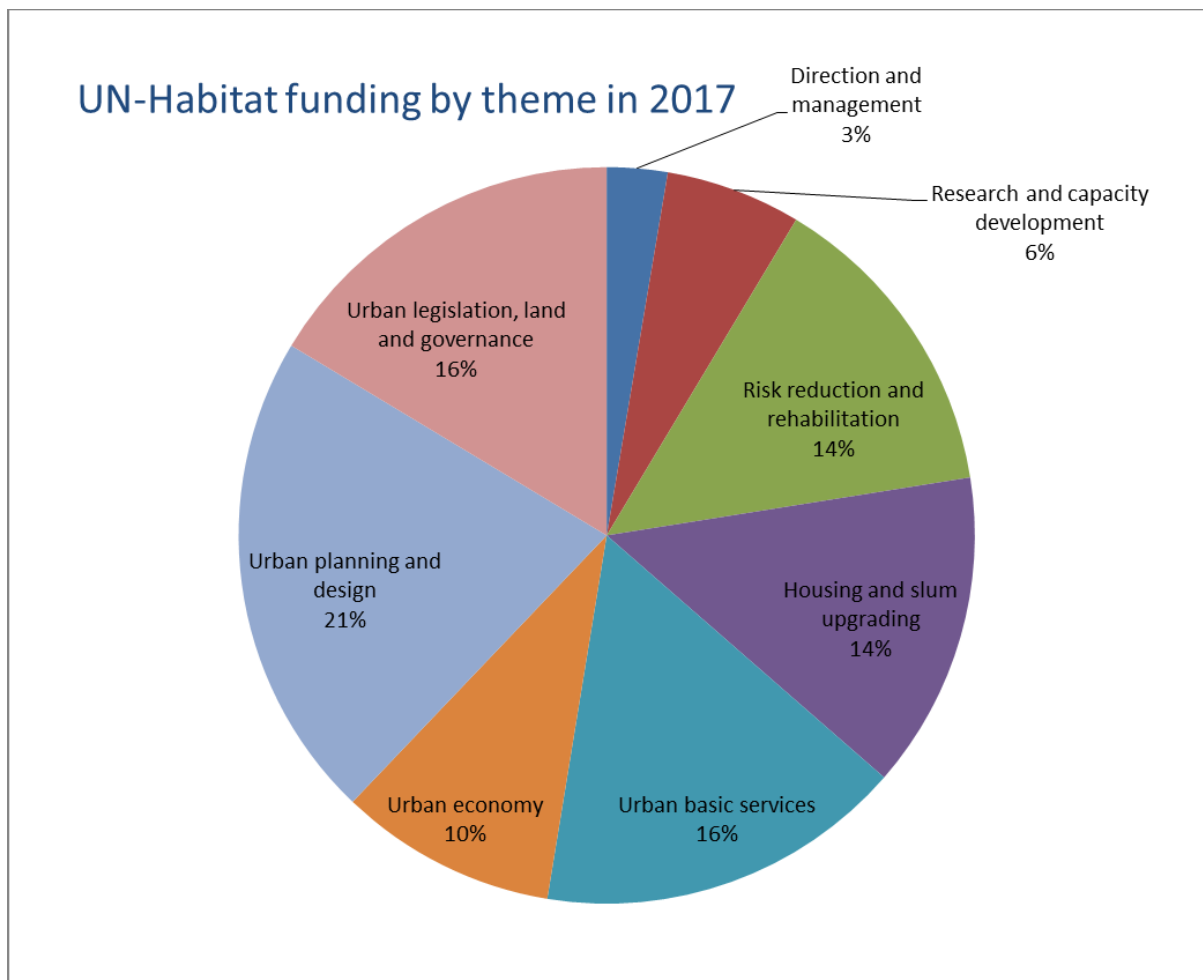


Chart 4: UN-Habitat funding by theme in 2017. Source of data: UN-Habitat Financial overview, author's elaboration

The language implying the problem-solving approach to urban poverty is ever-present in UN-Habitat discourse analysed in turn. In line with the effort to address the first and second research question, the problems to which urban resilience is presented as a solution are identified first. Second, the kinds of strategies suggested to deal with these problems are discussed, under the overarching umbrella of 'making resilient cities'. The actors who take part in this process are identified and their rationalities are critically examined. The technocratic and essentially disciplinary solutions proposed to solve complex social issues are explored. A vast body of urban resilience policy produced and

commissioned by UN-Habitat over the last decade provides the basis for the analysis, as detailed below. It is then followed by a subsequent interpretation about how resilience becomes mobilized in urban areas across the world, distorting and transforming the inner workings of modern governance structures and individual agency. Various technological interventions in urban spaces, as well as the intersubjective responsabilization of citizens stand out as common denominators of the process of climate change adaptation.

### Problems and solutions to urban resilience

In order to systematically explore the urban resilience rhetoric produced by UN-Habitat since the beginning of the new millennium, a broad set of key policy documents and reports was collected and analysed. Shaping global policies on cities and urban development, UN-Habitat publishes an influential series of biennial reports titled *Global Report on Human Settlements*. Typically a 300 plus pages long document, a Report provides an overall diagnostic of an urban development issue on a global scale, such as growth of poor urban housing (slums). From barely mentioning resilience between 2001 and 2005 (up to three references per report), the term skyrocketed in the Report of 2007 focused on urban safety and security with over 170 references to ‘resilience’ or ‘resilient’. Subsequent reports focused on planning (2009), climate change (2011) and urban mobility (2013) indicate a long-term adoption of resilience into the linguistic expressions of UN-Habitat. In addition to the Global Reports, UN-Habitat *Annual Reports* from 2007 to 2015 are included, as is another biennial series titled *State of the world cities*, available from 2006/2007 to 2012/2013. The UN-Habitat *City Resilience Profiling Programme* materials include the programme reports and booklets. The *World cities report* of 2016, which is the most recent major summary publication on UN-Habitat concepts and empirical developments is included, in addition to the *New Urban Agenda* adopted at Habitat III Conference in

October 2016. Specifically focused on urban resilience, *Trends in Urban Resilience* published in 2017 offers a summary of a broad set of programs and initiatives with thousands of actors involved.

All of the above mentioned reports and documents account for 43 most relevant urban resilience policy items published, sponsored or commissioned by UN-Habitat between 2001 and 2018. The selection represents a specific subset of UN-sponsored policy documents concerning resilience produced since 2000, focusing solely on the ones related to cities. Other key documents, despite being instrumental in placing resilience at the forefront of global development rhetoric, are omitted in case they lack a concrete focus on cities and urban development. This is the case of several major UN-sponsored disaster risk reduction documents mentioned above, such as the Hyogo and Sendai Frameworks for Action. The purpose of this omission is in line with the objective of this study to provide a unique insight into the *urban* component of the global resilience policy.

### Problems to which 'resilience' is posed as a solution

Upon examining the dataset using word frequency queries, tracing the key concepts to their original sources and interpreting their contexts, three categories of problems to which urban resilience is presented as a solution stand out. These are informality, poverty and disasters, typically connected to - but in no way problematizing - the effects of globalization and climate change. The problems identified are understood as either subjective deficiencies of resilience in the face of globalization (informality, poverty), or as inevitable and effects of climate change (disasters). Either way, all of them are regarded as phenomena that can be mitigated by appropriate training, capacity building, technology and infrastructure, as will be discussed in the following section.

Portraying these problems as inevitable, even though they are often results of human actions on a large scale, has an influence on subjective perceptions of climate change and a possibility to reverse it. By accepting this inevitable state, any ideas or initiatives of resistance, questioning, or

problematization become undermined. The focus on mitigating the effects of climate change, rather than addressing its causes, permeates the analysed set of documents. The problems to which resilience is posed as a solution come either from a lack of adaptive capacity of individuals and communities, or from objective and natural challenges that are believed to be manageable by technological innovation.

### Urban informality

One of the most salient issues to which resilience is posed as a solution in the UN-Habitat discourse is *informality* (4.493 references). It is discursively constructed as one of the most important challenges of the 21<sup>st</sup> century (see UN-Habitat, 2009a, p. xxiv; UN-Habitat, 2016c, p. iv). UN-Habitat defines informality as a form of ‘spontaneous urbanization [characterized by] poverty, low skills and no access to the formal, tax-paying business sphere’ (ibid., p. 144). Cities are growing and so is the level of inequality and informality within them. While some form of informality is argued to be an inevitable part of an unregulated development, the concept still bears an overwhelmingly negative meaning.

In the UN discourse, informal settlements connected to insecurity, especially considering the issue of slums that require development and formalization (see UN-Habitat, 2007a, p. xxix). UN-Habitat emphasizes the problem of lack of planning and infrastructure in informal areas (UN-Habitat, 2009a, p. xxv), and lack of compliance with existing building and planning regulations (UN-Habitat, 2011b, p. 117). In fact, ‘tackling informal settlements’ is seen as one of the tools for appropriate urban planning (UN-Habitat, 2013a, p. 112). The first step in this process is a proper regulation by introducing and improving ‘mapping and profiling’ of informal urban areas (UN-Habitat, 2016, p. 132). Many cities in developing countries are seen to have failed in this regard, with their informal areas growing in size, ‘due to [the local authorities’] limited planning and governance capacities’ (UN-Habitat, 2009a, p. xxv). Citing structural conditions largely to do with lack of economic capacity, the language used implies that ‘informal populations’ tend to settle and build their unregulated homes in high-risk areas (i.e., those

with low market value) (ibid., p. 8). This is often associated with 'increased health risks, vulnerability to climate change and extreme events' that these urban settlers experience (UN-Habitat, 2011b, p. 54). Despite the best efforts of local officials, residents of informal settlements are 'often reluctant to move when advised to do so' (ibid., p. 80), as displacement could disrupt the interpersonal networks tied to particular sites and neighbourhoods.

Alongside urban development, another important dimension of urban informality is economic, problematized due to the fact that the informal sector 'tends to be survivalist rather than entrepreneurial' (UN-Habitat, 2009a, p. 9). A high degree of informality is linked to 'reduced opportunities' to realize one's potential and 'less application of rules and regulations' (UN-Habitat, 2007a, p. 4). UN-Habitat maintains that many developing countries 'fail to accommodate' the inhabitants in informal cities [which leads to] social and spatial marginalization (UN-Habitat, 2009, p. vi), reproducing the cycle of urban poverty. The programme also goes as far as to equate 'informal livelihood' with 'risky process' (UN-Habitat, 2007a, p. 24). Beyond the insufficient realization of human economic potential, the informal economy is also connected to crime and violence, both of which are seen as characteristic for and widespread in informal neighbourhoods (ibid., p. 75).

The only positive connotation of 'informal' is found in connection to the economic opportunity that 'formalizing the informal' could bring in developing cities, packaged as 'fostering sustained economic opportunities' (UN-Habitat, 2011a, p. XX). Further, the existence of the informal sector can be temporarily accepted as long as it balances out the 'lack of formal' governance institutions (UN-Habitat, 2007a, p. 24). For instance, this is the case with lacking or insufficient urban infrastructures in cities of the Global South, where informal modes of transport are seen as a necessary component of public transport systems which would otherwise collapse (UN-Habitat, 2013b, p. 7). In this sense, even 'slum dwellers' can be turned into 'informal economic entrepreneurs' by offering their services (UN-



Habitat, 2009, p. xxvi) and thereby mitigating the effects of poverty. As long as informality can yield a marketable skill to be used in local industries and economies to create value, it is seen as acceptable. One can identify the disciplinary and biopolitical nature of formalization which, although in a subtle way, opens doors to governing of living spaces, behaviours and bodies of poor residents.

### Urban poverty

Major developing cities are also sites of concentration of urban *poverty* (4.313 references), a phenomenon that is seen as another great challenge hindering progress of people and communities. Many of the urban poor live in informal settlements (slums) which are often unfit for human living due to a lack of basic services and infrastructure (UN-Habitat, 2016c, p. 57). As cities are, paradoxically, also hubs of investment and wealth, urban areas with high levels of poverty also tend to be characterized by *inequality* (2.285 references). Poverty is problematized by the UN-Habitat as both a cause and a symptom of a lack of adaptability of individuals and communities. For decades, UN and its various agencies and national governments have identified poverty reduction as one of the key goals of global development. The UN language now links it to resilience, with UN-Habitat arguing that a 'key part of building resilience is facilitating poverty reduction' (UN-Habitat, 2011b, p. 149).

Poverty is problematized on many different levels; beyond the issue of individual hardship, UN-Habitat argues that poverty can 'increase the risk of political tension and social divisions that can threaten national security and economic development' (UN-Habitat, 2009b, p. xiii). Poverty also conditions one's ability to deal with the 'inevitable' manifestations of climate change. Poor people and areas they reside in tend to have 'less adaptive capacity' to withstand shocks and stresses from extreme weather to pollution. Thus, there is a need to increase the adaptive capacity of the poor in order to face effects of climate change (UN-Habitat, 2011b, p. 137). This does not apply only to the material aspects of life. Poor people are also seen as 'psychologically vulnerable', which can further undermine their

‘resilience capacity’ (ibid, p. 82). UN-Habitat also points out that the poor tend to have insufficient insurance to cover costs of potential losses they face, and less assets they can use as a leverage (ibid, p. 80). This is the core of their structurally determined vulnerability that keeps them locked in a cycle of endemic poverty.

The global development policy spearheaded by the UN and other organizations has long understood poverty as a critical problem. However it has only been the last decade when poverty has started to be systematically connected to cities and the urban condition. The term ‘urbanization of poverty’ has now been widely used for more than a decade (UN-Habitat, 2005, p. 1). Despite having been on the agenda of many global development organizations for decades, poverty persists and continues to be identified as one of the greatest challenges of the 21<sup>st</sup> century (UN-Habitat, 2016c, p. 29).

Much of its problematization has to do with the economic perspective, that is, an inability of poor individuals to act as valuable and independent actors in the economy, as their income is limited and much of their actions and transactions are informal, that is, untaxed. Thus, poverty brings about a certain dysfunction of ‘consumption and production’ patterns (UN-Habitat, 2005, p. 6). The lack of participation in the formal market is also problematized from the perspective of real estate assets. Poor urban dwellers tend to be ‘unable to acquire mortgage loans’ which has implications for home ownership rates and negatively affects the economy (ibid, p. xlv). On the other side of the same coin, housing security in turn conditions the economic productivity of the workforce in urban areas (ibid., p. xlvii). This type of approach, informed by a biopolitical perspective, reduces the problem of poverty to a technical question that can be managed and fixed with the right kind of empowerment tools. The goal is to enable individuals to become independent, if not profitable, economic units, to rise from poverty,

and to take full responsibility for their livelihoods. As poor equals non-resilient, reducing poverty means building resilience, which is what the UN-Habitat claims to be facilitating.

The consequences of the financial crisis of 2008 have left their notable imprint in developed countries and their major cities. New forms of urban poverty have emerged and been named such as 'infrastructure-poor, immigrant poverty, young people at risk, or vulnerable elderly' (UN-Habitat, 2015, p. 3). Just like their counterparts in developing cities, these people are constructed as in need to be empowered and made resilient. In the meantime, UN-Habitat continues to advocate urban poverty-reduction programs in developing regions, such as the ones implemented in cities of Bangladesh, Mexico, Brazil, Rwanda or Egypt (see *ibid.*). The last major UN-sponsored conference Habitat III, which produced the New Urban Agenda in 2016, yet again placed urban poverty among the most important challenges to be overcome, and pledged "to end poverty in all its forms and dimensions [in order to] improve human well-being and foster resilience" (UN-Habitat, 2016 b, p. 3). The feasibility of this promise, strikingly similar to the ones made before, is yet to be seen.

### Disasters in cities

The third category of problems to which resilience is often posed as a solution is concerned with *disasters* (3.185 references) of various kinds. Typically - but not exclusively - connected to climate change (that is, attributable to human activity), natural and man-induced disasters 'have claimed thousands of lives and caused huge economic losses' (UN-Habitat, 2007a, p. 163). It is also evident that incidents of disasters have been increasing 'both in terms of intensity and frequency' (UN-Habitat, 2016c, p. 87). As climate change goes largely unproblematized, the policy tends to focus on the mitigation of its effects. One of the strategies to achieve this end is the so-called disaster preparedness which, as resilience to other types of adverse phenomena, can be trained and facilitated. Disasters manifest themselves in different forms across different sites, but the policy responses tend to be

designed along very similar lines. Dealing with the impacts of disasters beyond the obvious perspective of human suffering and loss, UN-Habitat agenda is typically focuses on their impact on urban economies, in line with the view of major investment banks and insurance companies.

Disasters simply 'disrupt the ability of individuals in cities to sustain livelihood [and] destroy assets or means of production available to them' (UN-Habitat, 2011b, p. 77). As was described previously, the uneven socio-economic playing field in cities leaves poor individuals and neighbourhoods more vulnerable to disasters and less equipped to deal with their consequences. A matrix of a lack of reliable infrastructure, assets and political will can turn a post-disaster response effort into a failure, as was painfully reminded to residents of New Orleans after the Hurricane Katrina. The aspect of race was prevalent in this case, as residents who did not have the necessary resources to safely evacuate before the hurricane were members of overwhelmingly black and poor communities living in the floodplains which sat below sea level. In addition to being significantly poorer than the rest of the city, these neighbourhoods were underserved in terms of basic infrastructure, including insufficient drainage systems that terribly failed on the 29<sup>th</sup> August 2005 (UN-Habitat, 2007b, p. 143).

Beyond income and race perspectives, gender also plays an important role in determining – and undermining – one's resilience capacity. UN-Habitat points out that women in developing countries tend to be more vulnerable to disasters because they often work in the informal sector and they lack adequate and independent livelihood resources. This became evident in the cases of Hurricane Mitch in Honduras and floods in Dhaka, Bangladesh, where women were structurally prevented from benefiting from disaster management tools simply because of their gender (UN-Habitat, 2011b, p. 14).

Regarding disasters as 'products of inappropriate and failed development' (UN-Habitat, 2007a, p. 164), typical for cities of the Global South, UN-Habitat has argued for the 'good' and 'appropriate' kind of development to mitigate disaster impacts. Risk assessments, planning, infrastructure upgrades,

as well as training and educating locals in vulnerable urban areas are the examples of ‘good governance’ that can mitigate adverse effects of floods, storms and large-scale infrastructure failures. This perspective has been pushed by the UN agencies and international development banks for decades.

Considering the language used in the UN-Habitat-sponsored policy focused on cities, one can identify a similar argument stretching over the last ten years. The first major report connecting cities and resilience in 2007 emphasized the need to ‘strengthen local resilience or a capacity of local actors to avoid, absorb or recover from disasters’ (UN-Habitat, 2007a, p. 165). In order to adapt to adverse effects of climate change, local governments have been repeatedly urged to facilitate and ‘build resilience or the vulnerable and poor people’ (UN-Habitat, 2013c, p. xii; UN-Habitat, 2016c, p. 90).

The New Urban Agenda produced at Habitat III in Ecuador also reinforces the view that resilience to disasters can be fostered by building ‘capacities to respond and adapt to climate change’ (UN-Habitat, 2016 b, p. 7). Following the financial crisis of 2008 and its long-term impacts on cities around the globe, UN-Habitat also emphasized the role of local governments in fostering resilience of vulnerable urban residents in developed Western cities hit by austerity (UN-Habitat, 2011b, p. 79). However, considering the bigger picture of the UN policy over the years, the focus on building ‘disaster resilience’ of the urban poor in developing countries still prevails (see UN-Habitat, 2018, p. 3).

The goal is not only to manage the forces of nature, but also to manage human behaviour by training individuals to respond and adapt themselves to adverse conditions without much external assistance. Disasters are simply seen as a phenomenon that is manageable and fixable by using technocratic means, namely information technologies and urban infrastructure, and by training individuals to deal with disaster impacts. This is what ‘planning for resilience is the face of disasters’ means from the perspective of UN-Habitat (UN-Habitat, 2016c, p. 85).

This is where the logic of bio-power linked to urban resilience yet again stands out. The inner potential and capabilities of individuals get mobilized towards the goal of their own empowerment by subtle forces of governmentality. Regardless of the degree of shocks and stresses these individuals experience, it is implied that it is within their power to overcome them and thereby manifest their resilience value.

The above discussed subjective deficiencies of resilience, such as poverty, vulnerability and informality are seen as something to be fixed and trained by appropriate tools of capacity building and facilitation, which will be discussed the next section. The UN discourse remains relatively constant along these lines, recognizing urban inequality and poverty as pressing issues of today and designing policies and projects to help fix these problems. The governmentality approach is thus masked by the normative rhetoric of empowerment and social justice.

Table 1 offers a summary of the analysis of the UN-Habitat materials relative to the first research question. The problems to which 'urban resilience' is proposed as a solution are divided into three broader categories as discussed above. Column 2 includes a brief definition of the identified problems, complemented by a total number of references in column 3. The fourth column offers a brief interpretation of a dominant understanding of each problem and the responses typically proposed in the UN-Habitat policy.

PROBLEMS	Description	no. of references	Understanding and responses
<b>Informality</b>	Lives and behaviours outside the formalized social / economic structures; all assets and activities within the informal economy	4.493	Understood as problematic, as these behaviours cannot be controlled / managed / taxed. 'Informal' individuals seen as vulnerable, incapable of integration. Governmental formalization / capacity building is required.
<b>Poverty</b>	State of economic and social precariousness; lack of resources to cover one's basic needs and those of their families	4.313	Being poor indicates vulnerability, susceptibility to risks, lack of adaptive capacity. Subjective deficiency of resilience requires help / intervention / capacity building to fully realize one's human capital.
<b>Disasters</b>	Natural (such as earthquakes) or man-induced, connected to climate change (extreme weather, pollution, sea level rise, infrastructure failures)	3.185	Natural disasters taken as a given; man-induced disasters and climate change problematized in a sense of insufficient adaptive capacity of some communities / individuals. Understood as inevitable processes, requires adaptation of communities / individuals.

Table 1: Summary of the results, author's elaboration

## Strategies to 'build resilience'

References to *resilience* and *resilient* are made 3.419 times in the analysed material. Resilience is discursively constructed as an ability to overcome the challenges above, and also a desired outcome or quality when it comes to individuals, communities and cities. In addition to identifying problems, UN-Habitat suggests a set of solutions that were briefly outlined above. This section is dedicated to exploring these strategies in detail. Three concrete strategies are discussed below; building knowledge alliances around resilience, funding resilience in the sense of economic development, and building resilient technologies and infrastructures. The ways in which governance is projected through these

three channels are traced and interpreted, uncovering and problematizing their disciplinary and biopolitical nature.

### Transforming governance

A universal response to failures in development and security, and an overarching theme throughout the analysed UN-Habitat dataset is *governance*. Juxtaposed against a 'lack of' governance, bad, insufficient or failed governance, 'good governance' (UN-Habitat, 2009a, p. 74) is understood as a fundamental prerequisite for cities to function. References to this term are made 9.538 times, which accounts for 0.4 percent of all the analysed material, turning it to one of the most used terms overall. The role of national or state authorities in issues of urban development continues to be relatively important. Although the analysed documents are focused specifically on urban development, the relative number of references only partially corresponds to its *urban* (29.174 references) focus - while there are 7.573 references to *local*, there are also 7.292 references to *national* and 4.828 references to *state*. The analysis also suggests that urban governance is understood on multiple levels - the material also includes 5.723 references to *communal*, 2.533 references to *municipal*, 5.023 references to *regional* and 5.721 references to *global*.

Good governance is understood as a reduction of informality, or at least a transition from informal to formal, as is emphasized by The New Urban Agenda (UN-Habitat, 2016 b, p. 17). UN-Habitat defines urban governance as "a sum of many ways that individuals and institutions plan and manage cities [including] formal and informal institutions and social capital of citizens" (UN-Habitat, 2009a, p. 73). This broad definition implies that governments do not take control of citizens; rather, it is an assemblage of actors governing others and themselves, in which resilience can be read as a technology of government. Not only a responsibility for development, but also a responsibility of failure, is thereby distributed across a wide range of urban actors. Governments continue to serve the purposes of



*coordination* (923 references) and *facilitation* (706 references), along with other organizations and individuals. There are non-governmental organizations, local governments, communities, companies and individuals that become part of the resilience assemblage for different purposes, in different capacities and in different times. UN-Habitat claims that while resilience has a potential to engage many of these actors on a common ground, a considerable amount of ‘coordination and interaction are needed [...] in order to fully leverage this cross-sectoral and multi-scale network of actors’ (UN-Habitat, 2017, p. 45).

The main strategies of enhancing this type of governance are connected to terms such as *plan / planning* (1.108 references), *strategy* (2.331 references), *manage / management* (3.368 references), *develop / development* (1.839 references), *organize / organization* (2.524 references) and *implementation* (2.498 references). These are presented as rejecting a top-down approach to urban governance, in order to empower and train individuals and communities to take ownership of the governance process and thereby become resilient subjects. This is commonly known as *capacity building* (2.256 references). UN-Habitat encourages “good urban governance worldwide [by channelling] responsibilities and resources to local authorities, civil society and individuals” (UN-Habitat, 2016c, p. 10).

As becomes evident throughout this section, networks of organizations – from international to local, public to private, and many in between – are brought together. These include the United Nations agencies and programs, such as UN-Habitat, UN Development Programme, UN International Strategy for Disaster Risk Reduction, the European Union, Organization for Economic Cooperation and Development; international funding frameworks such as USAID; international investment banks such as the World Bank or Inter-American Development Bank; state, regional and local governments; private technology, insurance or consultancy companies like IBM, Veolia, Swiss Re, Microsoft, Siemens, ARUP;

international associations of cities such as ICLEI, Cities Alliance or C40 and global philanthropy platforms such as the 100 Resilient Cities of the Rockefeller Foundation (see UN-Habitat 2017, p. 46). The role of this network in facilitating urban development by empowering people to fully realize their potential seems to be universally accepted. The resilience language helps to legitimize this process in the eyes of the stakeholders and the public alike. The assemblage of these actors helps produce and shape the knowledge of what resilience is and how it should be assessed - the first of the three strategies of governance to which we now turn.

### Building knowledge alliances

As knowledge goes hand in hand with power, delivering effective governance requires a detailed and accurate knowledge of what is to be governed. On the most basic level, knowledge is powered by *data*, referred to 2.504 times in the analysed material. Data is seen as key to resilience assessments, policy making and resource allocation. Measurable and quantifiable indicators of urban development are needed - economic, environmental, social, technical and other kinds. Systematically collecting and analysing this type of data worldwide is an incredibly complex exercise, involving public and private organizations alike. One of the most prominent projects focused on resilience is The World Bank's *Open Data for Resilience Initiative*. Additionally, the Ecological Sequestration Trust powers *Resilience.io*, which gathers data in the areas of land use and function, agent (human, businesses) activities, resource flows, service and infrastructure networks and technology or infrastructure processes (see UN-Habitat 2017, pp. 71-80). The data collected can be used for assessments, reviews and diagnostics, which in turn inform policies and strategies of building resilience in particular locations. Targeted mapping of urban vulnerability and resilience, or a capacity to cope, is seen as a tool for risk reduction in cities (UN-Habitat, 2007a, p. 164).

Collection and analysis of data on urban infrastructures and populations serves as a basis for *standardization*<sup>9</sup> (1.076 references), which is understood as both tool and a goal in public policy. It provides a set of measurable criteria which, applied on any urban community, neighbourhood or city, inform a quantifiable assessment indicating *how resilient* the studied subject is. A typical example of standardization is the *Disaster Resilience Scorecard* developed by technology companies AECOM and IBM in order to quantify and assess risk reduction capacity of concrete cities. This is based on 80 self-assessment questions, each of which scored in terms of compliance. Another example is the *CityStrength Diagnostic* scheme developed by the World Bank aiming to ‘assist with long-term investment and policy options’. The initiative breaks down city resilience into thematic categories or sectors, such as Disaster risk management, Environment, Health, Municipal Finance or Urban Development, and develops a set of criteria for assessment in each sector (UN-Habitat, 2017, pp. 50-53). Other projects designed to standardize and quantify resilience data include *Future Proofing Cities* financed by the United Kingdom Department of International Development, *Hazur* tool for quantifying urban hazards developed by a Catalan-based company OptiCits, *Resilience Insight Tool* powered by BuroHappold Engineering, or *City Risk Index* developed by the insurance branch of Lloyd’s in cooperation with the University of Cambridge (ibid., pp. 76-79). In fact, the number of different assessment and diagnostic tools for urban resilience has become so great that a platform *resiliencetools.org* was founded to bring them together and to facilitate their implementation.

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<sup>9</sup> For its part, the International Organization for Standardization, founded in 1947, has explicitly referred to resilience in a number of its standards issued since 2016. These include the approved Inventory of existing guidelines and approaches on sustainable development and resilience in cities, and others currently under development, such as a community resilience building standard Security and resilience - Community resilience - Guidelines for planning the involvement of spontaneous volunteers (UN-Habitat, 2017, p. 55). Leaving aside the obvious oxymoron of controlling spontaneous volunteers, one can argue that the quest to standardize and quantify resilience creates a basis for intervention. In this sense, resilience standards legitimize policies and technologies developed and implemented to address the lack of resilience, examples of which continuously appear throughout the analysed dataset.

The inability of governments to manage all aspects of urban development opens the sector of governance to *partnerships* (1.517 references) with other *stakeholders* (886 references, notably *private sector* (3.162 references), *civil society* (1.190), and *NGOs* (626 references). These are assembled into what I refer to as knowledge alliances of urban resilience. Powered by *data* (2.504 references), *knowledge* (732 references) and *expertise* (540 references), these actors shape and reproduce the definition of ‘resilience’ and ‘resilient’ in public policy. Since the 1980s, the *Urban Management Programme* led by UN-Habitat, The World Bank and the United Nations Development Programme aims to foster ‘an inclusive approach of city consultations that promote participation and empowerment’ (UN-Habitat, 2016c, p. 83). Further institutionalization of knowledge alliance building in urban management has resulted in the creation of other cross-sectoral programs such as Cities Alliance’s *Programme and City Development Strategies* (ibid.).

UN-Habitat has powered countless other initiatives, platforms and projects focused on urban resilience worldwide, and thereby shaping the knowledge alliances of urban resilience. One of the key initiatives is the *Medellin Collaboration on Urban Resilience*<sup>10</sup>. The Collaboration was founded at 7th World Urban Forum in 2014, bringing together UN-Habitat, UNISDR, The Rockefeller Foundation, 100 Resilient Cities, C40 Cities Group, Cities Alliance, Local Governments for Sustainability, The World Bank, Inter-American Development Bank and the Global Facility for Disaster Reduction and Recovery. It embodies the essence of cross-sectoral, global knowledge alliance as it enhances the “flow of knowledge and financial resources necessary to improve cities’ resilience to natural and man-made disasters, as well as a variety of stresses related to climate change, migration, rapid urbanisation and other socioeconomic challenges” (UN-Habitat, 2017, p. 81).

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<sup>10</sup> Formerly a city notorious as the headquarters of the most powerful drug cartel in Latin America, Medellín has rebranded itself as a progressive urban centre focusing on participatory urban design and governance. The city hosted the 7th World Urban Forum conference in 2014.

The breadth of issues and problems the knowledge alliances claim to address suggests the purpose of resilience to become a universal solution for complex urban problems. Participation of different agencies and organizations legitimizes the knowledge produced and the policies designed on its basis, with the noble aim to secure everything against everything. The degree of emphasis that is placed on these networks and partnerships suggests the importance of resilient knowledge and standards in constructing resilient sites and subjects. The institutionalization of these alliances goes hand in hand with experts' networking at international workshops, conferences and summits, which often result in further proliferation of projects and initiatives under the banner of resilience. Building knowledge alliances in turn contributes to the legitimisation of knowledge used to inform policies on the local level.

#### Resilience funding and economic development

Governing for resilience and producing the legitimising knowledge to do so would not be possible without a considerable funding provided by public and private organisations. The funding element of urban development is crucial in understanding how priorities and beneficiaries are chosen. This section addresses funding of resilience on two different levels. The first one, referring to a set of individual economic strategies on a micro-scale, focuses on people that are understood as 'vulnerable' or 'poor' in the UN-Habitat language. In the latter, individual economic viability and self-sufficiency guarantees human progress and resilience, which in turn neutralizes the problem of poverty. Ending urban poverty is one of the long-declared goals of UN-Habitat (UN-Habitat, 2016b, p. 3). In this reading, one of the indicators of successful urban development is a *non-existence of poor people in cities*. As the effects of globalization and climate change have placed billions in state of urban poverty, this opens a wide agenda of enabling poor urban dwellers to become self-sufficient and resilient, fully realising their potential to become part of the formal economy using their formalized behaviours and assets. To a

large extent, individual and community economic development has to do with a formalization of assets and behaviours that were previously informal (ibid., p. 7), or more explicitly, “formalization of the informal sector” (UN-Habitat, 2016c, p. 139).

A capacity of individuals to overcome the state of poverty has to do with their *income* (4.655 references) and *resources* (2.820 references) at their disposal. Hence the available techniques and strategies to help vulnerable individuals realize their potential. People with higher income are also seen as more productive and ‘willing and able to pay’ for housing, and ‘it is intuitively evident that where people are well housed, they can be more productive’ (UN-Habitat, 2005, p. 151). This way, economic viability of individuals is discursively connected to ‘national economic success’ (ibid.). Overall, *economy* or *economic* is referenced 6.494 times in the analysed material. To address the lack of economic success of the urban poor, various financial schemes and platforms are developed to facilitate their economic development, such as small loans and community funding projects. An improvement of individual financial situation is seen as a pathway to individual resilience. This corresponds to the long-declared goal of the UN-Habitat to end urban poverty worldwide, so that the formerly vulnerable populations are enabled to take a full responsibility for their livelihoods.

In order to improve one’s economic standing, external facilitation mechanisms come in different forms - *financing* (3.198 references), *investment* (2.494 references) and *funding* (2.483 references) by public and private donors, including small-scale and local funding schemes. Examples pioneered by UN-Habitat include so-called green mortgages for poor people in Mexican cities (UN-Habitat, 2016c, p. 96) or social housing financing scheme in Mozambique (UN-Habitat, 2015, p. 18).

This leads to the second level of resilience funding, this time operating on a macro scale, facilitated by global development banks, international organizations and governments. Using the language of ‘helping the poor help themselves’, the goal is to support the urban poor in becoming

resilient individuals against all odds. The World Bank and its partner organizations have pushed similar logic for decades, newly labelled by resilience. Its tenets are summarized in *Investing in Urban Resilience: Protecting and Promoting Development in a Changing World*. The World Bank plays part as a “borrower, investor and risk manager, specializing in loans, contingent financing, guarantees, hedging products and disaster risk financing for development programs” (UN-Habitat 2017, p. 51). Similarly, the Organization of Economic Co-operation and Development focuses on investment in resilience-oriented measures. One such initiative concluded in a report titled *Climate and Disaster Resilience Financing for Small Island Developing States* (ibid., p. 57).

Also focused on major cities of the Global South, the United Kingdom Department for International Development has partnered with the Rockefeller Foundation, Asian Development Bank, USAID and the Swiss Secretariat for Economic Affairs in creating *Urban Climate Change Resilience Trust Fund* (ibid., p. 71). The Union for the Mediterranean headquartered in Barcelona also commits to urban resilience within its *Urban Projects Finance Initiative* and collaborates with UN-Habitat in delivering analyses of resilience investment impacts, and, more broadly, collaborates on the *City Resilience Profiling Program* also based in Barcelona (ibid., p. 57). In 2014, the Inter-American Development Bank (IADB), became a partner of the *Medellin Collaboration on Urban Resilience* focused on housing challenges throughout Latin America. Between 2004 and 2011, 20.7 billion USD was distributed within this program to climate change projects by IADB in forms of public and private sector loans, policy-based loans, technical cooperation and investment grants (ibid., p. 77).

Many of these initiatives connect the levels of individual and community development across dimensions of the economy, health and environment. A part of the funding available is used for capacity-building of vulnerable communities and individuals to face shocks and stresses. However, much of resilience-building is also focused on built environment and infrastructure which in turn

conditions cities' ability to function and cope with adverse conditions. This has become an important focus of investment and development, with far-reaching implications for ways in which cities and lives in them are governed.

### Resilient infrastructure and technology

Build-up and maintenance of resilient urban infrastructures is seen as another principle of building resilience in cities. Planned and commissioned by governments and largely delivered by private companies, technological interventions in the name of resilience have become widespread and invasive alike. Considering infrastructure and built environment as 'muscles' of cities and their functions, and information technology as a nervous system that operates the former, the political implications of their use deserve particular attention.

According to UN-Habitat, the climate change-related sea level rise, extreme weather, heat waves or drought have substantial impacts on urban physical *infrastructure* (3.778 references), be it residential, transport, energy, water or sanitation systems (UN-Habitat, 2011b, p. 70). To mitigate these impacts, innovation and awareness campaigns have been developed as a 'combination of financial, regulatory, education-based and voluntary mechanisms' (ibid, p. 96). This reactive approach to climate change is therefore implemented through enforcing standards of operation and behaviour on the level of individuals, households, buildings and entire neighbourhoods. Limitations of carbon emissions and efficient energy management on a personal level are understood as a baseline strategy to make cities as a whole green and sustainable. The landmark Habitat III Agenda commits to 'strengthening resilience of cities [by means of] development of quality [green] infrastructure' (UN-Habitat, 2016b, p. 17).

When facing extreme weather events and other disasters in urban areas, robust infrastructure appears to be a key precondition. Buildings, transport connections and energy infrastructure that are built properly are more likely to withstand adverse weather conditions, and thereby mitigate their



impacts on the functioning of cities. ‘Proper’ build-up is often juxtapositioned against ‘informal’ infrastructure which is seen as more vulnerable. Constructing resilient infrastructures is commissioned by state or local governments, but implemented largely by private sector. The most prominent areas of the resilient build-up are urban *transport* (4.212 references) and *energy* (2.508 references). Providers and operators are also often private, which places these actors in the position of partnership with state and local authorities when it comes down to providing essential services for the cities they govern.

Resilience building is not limited to dealing with extraordinary circumstances of disastrous events. Attempts are being made to incorporate ‘resilient’ elements and functions to everyday operations in cities and neighbourhoods, made possible by the latest *technology* (1.372 references). Many of these have to do with social and spatial control of urban spaces and populations, employing measures to monitor and manage traffic, financial transactions and individual movements by means of data collection, widely employing CCTV and various biometric methods such as facial recognition. Technology is understood as a management tool in this sense, used by governments and private companies, while urban sites and citizens are subjects of it. Data collection was argued above to be a governance technique, constituting a new dimension of it by leveraging technological capacities of the private sector. All in all, there are 3.162 references to *private* or *privatizing* in the analysed material, while public-private partnerships are praised as ways to harness knowledge and capital of the private sector to enhance projects for public good (UN-Habitat, 2016c, p. 15).

Private companies are considered to be enablers and therefore have gained a unique position in the urban resilience assemblage. Private sector entities, typically large multinational companies focused on engineering, technology, consultancy, management, or insurance, seem to have discovered the potential benefits that resilience approach can bring. Branding their products and services with ‘resilience’ and ‘resilient’ enables them to tap into the momentum created in public policy. For instance,

a large multinational corporation headquartered in the United States AECOM offers resilience services ranging from consultancy to construction, across sectors such as transportation, environment and government. In addition to delivering resilience to its public and private clients, AECOM has partnered with UNISDR and 100 Resilient Cities on different projects, including facilitating workshops and contributing to Resilience Strategies of cities such as San Francisco. For its part, IBM, or International Business Machines Corporation, is a multinational technology and consultancy corporation focusing on 'development of more sustainable and resilient cities with a people-centred approach'. The basis of its business strategy is a 'collection of large amounts of data, analytics and mobile and social computing' (UN-Habitat, 2017, p. 53). In addition to working with UNISDR on implementing the Sendai Framework objectives, IBM has developed a project called Smarter Cities to integrate technological components of cities in order to deliver a more effective governance.

The analysis has argued that knowledge, funding and technology have turned into three principle channels of a subtle power projection under the umbrella of resilience. Table 2 below summarizes these three strategies proposed to address a lack of resilience of cities and urban populations. The categories consistently appear across the analysed material produced, sponsored or commissioned by UN-Habitat. In addition to identifying the strategies, the Table includes the total number of references, description, specific local examples and an interpretation of how the strategies serve as technologies of government.

STRATEGY	No. of references	Description	Examples	Resilience as a technology of government
<i>governance</i>	9.538	<i>good governance on all levels from urban to state; formalization and development of the informal and underdeveloped</i>	<i>international organizations, development schemes and platforms, capacity building; WB, IADB</i>	<i>Only formal governance and behaviour are regarded as proper / resilient; managing people's actions and living environment (biopolitics)</i>
knowledge: partnerships, data, standardization	728 1.517 2.504 1.076	forming networks of partners, stakeholders, experts, officials, civil society, private sector - provides legitimization, shapes definition of resilience	projects and networks of UN-Habitat; Medellin Collaboration on Urban Resilience; Open Data for Resilience Initiative; CityStrength Diagnostics	constructing the meaning of resilience, shaping subjectivities of people (external risks and their role in the adaptation); citizens as subjects of data collection
financing, investment and funding	3.198 2.494 2.483	governments, banks, funds and private sector provide funding and push resilience in the international policy agenda, mobilize other stakeholders	funding schemes, loans and projects; UN-Habitat Urban Resilience Profiling Programme, Urban Climate Change Resilience Trust Fund, World Bank initiatives	these are funds to 'empower the vulnerable', enable interventions where they are seen as necessary; all under the pretext of helping people help themselves
Infrastructure and technology: transport, energy	3.546 1.372 4.212 2.508	commissioned by governments / delivered by private sector (services and products); innovation, technology, infrastructure, consultancy, insurance	urban infrastructure projects - buildings, utilities, transport, power networks, water management systems; surveillance and control systems - CCTV, biometric data collection	resilience as a technical question; people as subjects of control (entrepreneurs of themselves) maximization of human capital; equating resilience with innovation and profit-making

Table 2: Summary table of the results, author's elaboration

## Discussion

The problems and challenges to which urban resilience is posed as a solution seem boundless. They tend to include all and any possible localized effect of climate change and its adverse effects on natural environment, infrastructure and populations in cities. Urban resilience is presented as a magic pill, an incredibly broad and strategic approach, framework, or strategy to plan for, mitigate, and develop cities amid environmental risk. Three categories of problems can be identified in this sense. The first two, urban informality and urban poverty, can be understood as internal or subjective deficiencies resilience. Constituting them as such is inherently political, as claiming that certain individuals and communities are not resilient enough implies a need of intervention. This is carried out in subtle ways by a set of biopolitical and disciplinary techniques. The key is to internalize the responsibility for building capacities to overcome adversity in order to become a resilient citizen.

The third category of problems identified by UN-Habitat concerns disasters of natural and anthropogenic origin. These are rarely problematized in terms of their underlying causes. Rather, they are merely recognized or stated as a serious issue for cities which has to be managed. Their existence and proliferation is understood as an inevitable consequence of globalization and economic progress and, in some cases, natural causes. In any case, a range of technocratic mitigation techniques is proposed, with important material implications for urban sites and their public use. Much of the implementation is outsourced to the private sector which contributes to strengthening public-private partnerships involving major technology and consultancy companies.

This brings us to the strategies that are offered to fix the above problems, manifested in two layers – the constitutive one related to subjects, and the regulatory one related to materiality. The solutions proposed are largely technocratic and disciplinary - under the pretext of 'good' and 'appropriate' governance, three channels of subtle power projection emerge. These channels work

through constructing and mobilising resilient knowledge and expertise, raising and applying funding for resilience, and building and employing resilient infrastructures and technologies. All of these principles have an important 'governmentality' component to them, with regards to their function and purpose. The urban resilience policy is strongly infused with the 'civil society engagement' language, which seems to be a relatively common 'box to check', as will be discussed in Chapter III.

In a nutshell, UN-Habitat identifies the problems and proposes a set of strategies based on close cooperation with a range of public and private organizations. The normative and emancipatory language employed by UN-Habitat tends to mask the subtle regulatory and constitutive techniques embodied by resilience. The strategies that UN-Habitat promotes are in line with the governmentality approach and are essentially disciplinary. The ability to adapt and adhere to defined standards determines the perceived resilience value of urban sites and residents, and often opens doors for policy interventions in case the standards are not met. At the same time, UN-Habitat rhetoric constructs human capital and its maximization as one of the key answers to poverty and a lack of adaptability. While technically sophisticated and regulated cities are considered resilient cities, the empowered and adaptive individuals are considered resilient citizens. The knowledge alliances composed of influential research and policy institutions have helped to shape this understanding and remain one of the backbones of urban resilience as used in the context of urban governance and development across the world.

## 100 Resilient Cities

Another one of the most important urban resilience initiatives developed on a global level is the sole focus of this section. The role of privately funded philanthropies in urban resilience was briefly mentioned in previous sections. Given the context of the historical evolution of philanthropic organizations, the analysis of the industry of urban resilience would be incomplete without including

an actor of this kind. A deeper look into the function and purpose of the 100 Resilient Cities of the Rockefeller Foundation sheds more light on how the post-liberal governance of cities and urban residents works in practice.

Resilience as a signifier or a value can be easily adapted to serve business purposes. Tracing possible interests of private sector in the realm of securing and developing cities, one can identify the conditions of emergence of what we know today as urban resilience in the early 2000s. The series of the above-mentioned urban disasters, coupled with the renewed interest in the effects of climate change, set the tone in the business community. It was no coincidence that this was the time when resilience started to proliferate in public policy on all levels. Sustainable and smart cities were put on the agenda, while products and services in consultancy, insurance and technology gained the resilience label. The role of the private sector became key in making cities smart, green, sustainable and resilient. Digitally connected and empowered citizens became part of city governance itself, along with other entities and organizations.

The Rockefeller Foundation has been involved as a major donor and partner in projects focused on city resilience throughout the last decade. In *Rebuild by Design*, along with the United States Department of Housing, it has funded disaster risk planning for regions affected by the Hurricane Katrina. Focusing on the effects of climate change on cities world-wide, it has sponsored the *Asian Cities Climate Change Resilience Network* and the *Global Resilience Partnership* in Africa and South-East Asia. The Foundation also became a partner to the *Medellin Collaboration on Urban Resilience* in 2014, along with UN-Habitat and the World Bank (UN-Habitat 2017, p. 59).

Designing strategies for specific cities to face all types of risks has been the objective of its most ambitious project yet on the global level – *100 Resilient Cities* (hereinafter 100 RC), a non-profit organization founded and financed by the Rockefeller Foundation. This project is the focus of this

section, as it allows us to understand the extent of interconnectedness between public and private sector in urban governance. 100 RC connects local or municipal administrations and city mayors on one side with a range of private companies on the other. The geographical span of the project is truly global – it has worked with a 100 cities all over the world, focusing on three main trends affecting cities: urbanization, globalization and climate change. The combined population of this project's member cities, including their metropolitan regions, is almost 500 million (Rockefeller Foundation, 2017, p. 64), which indicates the degree of impact and relevance of this initiative on the global level.

100 RC defines urban resilience as “the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks they experience” (Rockefeller Foundation, 2017, p. 10). The former President of the Rockefeller Foundation Judith Rodin's book titled *The Resilience Dividend: Being Strong in a World Where Things Go Wrong* defines resilience as a ‘capacity to bounce back from a crisis, learn from it, and achieve revitalization’ (Rodin, 2014). This definition reflects the understanding of resilience as a strategy to overcome the inevitable adversities that come along with the above mentioned globalization, urbanization and climate change. To do so, it prescribes a set of standards, quantifiable variables, frameworks, roadmaps and strategies. This perspective strongly resembles the one described above, reproduced by the assemblage of knowledge-producing entities gathered around UN-Habitat. It claims that chronic stresses such as unemployment and pollution will ‘inevitably occur’ (Rockefeller Foundation, 2017, p. 10). Adverse effects of globalization are in no way problematized – rather, they are taken as a given. Instead of searching for possible ways to reverse them, the focus is on *managing* them *when* they manifest themselves.

Further, as the role of the state as top-down regulator largely diminishes, its role as coordinator and administrator of life is strengthened and resilience opens doors for new actors to participate in the

urban agenda. Agency of the private sector and individual citizens is an important part of this logic. Free market of technological measures is deemed to be the only solution to tackle urban problems – legitimized by empowering the digitally connected citizens to take part in this process. Constant data collection and analysis becomes a cornerstone of making cities smart, green, sustainable and resilient.

This approach legitimizes and openly advocates for constant growth as the only possible way forward. In this understanding, constant economic development, which inevitably comes with adverse environmental and social impacts, becomes intertwined with human progress. One cannot be achieved without the other. The question that is asked is about *how to manage* the adversities that will most certainly occur. The answer stands on the logic that considers entrepreneurs and citizens as the sole forces of adaptation that will – unchained by regulations of the state – ensure development and progress for everyone. The growing permeation between the language and interests of the industry on one side and public policy on the other is largely accepted – if not openly embraced – as a part of this equation.

Private-public collaboration is the essence of 100 RC – and the Rockefeller Foundation itself. Originally established in 1913, the Foundation’s mission is to “promote the well-being of humanity throughout the world” (Rockefeller Foundation, undated a). 100 Resilient Cities project was designed with the goal to “help cities around the world to become more resilient to physical, social and economic shocks and stresses” (Rockefeller Foundation, undated b). In addition to designing frameworks for resilience and appointing a Chief Resilience Officer for each city, the project aims to bridge the cities with private sector partners. In order to create a city resilience methodology, the Rockefeller Foundation commissioned ARUP – a private multinational company focused on urban planning, design, management and consulting. The Rockefeller’s *City Resilience Index* is therefore a private product that has been marketed as a tool to operationalize resilience of 100 RC city members around the world –



provided that they are willing to purchase it (Simbieda, interview 29.11.2016). ARUP is a key private partner to 100 RC - not only as the developer of the Index, and thus, the methodology to assess resilience of the member cities, but also as a major consulting company connected to the leaders of many of the city resilience projects developed within 100 RC. In short, ARUP acts as a consultancy and advisor helping the member cities' Chief Resilience Officers fulfil the objectives of the program.

Private sector entities account for the majority of sponsors and partners of 100 RC. The program website currently lists more than a hundred 'platform partners' (Resilient Cities, undated b). Chart 5 below depicts the breakdown of industries or focus areas that these organizations operate in. It includes the entities that are explicitly listed in these categories on the project website. The majority of organizations list more than one area of expertise, as many of the latter are overlapping (for instance, IT companies developing software to plan and manage urban transport). The degree of interest in different areas is quite revealing in terms of the dominant approach to urban resilience. Areas of culture, environment, equity and urban populations represent smallest group of project partners of 100 RC. At the same time, organizations focusing on finance, urban planning, IT and 'governance and policy administration' are the most salient. The latter category includes companies that supply e-government technologies to manage lives of urban populations in real time. Culture is represented by solely two entities, while public health is not represented at all.

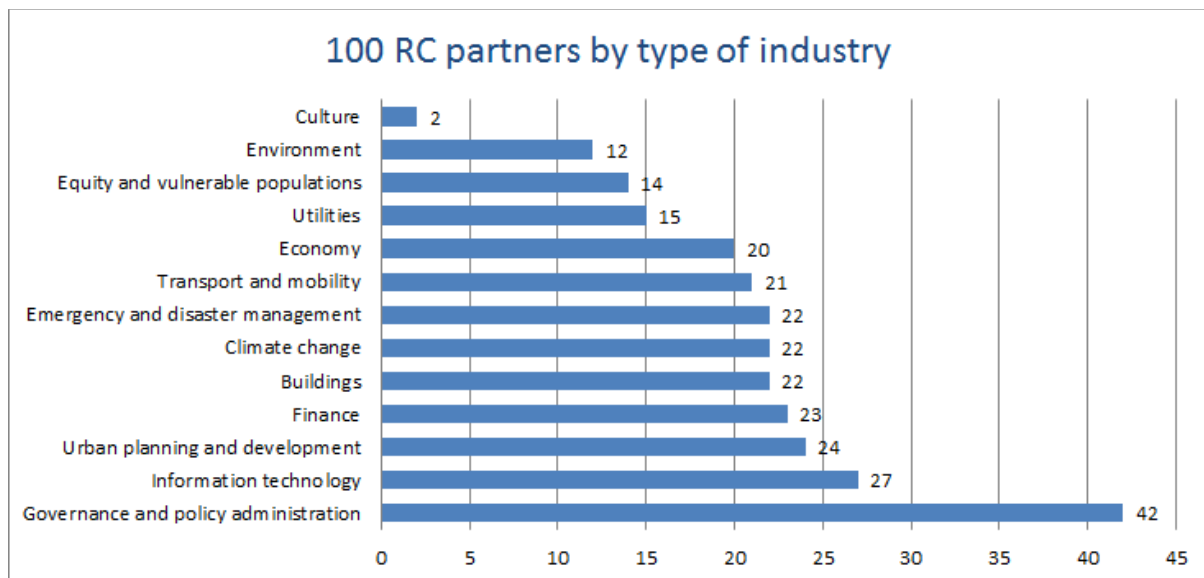


Chart 5: 100 RC partners by type of industry. Source: Data from 100 RC project website, author's elaboration

Looking at the 100 RC project partners by type of entity, depicted in Chart 6 below, the overwhelming majority – almost three quarters – is composed of three kinds of *private* entities. First, there are 31 private companies focused producing resilience-labelled technologies and infrastructures to be applied on the ground, from flood barriers to CCTV cameras. Second, 30 platform partners provide consultancy, risk management and insurance services tailored to cities and urban environment, quantifying hazard exposure and predicting potential losses due to accidents and disasters. The third type represents 19 products of private companies labelled ‘IT-citizen platforms’ for the purposes of this study. These are typically portals or applications that harvest and manage large amounts of real time data to help empower citizens to make informed decisions, while simultaneously tracking their location and behaviour. These three kinds of private companies, their services and products account for 72 percent of all 100 RC platform partners. In addition, research-and-education and non-profit organizations support the project (9 partners respectively), followed by Foundations and Charities (7)

and Investment banks (2). Two US Government agencies are also involved – namely the US Department of Health and Human Services and the US Environmental Protection Agency.

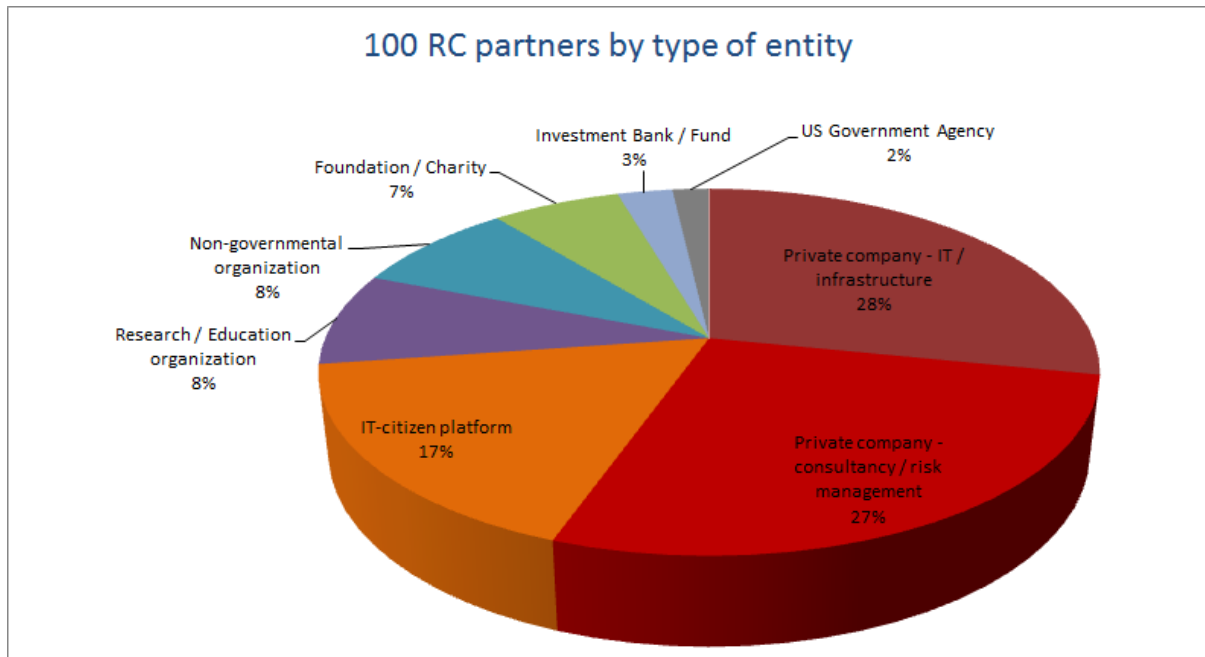


Chart 6: 100 RC partners by type of entity. Source: Data from 100 RC project website, author's elaboration

Private sector involvement is a crucial part of this project – both in terms of its philosophical foundation and its practical implementation. While cities are often seen as lacking the tools of technical expertise, the private partners of the project are eager to provide those. 100 RC brings together “Platform of Partners, including global industry leaders and innovators [...] to respond to cities’ demands and support them in taking action. *We connect cities to Partners who have the solutions and expertise they need, and help catalyse the marketplace to create solutions*” (Rockefeller Foundation, 2017, p. 12, emphasis added).

As noted above, private Platform partners of 100 RC include major IT and insurance companies. One of the latter is Swiss Re which markets tools to quantify hazard exposure, and potential disaster cost calculation. ICT companies such as Palantir, CISCO, Siemens and Microsoft create systems to

analyse and integrate massive streams of data collected in real time (Resilient Cities, undated b). These are in turn presented to the member cities as cutting-edge solutions to their complex urban problems. The funding available from the Foundation is then used by the member cities to purchase these solutions, argued to be tailored for their specific needs.

The project has been judged as extremely successful in this sense so far – the 100 RC project report from 2017 claims that more than 535 million USD has been ‘leveraged from national, philanthropic, and private sources to implement resilience projects in member cities’ (Rockefeller Foundation, 2017, p. 13). Critics of this project point to the fact that the funds that member cities obtain are used to purchase consultancy services from the very sponsors of the Rockefeller Foundation (CIGIDEN researcher, interview 28.11.2016). This way, the program funding provided by 100 RC platform partners flows back to its original source, increasing corporate visibility and building powerful connections between private companies on one side and city administrations on the other.

The implementation of 100 RC in each member city consists of four principal components. First, a *Chief Resilience Officer* (hereinafter CRO) is appointed for each city. This is to provide ‘logistical and financial guidance’ and coordination for the project. The CRO is an official whose salary is paid by the Rockefeller Foundation for a period of two years, and who is, in the project materials, frequently referred to as a ‘connector’. The CRO and their Office or Department is placed within the structure of the local administration of each member city. The aim is to ensure a long-term establishment of the initiative, and build relationships with the city mayors and other administration officials. The CRO can also be placed elsewhere within the structure of the local or municipal administration (depending on the administrative model of any given city of metropolitan region). The CRO counts with a financial support exceeding 1 million USD in throughout the first year, and acts as a facilitator of the 100 RC

project in their city, bringing together a range of private and public stakeholders in order to design a key strategic document.

This document is the second principal component of the project, to be developed within the first year of membership in 100 RC, titled *City Resilience Strategy*. The process of designing it is supposed to last from 6 to 9 months, at the end of which a strategic document is presented to the public and published on the 100 RC website. 49 out of the 100 city members have published their Strategies to date.<sup>11</sup> The document defines the main vulnerabilities and risks that the city faces, and suggests a set of goals and priorities for future action, and thus represents a strategic ‘policy paper’. City Resilience Strategies tend to be fairly detailed and specific as for the problems they identify and the solutions they propose. A city’s CRO and the team around them are the main driving force behind the Strategy, and the ones responsible for finalizing it as a key output of the city’s membership in 100 RC.

Third, a crucial part of the project is linking cities with the *Platform partners* – three quarters of which are private companies, as was shown above. It is important to note that many of the main 100 RC partners are multinational companies, as opposed to locally based enterprises. When speaking about resilience of cities and city regions, city officials often refer to the need of making *local* economies strong in order to face shocks and stresses inherent to globalization and climate change (Johnson, interview 23.9.2015). However, the role of local companies is not particularly salient in the Resilience Strategies published to date, except for a basic supply level. As the urban resilience market becomes more and more globalized, local and smaller companies are often pushed aside as they cannot compete with the multinational resilience providers that partner with the Rockefeller Foundation.

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<sup>11</sup> as of November 2018

The fourth major component of 100 RC is focused on mutual networking among the member cities, in order to spread the 'best practices'. This is often done through international conferences, workshops and seminars in which host cities present their Resilience Strategies, discuss the challenges their cities face and learn about practices used in other member cities. This problem-solving, stakeholder-networking and policy-transfer approach is an important part of the knowledge alliance building within 100 RC. It allows city leaders and industries to develop connections, secure political support and broaden markets for services and products that the Platform partners are selling.

The analysis below aims to re-examine the first and second research question in the context of 100 Resilient Cities. The relevance of this project on the global scale, in addition to its specific focus on urban resilience and its nature as a philanthropic project make it an excellent case for analysis. The categories of what is seen as problems and strategies of urban resilience are extracted, discussed and then contrasted to the ones identified in the policy outputs of UN-Habitat. Based on these categories, the last section of this chapter proposes an analytical framework, which is in turn applied to the case studies.

## Problems and solutions to urban resilience

The kinds of documents used for analysis in this section include 100 RC regional reports (such as ones focused on city resilience in the European Union, United States, Latin America and Asia Pacific), thematic reports (resilience market, insurance, school safety, migration and specific disasters), the programme framework, strategies and guidelines. It also includes a set of 8 reports and guides on *City Resilience Index* developed by ARUP. Additionally, 48 city resilience strategies produced by the members of the programme before November 2018 are included. Altogether, 78 sources published between 2014 and 2018 are analysed here.

## Problems to which 'resilience' is posed as a solution

In line with the previous section, this part provides a description of problems and challenges that contemporary cities are experiencing based on the analysis of 100 RC-sponsored documents. It is noteworthy that the problems described here are of more operational and tactical nature, compared to broader and strategic issues that dominates the UN-Habitat policy outputs. This is because 100 RC is focused on specific urban sites and risk diagnostics within its member cities, and emphasizes *urban* and *local*, rather than *state* and *international*. Despite these differences, much of the analysed material has used a strikingly similar language compared to the previous case, as will be discussed in turn.

Throughout the analysed texts, 100 RC consistently uses a distinction of the identified problems with regards to the form of their manifestation. On one hand, it refers to *shocks* (2.155 references) in a sense of immediate events with impacts on cities and urban populations. On the other hand, it uses the concept of *stresses* (2.077 references), or chronic and long-term events and phenomena which adversely affect people and the environment. The shocks and stresses manifest themselves in multiple forms as discussed below; for the purpose of a systematic analysis, they are divided in three separate categories which stand out throughout the texts.

### Socio-economic problems in cities

The issue of socio-economic deficiencies, discursively linked to a lack of resilience, consistently appears throughout the 100 RC materials. Many parallels can be found between UN-Habitat and 100 RC in this context as they tend to construct similar concepts to name the issues to which resilience is presented as a solution. While the absence of people's adaptability is understood as a key challenge, resilience on the side of subjects is perceived as something that can be built-up, trained and assessed, as will be discussed below.

*Informal* (2.414 references) individuals, assets and ways of life are constructed in parallel to *vulnerability* (1.807 references) of people and communities to shocks and stresses. Vulnerable also typically means *poor* (943 references), referring to population groups unable to satisfy their basic needs or those of their families, regardless of whether these individuals work or not. *Employment* and *unemployment* (1.401 references), followed by *jobs* (1.039 references) are other key terms that appear throughout the 'socio-economic challenges' sections of the city members' risk assessments. Last but not least, challenges of *affordability* (1.050 references) in general and *housing* (2.868 references) and *homelessness* (335 references) in particular seem to have gained a unique position in the matrix of risks identified, no matter the city and region concerned.

One of the 100 RC projects which brings all the above described issues together is the upgrading of an urban area near Pantanos Stream Basin in Montevideo, Uruguay. The neighbourhood has been classed as overwhelmingly poor, characterized by "lack of investment and a shortage of employment opportunities, inadequate infrastructure and informal settlements which contribute to the water and air pollution" (100 RC, 2018a, p. 17). Elsewhere in Latin America, the Mexico City discursively links its vulnerability to a limited capacity of people to respond to shocks and stresses, often conditioned by the level of poverty, which affects over 30 percent of the population of the Capital (Ciudad de México, 2016, p. 34). These examples illustrate how interrelated the mentioned concepts are - poor equals informal and vulnerable, which goes hand in hand with low quality of infrastructure, lack of investment, as well as persistent environmental degradation in such areas. In other words, poor residents are not resilient enough to overcome the state of precariousness, and thus need to be enabled to become so by governmental and nongovernmental organizations and private sector.

The logic of vulnerable communities requiring empowerment and investment to become non-vulnerable and self-sufficient is not limited to developing countries and cities. Advocating for a need to



develop a federal resilience policy in the United States, 100 RC argues that a “systemic disinvestment in vulnerable communities” is at the core of non-resilience in US cities (100 RC, 2018b, p. 3). On the other side of the Atlantic, the local government of the City of Glasgow aims to reduce unemployment and enhance societal resilience by “supporting vulnerable people to address social and material dimensions of poverty” (Glasgow City Council, 2016, p. 43). The issue of housing (un)affordability frequently appears in the analysed city resilience strategies as yet another dimension of urban vulnerability. The 100 RC strategy of the City of Paris states that ‘gentrification and real estate speculation’ has pushed thousands of vulnerable people, such as the ‘homeless, families, the working poor and migrants’ to unsafe shelters (Mairie de Paris, 2018, p. 22). Housing affordability is also considered to be one of the key chronic stresses that undermine resilience of the residents of Sydney, Australia (City of Sydney, 2018, p. 35). The issue of homelessness also appears as one of the major problems and policy priorities in the Mexico City (Ciudad de México, 2016, p. 144), San Francisco (City and County of San Francisco, 2016, p. 84), and many other 100 RC member cities.

It becomes clear how the socio-economic problems and deficiencies become closely intertwined with the cities’ physical environment and infrastructure. Poor infrastructure produces socio-economic vulnerability and *vice-versa*. However, a reductionist understanding of this idea often leads to a fallacy of offering infrastructure build-up as a solution to address complex social problems. Be it as it may, urban populations become increasingly dependent on complex socio-technical systems, put under stress by both chronic and immediate impacts ranging from overcrowding to extreme weather events. It is the failure of these infrastructure and technology networks and their elements that stands out in the analysed material as another cause for concern.

### Ageing infrastructure in cities

In addition to populations and natural environment, cities work through their man-made *infrastructure* (3.720 references). The issue of its insufficient quality or its non-existence appears throughout all of the 100 RC resilience strategies published to date. From ageing infrastructure of de-industrialized urban centres in the United States such as Pittsburgh (City of Pittsburgh, 2017, p. 10), buildings and water supply systems unprepared to withstand earthquakes (City of Los Angeles, 2018, p. 18), existing transport systems unfit to deal with cities' development patterns (Alcaldia Quito, 2017, p. 11), or non-existent flood mitigation infrastructure in densely populated areas prone to flooding (City of Thessaloniki, 2017, p. 20), infrastructure failures and inefficiencies emerge as an overarching challenge that prevents cities from being resilient.

A single most pressing issue, indicated by the number of references, is *water* (3.773 references), in a sense of poor water infrastructure quality, water shortages and its mismanagement in general. In addition to being a fundamental resource for all living organisms, water is also essential for urban economies as a basic commodity used for production and services that cities require. Droughts and heatwaves are becoming "more frequent and more intense [with this trend] forecast to continue" (City of Sydney, 2018, p. 74). Lack of water is not the only stressor for cities - its extreme abundance in events of storms or cyclones can cause adverse effects, such as overflowing sewage systems and urban flooding (Prefeitura Rio, 2016, p. 22). More chronic, yet potentially disastrous in its nature is the gradual sea level rise which is connected to climate change and melting ice caps. Leaving aside any possibility to reverse climate change, 100 RC discourse resembles that of UN-Habitat in accepting sea level rise as an inevitable fact and focuses on dealing with its consequences. Coastal infrastructure build-up and upgrades are central to these efforts. For instance, the City of Christchurch, New Zealand, proposes new urban planning for its coastal areas "to adapt to sea level rise" (Greater Christchurch, 2015, p. 92), while San Francisco aims to 'respond' to sea level rise by upgrading the existing Northern Waterfront

Seawall (City and County of San Francisco, 2016, p. 68). Other cities within the 100 RC framework aim to fortify their coastal infrastructure, citing the risk of some of their neighbourhoods being submerged by sea water (see Prefeitura Rio, 2016, p. 22).

Aside from water-related infrastructure, another one of the most cited challenges concerns *electric power* and its management. A lack of energy efficiency, accidents and the related infrastructure failures resulting in power shortages and power cuts have had crippling effects on functioning of cities. Considering the amount of urban functions and elements directly dependent on electric power, many cities have included ageing *energy* (2.263 references) infrastructures on the list of their risks to tackle (see Buenos Aires Ciudad, 2018, p. 29; Municipality of Athens, 2017, p. 15). Another fundamental resource for cities and their populations is *food* (1.142 references) and the infrastructure that enables its production and supply. Food insecurity is by no means a domain reserved for the global South; this issue is listed among the main risks in the Resilience Strategy of the City of Los Angeles (City of Los Angeles, 2018, p. 23), linking poor supply infrastructure to economically deprived areas of inner cities. Concerns over food hygiene which present an important public health issue appear in the resilience strategy of the Vietnamese city of Da Nang (City of Da Nang, 2016, p. 39).

Similarly related to public health, the issue of *waste management* infrastructure stands out (1.492 references). Some European cities suffer from a “limited capacity of waste treatment and the struggle to meet the requirements of [their] current populations” (see Roma Capitale, 2018, p. 34). Latin American cities overwhelmed by levels of solid waste production express hope that ‘appropriate waste management activities’ will contribute to increasing their resilience (Ciudad de México, 2016, p. 71). Failed or poor waste management is seen not only as a public health issue, but also as a major obstacle to economic development of urban areas; the Resilience Strategy of Rio de Janeiro maintains that the urban waste polluting river systems “negatively affects the image of the city and the economic

potential of the coastal area” (Prefeitura Rio, 2016, p. 33). It is believed that ‘proper’ waste management will make cities healthier, more attractive and economically successful, that is, resilient.

The third category of problems that stands out refers to events that are often man-induced, or at least related to some effects of human activity. Most of them are also in some way connected to climate change. Disasters of different kinds appear throughout the analysed material as one of the most serious risks cities are facing. Accompanied by a language of urgency, cities aim to find technological solutions to increase their capacity to withstand these events.

### Disasters in cities

*Disasters* (2.108 references) are mostly understood as immediate shocks in the 100 RC terminology, although some of their symptoms and impacts can manifest themselves in more long-term or chronic ways. No matter the form of disasters, the latter are seen as manageable and / or fixable by technological means. This is where build-up of infrastructure and deployment of sophisticated software solutions comes in to make cities robust, connected, smart and resilient. As ways in which this is done are discussed in the following section, we first turn to the types and forms in which disasters manifest themselves in cities, focusing specifically on the ones most prevalent in the texts that were analysed.

Poor water management, coupled with extreme weather, as mentioned above, often leads to urban *flooding* (2.246 references), especially in coastal or riverside areas of cities. The city of Bangkok, Thailand, has been experiencing natural flooding as a relatively common occurrence, given its particular geographical set-up and the proximity of the Chao Phraya River. However, the effects of climate change, such as extreme rainfall, have limited the city’s ability to manage and regulate flood water and to avoid its harmful impacts (City of Bangkok, 2017, p. 26). These have been further exacerbated by a ‘lack of maintenance’ of water infrastructure, as explained in the section titled ‘Why we need to worry’ of

Bangkok's Resilience Strategy (ibid, p. 27). The city of Quito, Ecuador, also considers flooding as one of the most frequent shocks that have tested resilience of the metropolitan district (Quito Alcaldia, 2017, p. 32). In 'Rio Resiliente', the local government of Rio de Janeiro also includes extreme rainfall and the resulting flooding among the most important shocks and stresses for the city and its population (Prefeitura Rio, 2016, p. 22). The theme of floods frequently appears in resilience strategies of cities big and small, developing or developed, citing similar underlying effects and technological requirements necessary for the management of this problem.

Many cities throughout the United States that are members of the 100 RC framework, such as New Orleans, New York City, Los Angeles or San Francisco, are trying to 'improve resilience' to flooding (100 Resilient Cities, 2018b, p. 19). Analyses focused on sea level rise and its impacts on highly urbanized coastal areas of the United States estimate that 1.87 million homes in the country are at risk of being affected (ibid, p. 9). Considering the specific historical experience of New Orleans, it is not surprising that the city considers flooding to be one of the 'most prominent forms of environmental shocks' and a fundamental part of the its 'resilience challenge' (City of New Orleans, 2015, p. 10). Floods are also listed among the most important shocks and disasters faced by other cities such as Melbourne, Australia (City of Melbourne, 2016, p. 3) or Bristol, United Kingdom (City Council of Bristol, 2016, p. 38). On the opposite extreme of the water-related spectrum of risks, chronic or episodic *drought* (265) and its effects appear as a major challenge for cities like Dakar, Senegal (Ville de Dakar, 2016, p. 15) or Ciudad Juárez, Mexico (Gobierno Municipal Ciudad Juárez, 2018, p. 51).

Another major risk for cities, based on the number of references in the analysed material, are impacts of seismic activity. *Earthquakes* (909 references) are a relatively common natural phenomenon which impacts certain regions and cities more than others. The historical memory of such events and the potential disastrous impacts of future earthquakes in dense cities strongly influence public

perceptions and in turn impacts policy priorities. This is especially the case in cities that are located along the Pacific Ring of Fire, characterized by strong volcanic and seismic activity. Many of the 100 RC member cities refer to earthquakes as a major threat which is impossible to fully predict and mitigate. The Mayor of Los Angeles claims that a “major earthquake is a matter of when, not if” (City of Los Angeles, 2018, p. 4), while the Metropolitan Government of Santiago, Chile places earthquakes at the top of the ‘most potentially disruptive shocks’ for the region (Santiago Metropolitan Region, 2017, p. 28) and the Japanese City of Toyama identifies earthquakes as one of the four most serious shocks this city is likely to experience (City of Toyama, 2017, p. 25). The scale of destruction this type of disaster can cause in a densely populated urban area seems to be a powerful mobilizing force for resilience policies in this area, as will also become evident in the following chapter.

Slightly more predictable by nature, and directly related to climate change in its underlying causes, manifestations of extreme weather have appeared in the urban resilience agenda for some time. The 100 RC discourse is no exception - often citing *storms* (458 references) which can, in their extreme forms, bring major cities to a standstill, no matter the technological sophistication of the urban infrastructures that become affected. One of the most cited examples is the Hurricane Sandy that hit North-Eastern United States in October 2012. Its impacts were considerable - 44 people in the State of New York lost their lives and the economic damage was calculated at USD 19 billion (City of New York, 2015, p. 216). The storm exposed the vulnerability of urbanized coastal areas in general and of the City of New York in particular, triggering a massive policy response focused on local training and preparedness (ibid). The concept of resilience emerged and was reproduced in many other US cities from that point on.

Among other issues of a more chronic nature that tend to appear in 100 RC texts are *air* quality (1.009 references), particularly in densely populated and fast developing cities. For instance, Mexico

City identifies insufficient air quality as one of the major issues, pledging to reduce air pollution to 'contribute to resilience' of the entire metropolitan region (Ciudad de México, 2016, p. 70). Aside from insufficient air quality, other types of *pollution* (510 references) concern water and soil, with profound impacts on different elements of urban systems and their populations. This is particularly relevant for the issue of public *health* (2.693 references), referred to by cities from across the spectrum. Related to all of the disasters and risks described above, health and lives of urban populations are adversely affected by immediate shocks and chronic disasters alike. In any case, the topography of risk in and among cities tends to be fundamentally uneven.

Table 3 below summarizes three categories of risks or problems as identified in the analysed material produced or sponsored by 100 RC and its member cities. In addition to the three general categories, it distinguishes several concrete forms of their manifestation in each category. Column 3 lists the total number of references, while column 4 summarizes the understanding of these problems in the analysed policy outputs and the responses typically offered, which will be further explored below.

PROBLEMS (general)	Forms of manifestation	no. of referen-ces	Understanding and responses
Socio-economic (chronic stresses)	informality, vulnerability, (un)employment, (un)affordability, poverty / poor	2.414 1.807 1.401 1.050 943	Undermines resilience capacity of vulnerable populations. These are referred to as chronic stresses / complex societal problems. Innovative financing solutions, training and capacity building is required.
Ageing / lacking infrastructure (chronic stresses)	inefficiencies / failures of urban infrastructure: water, energy, waste, food	3.720 3.773 2.263 1.492 1.142	Inefficient or failing infrastructure is detrimental for urban economies; continuity of operations (transport, energy, trade) is seen as essential; investment and innovation are required.
Disasters (immediate and chronic)	disasters, earthquakes, floods, air quality, health impacts	2.108 909 2.246 1.009 2.693	Disasters and accidents are seen as inevitable effect of climate change and industrial activity; the focus is on impact mitigation, building up robust infrastructure and train local populations to face the impacts.

Table 3: Summary of the results. Author's elaboration.

## Strategies to 'build resilience'

Upon identifying the most serious risks and stresses that affect cities and their populations, a set of strategies to manage these problems is proposed by 100 RC platform partners and member cities. References to *resilience*, *resilient* and their other language equivalents appear 21.362 times in the analysed material. The concept becomes a mantra, a strategy and a goal at the same time, to build, enable and empower cities to thrive amid social and environmental risks. The ways in which resilience is mobilized to achieve these ends are explored below, broken down into three separate but highly permeable categories. Governing cities to become resilient is built on particular knowledge and



expertise, leveraging funds to implement policies and designing resilient urban infrastructures powered by the latest technology and innovation.

### Governance for resilience

The scales and levels on which governance is deployed in 100 RC reflect the *city* (29.276 references) focus; there are 5.428 references to *urban*, 3.848 references to *local*, 2.179 references to *neighbourhood*, and 3.614 references to *municipal*. Beyond the local scale, the material also (although much less frequently) refers to governance of *regions* and *regional* (2.818 references), *nations* and *national* (1.823 references), and *state* (1.595 references). Reflecting the problem-solving nature of 100 RC, *strategy* appears in the analysed material 5.560 times, often but not exclusively related to the key policy documents that aim to summarize the cities' 'resilience challenges' and propose a set of strategies to deal with them. Another key term which consistently appears is *managing* and *management* (4.701 references), in contexts of population, environment and urban infrastructures.

A common denominator of addressing socio-economic stresses, ageing infrastructure and disasters in cities seem to be their *populations*. More specifically, the capable and adaptable behaviour of populations that are trained to understand and manage risks which come in different forms and from different directions. A deficiency of these adaptive capabilities manifests itself the form of socio-economic vulnerability. A solution to this challenge is based on different ways of *capacity* building (1.673 references) and *training* (1.295) of *skills* (750 references) that will enable subjects to adapt and thrive in adverse conditions.

For example, Resilient Boston Initiative is believed to "foster [people's] capacity to manage themselves in the face of shocks and stresses" (City of Boston, 2017, p. 36). This applies to the reaction and adaptation to events ranging from terrorist attacks to structural racism (see *ibid.*, p. 47). Mexico City claims that the level of adaptive capacity of some of its vulnerable residents is limited, and thus

pledges to “build resilience of vulnerable groups on the community level” (Ciudad de México, 2016, p. 58). The local government of El Paso, Texas also claims that its Resilience Initiative will ‘build capacity of the local talent to enjoy upward mobility and entrepreneurial opportunity’ (The City of El Paso, 2018, p. 78). No matter the kind of resilience deficiency identified, the buzzword of capacity building promises to enable the vulnerable local groups to become self-sufficient. This effort is designed and facilitated by local governments and local organizations, including the private sector.

Capacity building is not limited to vulnerable local populations; it is also community leaders and officials that become ‘enabled’ this way. 100 RC declares that its global network has ‘delivered over 10.000 hours of resilience capacity’ to city leaders, departments and Chief Resilience Officers (100 RC, 2018a, p. 31). Training local leaders is supposed to ensure that the resilience value will be passed on to their constituencies. By extension, the outcomes of this training are believed to indirectly benefit vulnerable local populations, empowering them with information, resources and knowledge to face unemployment, lack of social cohesion, poverty and inequality. However, when it comes to systematically addressing these issues, the training tools from within the local resilience repertoire tend to fall short, as will be discussed in the next chapter.

The key element of this governance logic is the degree of interconnections between people as subjects and agents of power on one side and all the other ‘resilience’ actors on the other. *Networking* and *networks* (2.594), particularly salient terms in 100 RC discourse, are accompanied by a great deal of emphasis on *collaboration* (1.724 references), *coordination* (1.127 references), *connection* (1.767 references), *engagement* (1.829 references) and *partnership* (1.304 references). Governance is carried out through urban populations and as such claims to be *participative* or *participatory* (1.899 references) and *inclusive* (1.159 references). *Agency* (1.406 references) of people and communities is regarded as

a cornerstone of the resilience approach, as the latter is unable to operate unless fully accepted by the residents as their own.

Resilience is mobilized this way through three main pillars identified in the analysed material as knowledge and expertise, funding of resilience and resilient infrastructure and technology. While these broad categories bear similar titles to those identified in the discourse of UN-Habitat, the ways in which they are deployed on the ground and the involved organizations tend to differ in the Rockefeller's 100 Resilient Cities programme. Each of these pillars enables the regulatory and constitutive interventions in the 100 RC member cities and over their populations, subtly affecting the everyday conduct of people and their living environment. The first of these channels of power to which we now turn is characterized by designing and shaping knowledge within the 100 RC network.

#### Producing resilient knowledge and standards

Specialised *knowledge* (795) and *expertise* (412) serve as major legitimising bases upon which standards for resilient cities are created. In its understanding of the power of knowledge, 100 RC greatly resembles UN-Habitat; not only in its regard of science and scientific expertise as a key principle for policy making. What differs is the level on which this knowledge exchange takes place; as was suggested earlier, 100 RC operates on the level of city administrations, mobilizing scientific and policy expertise for the sake of management of specific local problems and agendas. Leveraging an extensive body of knowledge and input coming from cities and organizations near and far is one of the typical methods of developing a Resilient Strategy for cities within the 100 RC network. For instance, the City of Berkeley, California included organizations such as City Council, City Commission, community-based organizations such as Berkeley Climate Action Coalition and other partners such as universities, research institutions, and other local governments from the Bay Area (City of Berkeley, 2016, p. 11). A similar breadth of actors was engaged to assess resilience of Santiago de los Caballeros, Dominican

Republic. From online surveys and workshops to specialised assessment surveys and meetings, the city government engaged multiple governmental institutions, federations of neighbourhood boards, consultants, academicians, NGOs, non-profit organizations and entrepreneurs (Ayuntamiento Municipio de Santiago, 2018, p. 45). The knowledge legitimised by the participatory nature of its production is quite easily packaged as one that ‘came from the people’. Thus, it becomes more difficult to challenge it on the grounds of its political performativity. The 100 RC’s broad ‘stakeholder engagement’ is, however, often problematised in terms of its actual depth and relevance, as will become evident in the next chapter.

Bringing together a multiplicity of actors is one of the functional principles of 100 RC and an official stage of designing a City Resilience Strategy. Aiming to do so on a global level, while maintaining the local focus, the Rockefeller Foundation co-founded an online platform titled *Zilient.org* which connects experts from across the world to facilitate collaboration, share resources, and advertise ‘resilience’ events (Zillient, undated). The ways and channels to expand the 100 RC network of constructing resilience knowledge are plentiful; inter-organizational cooperation is one of its main tenets. 100 RC is a member of the Cities Alliance-led initiative called *Joint Work Programme on Resilient Cities*, also bringing together the City 40 Climate Leadership Group (commonly known as the C40), The Medellin Collaboration on Urban Resilience and The Global Initiative for Resource Efficient Cities (see Cities Alliance, 2016). The breath of this particular alliance illustrates the multiplicity of levels, issue-areas, and actors that assemble around the notion of urban resilience. The importance of these broad, cross-sectoral alliances lies in their legitimizing power. This is true for local networks concerned with ‘resilience’ of particular cities, as well as for global, interconnected and often formally established networks of development, funding and advocacy organizations. Taken together, these form the knowledge basis, or a global epistemic community of urban resilience as we know it.

In order to mobilize the knowledge created and shaped by experts, and bring it to the individual level, the role of *education* (2.295 references) is emphasized. For example, the project of Resilient Youth of Rio de Janeiro has “developed a curriculum on urban resilience for students at municipal schools with the aim to reach 100.000 children by 2020 [following the assumption that] children need to develop a resilient behaviour at the start of life” (Prefeitura Rio, 2016, p. 79). Therefore, the goal of education is not only to enable current leaders as was mentioned previously, but also to focus specifically on local communities and individuals to *teach* them the meaning of resilience and the strategies to achieve it. The emphasis on education points to the intersubjective nature of resilience; with its ‘truths’ and standards accepted by the subjects as their own, resilience is employed by the residents themselves.

Creating and passing on the resilient knowledge often presupposes a quantifiable standard. The quest to measure, calculate and evaluate plays into the technocratic nature of resilience as employed by 100 RC, markedly more so than in case of the UN-Habitat. In order to design solutions, the lack of resilience must be measured and assessed, which requires a creation of standards and diagnostic tools. Indeed, resilience *measurement* and *assessment* are referred to 2.005 and 1.587 times in the analysed texts, respectively. Quantifiable *indicators* (1.560 references) and *metrics* (1.227 references) are used to evaluate preparedness of cities to face both sudden events and chronic stresses.

The so-called city risk diagnostic, or vulnerability assessment, is one of the first steps in creating the Resilience Strategy documents by member cities. The key standardization tool for the program was developed by ARUP, called City Resilience Index. This diagnostic tool, which has since been applied to dozens of 100 RC member cities, is comprised of 4 dimensions, 12 goals, and 52 indicators of compliance (ARUP, 2015, p. 3). Applied to any urban system, it is claimed that the Index provides a

reliable assessment of how resilient a city is, and how to address a lack of resiliency. In addition to the key platform partner and the concept-designing consultancy ARUP, 100 RC has also worked with Microsoft and its MicrosoftCityNext. This tool designs cyber resilience plans for cities, including issues from 'parking management' to 'digital patrol' (see Microsoft, undated). An insurance-focused urban risk-assessment tool titled CatNet was developed by another key partner of 100 RC, a major insurance company Swiss Re which has updated its corporate motto to 'We work to make the world more resilient' (see Swiss Re, undated).

#### Funding for resilience: A mix of old and new

A risk-based approach borrowed from insurance and consultancy corporations has permeated resilience funding on all levels. Assessing risk allows for calculating probability and costs of potential loss and damage. A lack of resilience therefore becomes a quantifiable liability which can be managed and insured, provided that city leaders put this priority forward. Leveraging funds to manage the risks identified has been done on many levels. This section explores the schemes and stakeholders within the 100 RC framework, starting from the ground up with local initiatives, all the way to more conventional state and international funding platforms.

100 RC is focused on concrete cities, their risk profiles and the resilience challenges which they have identified. This is why its language regarding funding is dominated by strategies and practices of raising funds for specific projects ranging from upgrading urban infrastructure to fostering citizen participation. Alternative 'micro' schemes of innovative financing and funding platforms for specific urban projects and building local ownership often directly rely on local populations and private companies to gain stakes in such projects. This is a rather tactical level of financing urban development, overwhelmingly focused on local contexts and resources, and empowering local populations. It is also

a way to formalize the informal elements of local economies and the populations engaged in the former.

*Funding* (2.386 references) of and *investment* (2.135 references) in urban resilience is focused on managing and enhancing the existing local *resources* (2.313 references) by means of *innovation* (1.805 references). From drainage systems to housing cooperatives, 100 RC has become a self-proclaimed coordinator of broad coalitions of actors in the member cities around the world. Attempting to manage the problem of unemployment, the City of Norfolk, Virginia has engaged private companies in a new scheme set up in a form of social impact bonds to enable low income residents to seek employment. It aims to “provide targeted and comprehensive training financed with partners [and thereby] lower the cost to the city” (City of Norfolk, 2015, p. 40). Many other funding schemes have been created to address environmental challenges related to urban infrastructure. In Greece, the City of Thessaloniki has pioneered Thessaloniki’s Air Quality Fund which will seek support from the regional municipalities and other partners to finance a build-up of green infrastructure, modernize public transport and educate the public through air quality awareness campaigns (City of Thessaloniki, 2017, p. 50). In addition to air quality, water management appears to be an issue for many of the 100 RC members. The Regional Government of Santiago, Chile aims to address drought by creating a funding network for a public awareness campaign focused on responsible drinking water use called Metropolitan Responsible Consumption Program. In addition to the Regional Government, other organizations involved in its financing and implementation are Chile’s Ministry of Health, Ministry of Environment, municipalities of the Metropolitan Region and many civil society organizations on the local level (SMR, 2017a, p. 97).

Funding of urban resilience is also often driven by private companies, largely dominated by the official 100 RC platform partners due to the size of their budgets and public exposure. The City of New

Orleans, decimated by Hurricane Katrina and catastrophic floods in August 2005, now relies on the City Resilience Index risk assessment tool developed by ARUP, a major corporate partner of 100 RC (City of New Orleans, 2016, p. 24). The risk diagnostic in turn informs the local decision-making on policy priorities and, by extension, on private providers of the so called resilience solutions that are needed. In cities recovering from disaster, private investment is understood as one of the preconditions for 'building back better', that is, motivating private developers to invest in public areas. The City of Christchurch, New Zealand, which was devastated by a major earthquake in February 2011, made the engagement of private investors in the central urban core a priority. Encouraging investment from private companies was one of the strategies put forward in its post-earthquake Central Recovery Plan (Greater Christchurch, 2016, p. 54). It can be argued that a benefit-driven innovation and investment of private companies has become a basis of building resilient infrastructures under the umbrella of 100 RC.

A great number of local and regional funding platforms of urban resilience are complemented by less frequent, yet rather large-scale national platforms. State and central government funding is not as salient in the 100 RC discourse as in the case of UN-Habitat, although it is not entirely absent. In addition to state, however, many other international development organizations tend to be involved in building resilience of specific cities. Developing the Mexico City's Water Fund is an example of such cooperation; led by The Nature Conservancy on behalf of Latin American Water Funds Partnership, it has partnered with the Mexico's Ministry of Environment and the Water System of Mexico City run by the local government. The latter claims in its Resilience Strategy that the Water Fund will help Mexico City adapt to climate change and the increasing water demand of its growing population (Ciudad de México, 2016, p. 83). On the federal level in the United States, 100 RC has sponsored an advocacy initiative focused on a reform of the National flood insurance program to make it both 'fiscally solvent' and 'affordable' (100 Resilient Cities, 2017, p. 1), proposing a set of policy changes for the Federal



Emergency Management Agency (FEMA). This is one of the instances of 100 RC and its policy advocacy initiatives making their way to the US Congress.

The Rockefeller Foundation seems to have created a powerful basis for designing funding schemes explicitly labelled by urban resilience for a 100 major urban centres around the world. This in itself is no small feat; however the ways in which this type of funding reflects the transformation of governance is of great relevance for this study. Across scales and industries, 100 RC has created conditions for assembling a vast array of private and public actors around the Foundation-sponsored City Resilience Offices, and by extension, the member cities' governments. The programs and projects designed on this basis have influenced the management of many functions and elements of member cities; from drinking water systems to employment platforms for poor residents. The funding purpose in terms of the projects' goals is quite clear; however, their material and intersubjective impacts deserve more attention. The ways in which resilience funding is raised and employed can easily become a channel of power projection which influences many aspects of urban environment, thinking, and behaviour. Standards become redefined and decisions made based on a set of government and corporate interests. It is the private sector that has gained a powerful role in reshaping city environments along the standards of resilience which the former has helped to define.

#### Resilience of infrastructure and technology

The third strategy of building resilience is characterized by its focus on built environment. Similarly to UN-Habitat, 100 RC claims that robust urban *infrastructure* (3.720 references) and the *technology* (1.315 references) used to enhance it are one of the primary indicators of resilience in cities. In contrast to a rather state-centric and large-scale infrastructure investment emphasized by UN-Habitat, 100 RC predominantly focuses on resilience on the local level. Its partner cities' governments act as a coordinating force of many investors assembled around urban resilience, mostly coming from

the *private* sector (1.773 references). In any case, resilient infrastructure is addressed on the local level, focusing on specific technical and technological challenges that members of 100 RC face. In the program materials, projects of infrastructure build-up are assessed in a greater detail, including operational and tactical questions, proposing a set of specific technical solutions.

Many of the 100 RC members are major cities located along coasts or riverside. When it comes down to coastal infrastructure, many cities, including those in fully developed regions, have been affected by sea level rise and floods connected to extreme weather events. One of the examples is New York City which was devastated by the Hurricane Sandy in 2012 and has since then pushed hard for ‘resilient coastal infrastructure’ which it now terms “Coastal Defense” (City of New York, 2015, p. 244). The sense of urgency is evidenced not only by the use of a securitizing language, but also by a total coastal defence budget which came up to 3.7 billion USD by 2015 (ibid., p. 246). Concerns over coastal infrastructure put at risk by sea level rise have also made it to a top priority list in other 100 RC members such as San Francisco (City and County of San Francisco, 2016, p. 68), Rio de Janeiro (Prefeitura Rio, 2016, p. 34), or Melbourne (City of Melbourne, 2016, p. 50). All of these cities have developed long-term plans for building up coastal infrastructure to adapt to the rising sea level. The coastal build-up is typically a mixture of public and private development, with city governments tending to encourage investments from private sector in exchange for opening lucrative coastal central city areas for private development.

Another important investment focus is urban mobility, particularly in the form of public transport. The City of Boston aims to build ‘resilient transportation systems’ detailed in its Resilience Strategy as a joint project of the City’s Public Works and Transportation Department, community organizations and private sector in Boston. The City argues that upgrading the existing public transport networks will lead to achieving ‘social equity’ as well as to mitigating some effects of climate change

(City of Boston, 2017, p. 114). Another key part of urban fabric that is vulnerable to climate change is the housing stock, especially in places with a limited quality of construction materials combined with high occurrence of extreme weather events. It is not surprising that there is a fair amount of emphasis on this issue in countries of South-East Asia such as Vietnam. The Vietnamese City of Da Nang, a member of 100 RC, has invested in several housing retrofitting programmes since 2011. One of its coastal relocation programmes is unique in its focus on veterans and ethnic minority families who receive financial assistance for relocation. Another project carried out by Da Nang Women's Union, but entirely financed by the Rockefeller Foundation, has constructed more than 400 housing units 'resistant to typhoons' that often affect the city (City of Da Nang, 2016, p. 12). Additionally, challenges related to water management have affected the capital of Jordan, Amman, which became a 100 RC member in 2014. Managing the City's scarce water resources, put under further stress due to current demand 'by Syrian refugees', is one of the main goals of its resilience initiative (City of Amman, 2017, p. 70). The ongoing efforts include specific projects focused on harvesting rainwater to be reused at urban sites such as parks, and building up water recycling facilities across the City (ibid., p. 71).

In addition to local organizations such as relevant departments of city governments and public utilities operators, 100 RC platform partners have played a major role in providing infrastructure and technology services to cities within the network. Veolia Environment based in France appears to be a key player, offering services in urban water management, waste management and other utilities. It has been among the main sponsors of 100 RC since its inception, which gave the company access to member cities' governments across the board. A similar position was achieved by the major insurance partner Swiss Re, and the German technology company Siemens which became a Platform Partner in 2016 (100 Resilient Cities, undated b). From critical utilities to consultancy and insurance, the partnership with the Rockefeller Foundation has enabled the major sponsors of 100 RC to expand their portfolios of 'resilience services' and directly connect with the city administrations not only in delivering

resilient urban infrastructure, hardware and software, but also in defining what these are to begin with. This inevitably leads to questioning of the degree of neutrality and transparency of 100 RC resilience assessments which have opened a lucrative playground for corporate interests.

Table 4 offers a summary of the above analysis, identifying three main pillars of resilience projection, or three strategies to build resilience in the context of 100 Resilient Cities, in addition to a total number of references and an interpretation of how resilience becomes a technology of government. The analysis of the 100 RC policy outputs allowed for interpreting and discussing the power strategies of knowledge building, funding and infrastructure. While the strategies mirror the ones identified in the previous section concerned with UN-Habitat, their content differs in terms of the level of governance, the type of actors involved and the scales on which urban issues are addressed. The following discussion explores these differences in more detail.

STRATEGY	No. of references	Description	Examples	Resilience as a technology of government
<i>Governance: capacity building, networking, training for locals</i>	3.467 1.673 2.594 1.295	<i>empowering local / vulnerable populations; facilitation of resources and training, digital and personal connections</i>	<i>initiatives to foster 'resilient behaviour' and adaptation of residents of Boston and Mexico City; entrepreneurial capacity building in El Paso; training of Chief Resilience Officers</i>	<i>contributing to a resilient, connected, self-reliant workforce, boost local ownership of problems / solutions; responsabilize citizens in climate change mitigation</i>
knowledge and expertise, education, assessment, measurement	1.207 2.295 1.586 2.004	networks of stakeholders, experts, officials, civil society, private sector. Setting standards for resilience, educating the locals	City Resilience Index by ARUP, Zilient.org platform; 100 RC network of CROs and local experts; cooperation with Cities Alliance, C40	constructing and legitimizing a meaning of resilience; opens door for intervention. Populations are subjects of data collection, classed as resilient or not
funding, resources, investment, innovation	2.386 2.313 2.135 1.805	new schemes and platforms of small scale, local, micro-finance, social enterprise, leveraging local support and ownership	Mexico City's Water Fund; Norfolk's social impact bonds; Thessaloniki's Air Quality Fund; Santiago's Responsible Consumption Program	human capital maximization, making citizens and 'funding alliances' viable economic units, residents as entrepreneurs of themselves
technology and infrastructure	1.315 3.720	operational matters / unique to each city - flood barriers, sea walls, retrofitting buildings, water and energy infrastructure - public and private	New York City coastal infrastructure upgrade; Boston urban transportation project; housing retrofitting in Da Nang; rainwater harvesting project in Amman	technocratic and reductionist, assuming that robust infrastructure equals a resilient city; private companies are allowed to shape decision-making and investment priorities

Table 4: Summary of the results, author's elaboration

## Discussion

The categories of problems and strategies of resilience identified in the discourse of UN-Habitat and 100 RC are highly permeable and often connected; poverty is related to informality, which in turn relates to environmental stresses, be it natural or man-made. Understanding cities as assemblages of all of these functions and phenomena, one can hardly divide them into clear-cut categories. However the purpose of this section was to define the strategies of governance through actors and processes on different levels, in order to create a systematic ground for their further interpretation in Chapter III.

UN-Habitat regards the identified issues in a more strategic fashion, placing a great deal of emphasis on international organizations and agencies, development banks such as the World Bank, other programs and funding schemes, as well as governments of states. The latter are major donors of UN-Habitat in terms of its total spending budget, while their support often comes with strings attached in an earmarked form. UN-Habitat understands urban resilience as a matter of development, from global to human scale. This is why resilience appears to be merely a new term which helps mobilize the organizations traditionally involved in facilitating global development by enabling vulnerable subjects. That said, the urban standpoint of UN-Habitat is clear from its very mission, although the scales of its operation and philosophy are essentially global.

UN-Habitat's three unique categories of problems to which resilience is presented as a solution, that is, informality, poverty and disasters, are relatively clear-cut but extremely broad. They are less tactically urban and more related to socio-economic issues and people's degree of adaptability to global and local markets. The issue of informality and its management, that is, its reduction and a push for formalization, attracts a great deal of attention in the UN-Habitat policy. In any case, in addressing the three challenges, UN-Habitat puts comparatively less emphasis on concrete local organizations and more of it on global actors such as the World Bank and state governments which are seen as key

facilitators of governance, decision-making and data collection. That said, the implementation and execution of these functions is often outsourced to the private sector under the pretext of efficiency. This is how private organizations become part of the regulatory and resilience-delivery network, along with governments, inter-governmental and non-governmental organizations.

Under the development mechanism constructed by UN-Habitat, the aim is to enable all urban populations to emerge from informality and comply with a minimum social and economic standard. Good governance stands for governance of sites, lives, and behaviours which aspire for adaptability to sudden impacts of climate change, and a universal self-sufficiency in times of normalcy. To help enable the emergence of resilient spaces and individuals, funds are mobilized and projects are designed with the aim of upgrading, training, and development. State and local governments, in addition to international organizations, research institutions and private sector help facilitate (and benefit from) this process.

The problems identified in the 100 Resilient Cities discourse are similar in a broad context; socio-economic challenges, ageing infrastructure and disasters in cities. What markedly differs is the scale of understanding and addressing these problems, which is comparatively more tactical or operational. 100 RC tends to focus on specific projects and advocate for employment of concrete tools, technologies and companies. The latter are often sponsors or Platform partners of 100 RC, offering tailored solutions to cities that are members of the network. Also, 100 RC places a greater emphasis on the principle of standardization, carried out by consultancy and insurance companies using a risk assessment approach. Any resilience assessment must be based on a quantifiable set of urban data, from socio-economic to technical. In all of the mentioned areas, there is a stronger emphasis on the private sector; this time not as a tool of implementation, but rather as an agent of governance and development of cities. Funding of resilience is regarded predominantly on a local level, engaging local stakeholders, both

private and public. Ageing infrastructure stands out as a separate category of problems, paired with a strategy of building resilient infrastructure and technology.

100 RC identifies a set of concrete problems or resilience challenges for each city, be it socio-economic, infrastructure-related, or ones connected to disasters. These tend to be engaged more locally and tactically, such as, for instance, housing and transport issues in a particular city. That said, the tactical level of addressing these problems is far from being apolitical either. On the contrary, it is a powerful approach to quantify and assess a resilience value of people and communities. Solutions to failed or bad governance are found in empowering technologies based on digital connections and constant data collection. Cities and citizens become resilient by adopting and becoming subjects of these technologies in their everyday functions and behaviour. A constant management of adversity becomes a new normal, and resilient city becomes equated with smart city.

Training, managing and facilitating the capacity building of locals is inherent to the approaches of both studied organizations. This applies to building capacities of local leaders and city authorities, as well as those of the poor, marginalized, vulnerable - that is, non-resilient - populations. Forming epistemic alliances to construct and legitimize resilience knowledge is also a common trait. However, the scales on which these alliances are built and the types of actors within them tend to differ depending on the program or city concerned. A similar logic applies to funding of resilience and building urban infrastructures from UN-Habitat to 100 RC.

Table 5 below contrasts these two organizations in terms of the strategies to build resilience as identified above. Governance is listed separately as it overlaps with and is deployed through three channels of subtle constitutive power; the power of constructing knowledge and defining the resilient standard; the power of funding the creation of economically resilient subjects and technically resilient cities; and the power of technology and infrastructure shaping a resilient living environment.



	UN-Habitat	100 Resilient Cities
<b>governance</b>	formalization, development	networking, empowerment
<b>knowledge / expertise</b>	states / IGOs / private	cities / networks / private
<b>funding / investment</b>	state / global (UN-Habitat, WB)	local / alternative (grants, bonds)
<b>technology / infrastructure</b>	housing / utilities / transport	smart cities / defensive elements

Table 5: Author's elaboration.

The table also reflects the difference of scales on which the studied organizations operate. UN-Habitat, funded largely by state governments, tends to push for formalization and economic development facilitated by international institutions, states and companies. It is unique in its global reach of its influence, as well as the degree of interconnection of levels of governance, from international organizations to the individual, using the concept of resilience to mobilize knowledge, resources and behaviours. 100 Resilient Cities tends to focus on the local networks of actors assembled around a particular phenomenon or a problem understood as the given city's resilience challenge. Its strong focus on urban infrastructure and the direct engagement of its developers and operators reflects the degree to which 100 RC is funded by the private sector. All of the identified strategies to build resilience can be understood as *forms of power*, or the three dimensions through which cities and urban populations are governed. This type of governmentality comes in a form that is more dispersed than centralized, more subjective than formalized and more biopolitical than coercive. Resilience serves as a legitimising principle which enables the transformation of the ways in which cities and their residents are governed.

This brings us to the argument that resilience is not as neutral and emancipatory as it is argued to be by its many proponents. Rather, it is another form of governmentality, enabling the transformation of informal, poor and vulnerable individuals into formal, economically successful and

resilient ones. It is unique in becoming both a part of the institutionalized, regulatory governance structures, and an intersubjective value or quality that people internalize and seek to achieve.

### Resilience as a technology of government: an analytical framework

Resilience has become one of the most important concepts of the last decade, building on and transforming the existing governance structures to move towards a node-based network of actors and subjects. By focusing on the urban level of challenges and solutions, other levels of institutionalized governance do not become side-lined, as was noted above. The role of the national institutions and their legislative frameworks remains particularly important in managing many aspects of urban life and the environment. National contexts provide structures for policy implementation in many regards, with a potential to enable or compromise the process. Governments continue to be major donors of UN-Habitat which sets standards for resilient life in cities across the globe. Similarly, the New Urban Agenda calls for developing or enhancing '*national* and local institutional and regulatory frameworks' that enable and govern the urban development process (UN-Habitat, 2016 b, p. 23, emphasis added). Similarly, the major UN disaster management authority underlines the role of *states* as key coordinators, emphasizing the interconnectedness urban, national, regional and global levels of resilience policy and practice (UNISDR, 2015, p. 23).

At the same time, resilience of populations cannot be assessed in separation from the macroeconomic context of their countries and regions. As much of resilience language becomes related to national economic growth, the inherent openness of urban economies is argued to increase vulnerability, as cities continue to be exposed to national and global market forces. In addition, market resilience becomes interrelated to the resilience of subjects in terms of their economic viability. Residents become the everyday entrepreneurs of their own skills and adversity managers. The

emphasis on local economic strength and its interconnections to urban and individual resilience are further explored in the next chapter.

The analysis above suggests that all matters vulnerable, intangible, informal and unquantifiable pose a challenge to urban resilience as it is understood by UN-Habitat, 100 Resilient Cities and the stakeholders involved in their initiatives. At the same time, resilience knowledge, funding and technology are presented as strategies to deal with these problems in the complex and unpredictable urban environment. This distinction reflects the regulatory nature of resilience as it is currently applied in cities to be developed, secured and empowered. The deployment of these strategies through sites and subjects reflects the essence of resilience as a technology of government. The pillars of the described resilience approach are essentially based on so-called technical coordination, which encompasses “diagnostic and strategic planning tools to the validation and oversight of results and projects, as well as the identification of resilience financing opportunities [in addition to] planning, regulation, retrofitting, stakeholder engagements and social and economic programming” (UN-Habitat 2017, p. 31). Harnessing the potential of the private sector is an important part of this logic. In other words, the regulatory practices of urban governance, coupled with the unproblematic market logic borrowed from neoliberalism, are presented as a basis for resilience building.

The ‘strategies’ of governance identified upon exploring the rhetoric of UN-Habitat and 100 Resilient Cities are now adopted to form an analytical framework for *resilience as a technology of government through knowledge, funding, and technology*. The strategies in this framework and their sub-categories identified below are used to interpret how resilience is mobilized in the three cities studied in the following chapter. The categories are highly permeable and overlapping, as shown in Diagram 1 below. The dimensions of knowledge, funding and technology merge together to form the

triple intersection in the middle which represents resilience as a technology of government. This type of governmentality is deployed through actors (shown in black) and practices (shown in white).

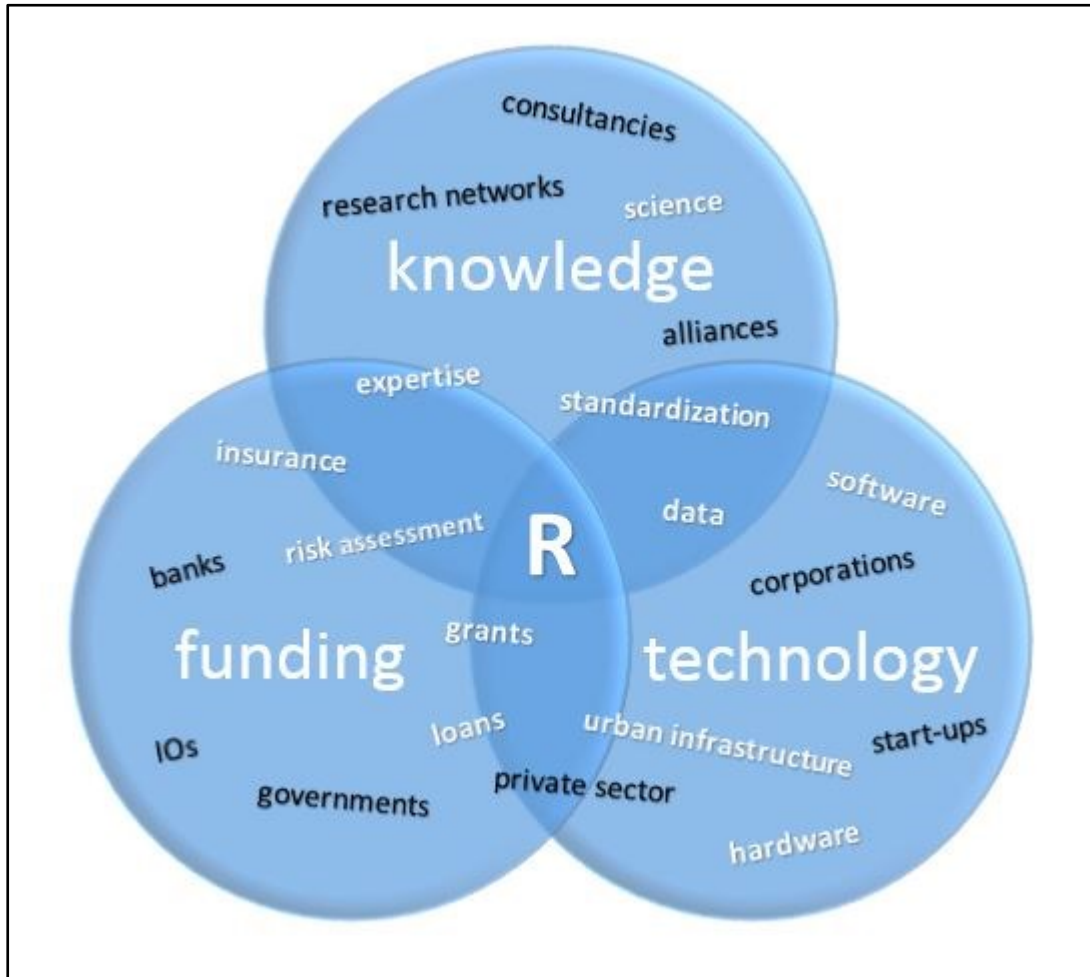


Diagram 1: Analytical framework for resilience as a technology of government. Author's elaboration.

In the dimension of knowledge, experts assembled in research networks, alliances and consultancies construct a standard of resilience in a form of quantifiable indicators, using data and science to legitimise it. Merging with the dimension of funding, expertise is used for the purposes of risk assessment and insurance in order to quantify resilience as a value, juxtapositioned to vulnerability as a liability. State governments and international organizations of various kinds, including UN agencies and philanthropic organizations, provide funding in forms of grants and development schemes, in

addition to loans and investment from development banks. This is where resilience funding merges with technology, with a unique position held by private sector. From corporations to start-ups, resilient technology is sold to cities in forms of upgrading urban infrastructures in forms of critical networks and defensive infrastructure constructed to mitigate impacts of disasters. Resilient hardware and software is developed and installed to enable constant monitoring and surveillance of urban flows of people, data and traffic. This is where the scheme comes full circle back to the dimension of knowledge, merging technological advances with the data that powers them.

Deploying resilience as a technology of government, governments facilitate the constitution of resilient urban sites and subjects with the help of actors and practices identified in the Diagram. It is by no means an exhaustive list; rather, it is a simplified representation of the resilience-powered governmentality can be interpreted. The form of overlapping circles also over-simplifies the openness and fluidity of the governmentality assemblage. In other words, the number of other specific stakeholders and practices that could be included is virtually unlimited. The resilient subject, as both agent and product of this governmentality, is not explicitly included in the Diagram; however it is ever-present in a sense of their subjectivity and behaviour which are the ultimate targets of the described knowledge-power mechanism.

The above analytical framework is in turn used in Chapter III to highlight different ways in which resilience has been assembled across three different urban areas. Attention is paid to the distinction of the established regulatory networks represented by institutions and organizations claiming to implement resilience on one side, and the intersubjective effects of resilience as internalized by the subjects on the other. The unique local contexts, institutions and actors have created different political and practical playgrounds for resilience. As a result, the implementation of seemingly straightforward

policy concepts and ideas can vary considerably across different sites. In this regard, Chapter III continues to explore research questions I and II in the specific contexts of three cities.

## CHAPTER III: Case studies

Throughout this chapter, special attention is paid to the circulation and transformation of resilience as a governance technique across different sites. In doing so, resilience is problematized as a universal, problem-solving strategy for securing and developing cities. Instead of attempting to craft a 'general resilience model' to be applied to other cities<sup>12</sup>, the case studies aim for understanding the cities' local governance assemblages, and the ways these have mobilized 'resilience' for a variety of purposes. It becomes clear how its widespread symbolic use stems from a significant flexibility, ambiguity and adaptability of the term in these local contexts. At the same time, the resilience overuse can be seen as deeply purposeful in an effort to maintain or gain funding for specific projects or departments, as well as a discursive vehicle of policy makers to emphasize the relevance of their agendas and legitimize interventions in urban spaces.

In order to set a context for the empirical terrain of each case, the principal stakeholders assembled around policy and practice of urban resilience are identified, including the local government and its relevant departments, international organizations and charities, as well as key entities from the private sector. The resilience assemblage identified is composed of material and immaterial elements, such as people, ideas, institutions, expertise, funding mechanisms, urban infrastructures and technology. All these are constituted by and themselves constitute discourses and practices which we know as urban resilience. The knowledge produced by these actors is often self-legitimizing, and also argued to be empowering and enabling of most vulnerable communities and individuals.

Following the goal of the critical analysis which 'should be to interrogate the implications of resilience in [particular] locations and practices' (Randals and Simon, 2017, p. 47), the cities of

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<sup>12</sup> for an example of this approach, see Berke et al., 2015

Barcelona, San Francisco and Santiago are explored below. Each of these cases is unique in terms of its local context and administrative structure. However, the mechanism of resilience as governmentality manifests itself in all of them, albeit in different forms. The analysis highlights the similarities and differences of how resilience is deployed and what stakeholders are involved in this process.

Each case study commences with a brief description of the institutional and political realities which have shaped the given city. A unique resilience profile based on the risks identified by the cities' authorities is introduced and discussed. Types of public and private actors which have capitalized on the resilience momentum are described, as well as the ways in which they have done so. The core of each case study critically engages the three strategies of the knowledge-power mechanism labelled by resilience, mirroring the analytical framework described in the previous chapter. The conclusion of each case study is then dedicated to interpret the local resilience assemblages in the context of the transformation of governance along the material and non-material lines. This way, the regulatory network of actors established to define and implement resilience is considered in relation to the intersubjective processes of internalizing resilience as a value by urban residents. It is the intersubjective level where the limitations of resilience, with seeds of resistance against the latter, become visible.



## Case study I: Barcelona

The principal objective of the first case study is to explore how the assemblage of resilient expertise, finances and technology has materialized in the City of Barcelona. Starting in the late 2000s, when smart cities and urban resilience rhetoric gained an unprecedented momentum on the global level, Barcelona emerged as one of its leaders in Europe. This section first discusses a political context of Barcelona and Catalonia *vis-à-vis* the Spanish central government in a historical perspective. It then moves to Barcelona's institutional structure in terms of the organizations relevant for the analysis which will appear throughout this case study. The following sections address the main risks and challenges that the City has been facing, before exploring the three strategies of power projection under the pretext of resilience. The Conclusion part in turn discusses the main findings and specificities with an aim to later contrast them with the ones of the other two cities.

The case study thus focuses on how resilience has been sold as a key concept in Barcelona's public policy, exploring its regulatory and intersubjective effects. The interpretation is based on policy documents, strategies and resilience program materials pertaining to the Barcelona City Council, as well as documents published by relevant non-governmental organizations and private companies which have collaborated with the City government on defining, financing and building the resilient brand. In addition to collecting written documents, ten interviews were conducted with respondents ranging from the City Council officials, including the Head of the Department of Resilience at Barcelona City Council (Ayuntamiento), Director of Security and Prevention of the City government, an official from the City's Department of Urban Ecology, as well as locally-based representatives of international organizations such as the UN-Habitat, Metropolis or the European Forum on Urban Security, and several managers from private companies in the fields of consultancy and critical infrastructure. Tracing

this network of stakeholders assembled on public, private, global and local levels allows the case study to explore the background of Barcelona's 'resilience experience'.

As the largest metropolis on the Mediterranean coast, the City proper is home to 1.6 million inhabitants, with 5.4 million people living in the Metropolitan Area. The City's territory spreads over five smaller hills that contribute to Barcelona's unique landscape. Two rivers surround the city - river Besòs from the northern side and river Llobregat from the south, respectively. The City is dense and compact in its structure, composed of ten administrative districts, each of which administered by its own District Council (Valdés, Fernández and Raventós, 2013, pp. 2-3). The majority of the local population speaks two official languages - Catalan and Spanish (Castellano). Given its geographical, infrastructural and social contexts, the City is a hub of transportation, business and cultural exchange, while retaining its unique local character. As a metropolis of northern Mediterranean with a unique architecture, it has also turned into a major tourist destination. The majority of the international traffic of people and goods come to Barcelona via its international airport and the port located near the centre of the City. Culturally, Barcelona is generally considered a melting pot of the Mediterranean, drawing immigration and investment from across Spain and beyond. In addition to citizens of the European Union, a significant immigration from North African countries such as Morocco and Algeria, and particularly from Central and Latin American countries, was registered historically and steadily continued throughout the last decade (Ayuntamiento de Barcelona, 2015)<sup>13</sup>.

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<sup>13</sup> Management of immigration flows to Barcelona has been on the agenda of the Department of Security and Prevention. The City has been registering an increase of international immigration since 2008, while the more recent peak of numbers of migrants reaching Southern Europe has prompted the City officials to reconsider their integration policies. In this regard, international city-to-city cooperation has developed on the basis of organizations such as the European Forum on Urban Security, with Barcelona's officials reaching out to their Dutch, French and Italian counterparts to 'exchange ideas and experiences' (Lahosa, interview 11.10.2016).

From a public administration viewpoint, Barcelona brings together several overlapping levels of governance. Now an Autonomous Community of the Kingdom of Spain, Catalonia historically struggled for a greater extent of political independence. During the Second Republic in the 1930s, Barcelona was granted an independent status based on the 1931 Constitution. However this status was rather short-lived, due to General Franco's victory in the Civil War and the subsequent establishment of his dictatorial and centralistic rule in 1939 which in effect dissolved the Catalan autonomy. The process was accompanied by a significant degree of political violence and brutality which remains in the collective memory of Catalonia to this day (Márquez, interview 16.10.2015). Following the return of the democratic rule in the late 1970s, Catalonia regained its status of an Autonomous Community. However the relationship of the Catalan Government (la Generalitat) with the Government of Spain has remained rather turbulent, reaching its all-time low after a declaration of Catalan independence in 2017. This was deemed constitutionally illegal and prompted the central Government to dissolve the Catalan parliament and file charges against its political leaders (see Jones, Burgen and Graham, 2017).

Barcelona's economic strength and the level of international interconnections in terms of economy, trade, culture, and tourism have contributed to its cosmopolitan character. Since Spain's accession to the European Union and the subsequent adoption of the common European currency in 1999, Barcelona's economic and cultural connections with Europe have steadily grown stronger and more complex. As the only one of the case studied located in the European Union, the degree of interconnections between the City's departments, agencies, non-governmental organizations and companies with the EU becomes evident. The local institutional structure described below is therefore complemented by international and private actors in producing standards for resilience of Barcelona.

The principal organization that coordinates the City Departments and creates policies on the local level is the Ayuntamiento, or the City Council based at the City Hall of Barcelona headed by the

Mayor. The current Administration of Ada Colau Ballano, who ran on the platform of leftist political parties titled *Barcelona en Comú*, took over the City Hall after the local elections of July 2015. The Ayuntamiento is composed of several Departments which have adopted resilience to fit their agendas and purposes, as the following sections will explore in detail. Although Colau's Administration has pushed hard to differentiate itself from the previous government of Xavier Trias, whose favourable view of public-private partnerships and smart city branding was seen as a neoliberal fallacy by the leftist coalition, the platforms and agreements around urban resilience created before 2015 have not only remained in place, but have in fact proliferated.

In addition to the City Council, one of the key parts of the City Administration concerned with resilience is its Area of Ecology, Urbanism and Mobility. Its mission is very broad in that coordinates public agencies and private companies, the latter of which provide specialized services in water management, urban transportation or research and development. The Department of Urban Ecology, Mobility and Transport has created a strong push for cross-sectoral engagement initiatives which can be understood as a legitimizing force behind the existing resilience initiatives. For instance, the Department's Division of Sustainability designs its policy commitments as a result of a 'wide participatory process networking many other Departments of the City administration' (Pujol, interview 29.9.2016). Resilience standards are also enforced in terms of procurement when it comes down to private sector. Private companies collaborating with the Department are required to adhere to its 'sustainable procurement protocols' which urges many of them to adopt the trending concepts in an effort to seal supply deals with the Administration. This way, the 'Administration can shift the providers to what [the government] requires', both in terms of products and their branding. This essentially regulatory approach is argued to be beneficial for the companies themselves as it helps their 'image and sales' (ibid.).

Another sector of the City Government with a significant employment of resilience language is the The Area of Security and Prevention. The official mission of its agencies is to coordinate policies of prevention, security and civil protection, and formulate strategies to address risks and threats in a proactive fashion, aiming for a positive public perception. While resilience is perceived as a trendy concept able to mobilize many stakeholders and resources, the City officials maintain the success of its real implementation boils down to communities. In other words, resilience is a new term that helps the officials label the capacity of residents to unite, collaborate and face everyday adversities - that is, 'to adapt and thrive regardless of the stressors in place' (Lahosa, interview 11.10.2016). This is an example of the regulatory capacities of the policy making agency merging with the intersubjective process of internalizing resilience as a principle of self-conduct.

With the accession of Barcelona to the global network of 100 Resilient Cities of the Rockefeller Foundation, resilience gained an international dimension at the City Council. The key to this process was the establishment of the Department of Resilience, placed under the oversight of the Mayor. However, the 'birth' of urban resilience in Barcelona preceded the establishment of this Department by several years, as will be discussed below. In line with the general set-up of 100 RC, the declared objective of the Department is to create an integrated resilience strategy for Barcelona, keeping in mind the wide range of vulnerabilities manifested in different forms across the City. For this purpose, the Head of the Department Ares Gabàs Masip has engaged with various public and private organizations. While the Department was financed by the Rockefeller Foundation from 2014 to 2016, it has subsequently secured funds from other sources, including the City Council itself. Although the usefulness of the resilience language is clear in the view of the Head of Resilience Department, she claims that the concept barely brings anything new in terms of substance. On the contrary, it seems to be convenient to 'label what [the City Council] had been doing before in the area of climate change mitigation. However it has been useful to integrate all the previous activities into one Office which has

secured long-term funding' (Gabàs, interview 11.10.2016). This statement shows the usefulness of resilience on the rhetorical level, while it questions the concept's relevance in terms of substance. The term has nevertheless proliferated in Barcelona's public policy, despite its largely declaratory use.

This is the case of many public security agencies, only some of which are under the authority of the City Government, due to the institutional complexity mentioned above. In addition to the City Council acting as a coordinator, different public organizations and agencies are responsible for implementing public security policy, maintaining public order and enforcing law in Barcelona. In the Spanish system of law enforcement, different kinds of police services perform various duties and functions across different territorial jurisdictions. This is the case to a greater extent when compared to the other cases studied, due to the autonomy of Catalonia and the often overlapping territorial jurisdictions of multiple levels of public administrations in the region (Márquez, interview 16.10.2015). The national-level law enforcement, overseen by the Ministry of Interior of the Government of Spain, includes the National Police and Guardia Civil, the latter of which is of military nature. As of 2008, the responsibilities and functions of these forces were largely overtaken by Mossos d'Esquadra in Catalonia, which is an armed police force independent of the Spanish Government, under direct authority of the Government of the Autonomous Community of Catalonia. Its functions include maintaining of public security, criminal investigation, transport security, emergency management and civil protection across the Catalan territory (Generalitat de Catalunya, 2011).

The City Government of Barcelona oversees additional public security services within its territorial jurisdiction. In the realm of prevention, the Urban Security Council of Barcelona brings together public administration and conflict and risk prevention officials from across the City. The Urban Police, or Guardia Urbana, is dedicated to prevention of and response to urban contingencies, typically in coordination with other police forces and emergency services. Security in public spaces, management

of traffic and mobility, as well as particular instances of conflict and risk prevention, are among their responsibilities. The City of Barcelona deploys over 3.000 armed police personnel under its territorial jurisdiction (Lahosa, interview 11.10.2016). In addition, many public and private agencies operating in the City outsource their security operations to some of the largest private security companies in Spain, such as G4S or Prosegur. In this regard, one of the key responsibilities of Prosegur in Barcelona is to police the urban metro system (Márquez, interview 16.10.2015).

When it comes to the everyday management of emergencies, the network of crisis response includes the local medical services, firefighting units, search and rescue teams, and other rapid reaction forces. These are deployed depending on the kind of contingency produced, from releases of toxic agents and extreme weather events, all the way to terrorist incidents or riot management. Across the City of Barcelona, dozens of Operation Control Centres have been established for particular networks and functions, such as electric power supply, water cycle, transportation and mobility, and for monitoring phenomena ranging from weather to criminal activity and police operations (Endesa official, interview 13.4.2016). Following the example of cities around the world, private companies and consultants in fields of critical urban services, infrastructure, ICT have been drawn to participate in this process, either as service providers or as direct participants in the surveillance process.

The above described institutional and organizational framework suggests the breadth of actors involved in managing security and development of the City of Barcelona and its residents. Taken together, it represents the local regulatory network of actors who define resilience and take care of its 'implementation' on a daily basis. The following sections discuss the associations of these and other relevant organizations and the roles they play in the Barcelona resilience assemblage. The case study makes evident that involving the private sector in public policy in Barcelona has been a part of the City's DNA for a long time. In addition, given the political standpoint of the current Administration, the

language of community engagement and progressive values has grown. However, despite the anti-capitalist narrative pushed by Colau's Administration, voted in for its second term in June 2019, the private-public network assembled around urban resilience throughout the last decade has persisted and grown further. Barcelona continues to build its brand as a resilient and smart city, innately connected to - and dependent on - a close collaboration with the private sector. The material and intersubjective implications of this trend on the city and its residents are explored further in the following sections. Before this analysis is developed, the major risks which are commonly identified as key for the City of Barcelona are discussed.

### The City's 'resilience challenge'

In addition to being a complex case in terms of political and organizational structures, Barcelona also has a unique topography of risk which is explored in turn. The City is dense, diverse and profoundly unequal in terms of income. It is evident that defining the principal risks is a political question; the sharp contrast between the two most recent Administrations is the case in point. The implications of the political outlook of the governing actors are reflected in the very definition of resilience for Barcelona and its residents. In this vein, this section adopts a chronological perspective in considering the risks identified by the City's successive Administrations throughout the last decade.

Barcelona is arguably vulnerable to infrastructure failures caused by extreme weather, accidents, human error or a lack of technical maintenance. The year 2007 was marked by a series of infrastructure failures, including a major blackout which left 300 thousand people without electric power for days, and caused a set of serious disruptions of the high speed railway system (Valdés, Fernández, Raventós, 2013, p. 5). The engineers in charge of the City's infrastructure policy acknowledged that technical failures of this kind can potentially paralyze entire neighbourhoods, leading to cascading effects in terms of their geographical and functional impacts. As the case study will show, the infrastructure-



dominated perspective is what originally informed the understanding of resilience by the local Government of Barcelona led by Mayor Xavier Trias between 2011 and 2015. The key indicator of the City's resilience - and vulnerability - was related to the robustness of its built infrastructure, particularly the supplies of electricity, water, fuel, as well as the management of telecommunications, transport and waste (ibid., p. 7).

Another and a markedly different perspective of resilience was mobilized with the progressive political forces united in Barcelona en Comú whose leader took over the position of Mayor in 2015. This perspective has emphasised the social dimension of resilience, focusing on communities and their capacity to adapt to everyday stresses. Barcelona has faced plentiful risks and challenges in this regard, and responsabilizing individuals for adapting to them appears to be an inherent part of the current public discourse. The impacts of the financial crisis and austerity are still evident, even though Catalonia is one of the wealthiest regions in Spain. In 2017, 30 percent of households in Barcelona were receiving some kind of social support due to unemployment. More than 11 percent of its population were living in or at risk of poverty, and over 48 percent of residents were reporting monthly difficulty to make ends meet due to low income (Ayuntamiento, 2018c).

The existing socio-economic diversity is manifested, in its extreme form, by a high degree of social inequality across the City of Barcelona and the metropolitan region (Department of Statistics, b). Across the neighbourhoods of Barcelona, significant differences of income per capita, infrastructure quality and socio-economic vulnerabilities can be observed. In a relative proximity to Barcelona's Old Town district (known as Barri Gòtic), a sharp contrast exists between the affluent neighbourhoods such as Esquerra de l'Eixample, Sagrada Família or Gràcia on one hand and low income neighbourhoods such as Raval on the other. The poor areas are characterized by high rates of unemployment, non-EU immigrants, residents with lower educational levels, and the worst quality housing stock (Gutierrez and

Domenech, 2018, p. 1955). Further away from the City centre, some areas across the metropolitan region have suffered extremely high levels of unemployment (above 90 percent), with high rates of schools absences and drug abuse (Márquez, interview 16.10.2015).

Being one of the top global tourist destinations and the metropolis of Catalonia, Barcelona has also faced a significant degree of gentrification and a proliferation of short-term rentals, which has impacted the City's housing affordability. At the same time, just like in many countries around the world, the socio-economic impacts of the global economic downturn led to an increase in unemployment rates and austerity measures across Spain. As a result, many households found themselves unable to pay their monthly mortgage expenses which led to a wave of house evictions. In Barcelona, the Catalan Housing Agency registered 2.589 housing units affected by foreclosure and effectively taken over by banks or securitization funds by the year 2016 (Gutierrez and Domenech, 2018, p. 1943). These were predominantly clustered in Barcelona's neighbourhoods characterized by low median income and high rates of immigrant population (ibid., p. 1949). With the second wave of evictions around 2016, banks were effectively becoming one of Barcelona's housing policy stakeholders due to owning a significant number of housing units in the City crippled by housing unaffordability. This fact prompted the Catalan Government to introduce a bill in late 2016 that was aimed at repossessing the foreclosed housing units which had been left unoccupied. In 2017, the legality of the law was challenged in court by the national government of Mariano Rajoy. The legal challenge proved unsuccessful, and in late 2018, The Barcelona City Council moved to appropriate the first five bank-owned properties in order to address the City's housing shortage (O'Sullivan, 2018). This issue can be seen as an example of a struggle of political views between the City Administration on one hand and the national Government and the banking sector on the other. However it is indicative of a general housing affordability phenomenon that has profoundly affected cities across Europe and the world.

In addition to unemployment, poverty, housing unaffordability and social inequity challenges, the City and the Metropolitan Region also face a set of risks triggered by natural forces, human activity or their combination. Barcelona is prone to extreme weather events such as flooding and a more chronic, yet significant sea level rise challenge due to its coastal geography and the importance of the coastal area for the City's economy, transport and tourism. In addition, prolonged periods of hot weather and a lack of precipitation have resulted in a critical decrease of groundwater levels and a subsequent drought. Several serious instances of drought were manifested between 2006 and 2008, with the impacts so severe that they prompted the City officials to commission a City-wide risk diagnosis which fed into a subsequent emergence of the resilience discourse in Barcelona (see Valdés, Fernández, Raventós, 2013, p. 5). Given Barcelona's hot and mostly dry climate, the City has also struggled with urban heat-waves which it now considers a public health issue, especially affecting the City's children and the elderly population. Barcelona is also faced with instances of episodic coastal, tidal and rainfall flooding (100 RC, undated a).

Looking for an all-encompassing concept for this broad spectrum of challenges, and following the resilience momentum in major cities across the world, the term was brought to Barcelona gradually between 2012 and 2014 during the Administration of then-Mayor Xavier Trias. While private businesses rallying behind the concept annually concentrated in Barcelona's FIRA exposition space for the Smart City Expo, locally based consultancies such as Institut Cerdà started to push resilience behind the scenes, in collaboration with the City Administration. The objective was to make Catalonia and Barcelona 'the centre of excellence in risk management and resilience' (Viladomiu, 2014, p. 12). The following sections explore the initiatives designed to achieve this goal, and the role of Barcelona's residents to in this regard.

## Knowledge: Defining a resilient standard

It was in the context of the above described disastrous year of 2007 when the City Council commissioned the first assessment of its urban vulnerabilities in 2008. The so-called 3S diagnosis, which stands for Service Supply Security, was aimed at identifying the existing infrastructure vulnerabilities on a systemic level. The initiative coordinated by the City's Urbanism Deputy Mayor and the City General Manager gradually incorporated 37 organizations and 72 executives from across the public and private spectrum. This was the beginning of what can be now regarded as the resilience knowledge network in Barcelona, producing standards and regulations which in turn inform policies aimed at securing urban spaces. In terms of research and assessment, the Instituto Químico Sarria of the Ramon Llull University played an important role in 'diagnosing resilience' of Barcelona. Two years of identifying risks and weak spots of the system, and developing operational plans for different sets of contingencies, were meant to produce a strategy of defensive investments for resilience. In 2009, the assessment was finalized, producing some 40 recommendations for further actions to be undertaken. The Infrastructure Boards known at the time as Mesas TISU were established in that same year. Within the Boards, stakeholders from the City Administration and the private sector were divided into eight clusters, separately managing policies of energy, water cycle, public transport and mobility, to name but a few (Valdés, 2016).

In the years that followed, the spread of the 'Barcelona resilience experience' became truly global. The Mesas TISU were renamed as the Urban Resilience Boards, convening frequent meetings with urban development authorities and corporations on an international level. It was at ICLEI Congress on Resilient Cities that took place in Bonn, Germany in 2012, where Barcelona officials tasked with developing resilience made the first contact with the United Nations Office for Disaster Risk Reduction (UNISDR) (Valdés, 2016). Tapping into the existing momentum, the involved representatives from the

private sector came together at the Barcelona Smart Cities Expo World Congress later that year. In 2013, Barcelona became a member of Making Cities Resilient Campaign led by UNISDR, which recognised the City as “a role model of urban resilience [for] its efforts to reduce the vulnerability of critical infrastructure and services” (UNISDR, 2013). The City officials subsequently signed an agreement with UN-HABITAT to establish the City Resilience Profiling Programme headquartered in Barcelona. Ever since, the Programme has been among the principal sponsors of a major international networking and knowledge-sharing event held annually under the title Barcelona Resilience Week.

Barcelona also became a member of 100 Resilient Cities, the global urban resilience network financed by the Rockefeller Foundation. The accession of Barcelona to this international network in 2014 was seen as a matter of international prestige. In line with the program structure, Barcelona is set to develop its resilience strategy based on the 100 RC framework. Officials representing the Rockefeller Foundation regularly appear at public events and conferences hosted by the Barcelona City Council and interact with public and private organizations. The collaboration with 100 RC has continued despite the change of the City Administration in 2015. The difference is that the current Administration does not seek as much public visibility of this program. The Chief Resilience Officer for Barcelona has not been named; instead, the former City Council official Ares Gabàs became the Head of the Department of Resilience based at the City Council. However the background work on the preparation of the Resilience Strategy of Barcelona continues (see Ayuntamiento, 2017a), with a group of participating organizations such as the key utility and infrastructure companies in Barcelona, private consultancy organizations such as Institut Cerdà, and the academic sector represented by the University Ramon Llull.

Among the studied cities, Barcelona has also engaged in the most active collaboration with international city networks and platforms established to push the urban agendas against the backdrop of the national ones. One of the key ones is the Global Network of Cities, Local, and Regional

Governments, or UCLG for short, which advocates the importance of cities in governance and facilitates their mutual cooperation (see UCLG, undated). Representing more than 240.000 towns, cities, regions and metropolises, UCLG is headquartered in the Old Town of the Catalan capital. Its former Secretary General Josep Roig, who led UCLG between 2011 and 2016, had previously worked in the Barcelona Metropolitan Corporation and held the post of Director General of the University of Barcelona (UCLG, 2016). Another international organization focused on cities which adopted the language of resilience relatively recently is the Local Governments of Sustainability, or ICLEI for short. Since Barcelona's accession to ICLEI some 17 years ago, many collaboration projects have been developed in areas of ecology and sustainability. An annual fee is paid by Barcelona to be part of this international network, exchanging 'expertise' with other members and influencing the agenda by nominating the City's member for the ICLEI Committee (Pujol, interview 29.9.2016).

Also advocating for a bigger role of cities on the international stage is Metropolis, another international city advocacy organization headquartered in the centre of Barcelona. Originally a part of UCLG, Metropolis is a non-profit association for cities with over 1 million inhabitants, or capital cities, regardless of their population size. Its Secretary General Octavi de la Varga, who had previously worked at Barcelona City Hall, took the position in 2016 and has since then redefined the mission of Metropolis after its over 30 years of existence (Borrel, interview 11.10.2016). The Catalan capital is also a member of the C40 Cities Climate Leadership Group, an international initiative that connects major world cities on the level of their Mayors, in a campaign to reduce urban carbon emissions. Among many organizations focused on city-level diplomacy and policy mobilization around resilience, C40 Group is considered to be one with a sufficient degree of funding which is reflected in its visibility on the international stage (Borrel, interview 11.10.2016).

On the European level, Barcelona has also been a member of the European Forum on Urban Security since 1986, and a member of its Executive committee since 2009. Throughout the years, the city has taken part in numerous urban security projects focused on social integration, street safety, transport or justice in urban environment. The key aspect of the functioning of EFUS in Barcelona since the 1980s is the 'knowledge creation and exchange' that has taken part among the member cities. The officials involved in EFUS have, over the years, developed personal relationships with representatives of UN-Habitat, creating a basis for shaping knowledge and expertise about safe and resilient cities (Lahosa, interview 11.10.2016). Advocating for a long-term perspective of resilience, EFUS which is focused on safety and security in cities maintains that cities will only be resilient to disasters if they are resilient to the everyday contingencies. That is, resilience works through residents in their everyday behaviours and coping strategies. This corresponds with the view of the Barcelona's EFUS representative who claims that 'although experts have a certain leadership role, what really constructs resilience is the civil society, a network of associations, entities, clubs, and citizens in the neighbourhoods' (ibid.).

In addition to international associations, defining the resilience standard for Barcelona has been powered by several private companies. Beyond the infrastructure-focused Urban Resilience Boards, consultancy companies have assembled around the City Council to create the Barcelona Resilience Partnership, as pictured in Diagram 2 below.



Diagram 2: The Barcelona Resilience Partnership - the private companies supplying 'resilient knowledge' encircled. Source: Ayuntamiento de Barcelona; author's elaboration.

Four of the companies active in the Partnership have actively shaped the definition of resilience in Barcelona over the last decade. A Barcelona-based Opticits was created as a start-up in 2009 to design what it calls a 'socially responsible business model' of urban resilience. The firm emerged from the above mentioned Service Supply Security diagnosis that concluded in 2009. The idea was to set up a platform that would collect and analyse all kinds of data relevant for urban resilience – essential services supply, transportation, or natural-induced contingencies, with the focus on ensuring 'business continuity' (Opticits, 2016). This approach arguably allowed the company to tap into the increasing demand for integrated resilience solutions from local businesses and public administration agencies. Indeed, Opticits continues to collaborate with the Barcelona City Council, appearing at public resilience-labelled events as one of the sponsors and, at the same time, leaders of the Barcelona Resilience Partnership (Endesa official, interview 13.4.2016).



Opticits has also been the key actor in training and educating local leaders about urban resilience. In this regard, its flagship product HAZUR functions as a platform offering ‘innovative methodology to assess and improve urban resilience’ (Opticits, 2016). It is focused on understanding and visualization of existing urban interdependencies, networks, potential impact cascades, and responder effectiveness. To facilitate the training process, a ‘Certification programme in urban resilience’ titled HAZUR was designed, offering ‘resilience qualifications’ to public officials, consultants, businesses and the Chief Resilience Officers of 100 Resilient Cities. For a flat rate of 600 EUR, any ‘expert’ or ‘Chief Resilience Officer’ can enrol in the online training course which offers its participants the “tools and knowhow to make your city safer, smarter and, definitely, more resilient” (ibid., p. 3). This is arguably an interesting business model in the context of the urban resilience momentum in Barcelona, and it is no coincidence that it was designed by experts who were part of Barcelona’s first resilience assessment since its inception, and thereby built powerful connections with officials from the City Council.

Another one of the Partnership companies offering strategic assessment and consultancy in ‘smart cities’ and ‘urban resilience’ to public organizations is Anteverti, founded by a former member of Barcelona City Council. The firm specializes in ‘eGovernment’ and ‘Open Government’ solutions (see Anteverti, undated). Anteverti also offers integrated city strategic planning and specific strategies for city areas, focused on development of degraded urban zones. One of the high-profile engagements of Anteverti is the coordination of the speaker’s line-up of the Smart City Expo World Congress, directed by the CEO of Anteverti and the former CIO of the City Council, Pilar Conesa (Endesa official, interview 13.4.2016). With the help of the City authorities, the organizers of the Congress have managed to brand Barcelona as a global ‘smart city’ hub. The 2015 edition of the Congress attracted more than 14.000 participants, 485 exhibitors, and 568 cities from across the world (Smart City Expo, 2016).

Finally, a private company with a long-lasting ties to the City Council is the above mentioned Institut Cerdà which provides strategic consultancy services. Its foundation preceded the emergence of urban resilience momentum in Barcelona by some 20 years. Today it provides risk analyses, manuals, contingency plans and post-crisis assessments in order to assess 'how resilient an organization is', and facilitates 'innovative decision making' by focusing on collaboration between public and private organizations (Institut Cerdà, 2016). Its role is therefore an interlocutor between companies and local government agencies in Barcelona. The company's involvement in resilience started in 2008 with what is now known as Urban Resilience Boards of Barcelona. Working with the current Administration, it continues to provide risks and resilience studies and 'education products' (Pineda, interview 10.10.2016). Its flagship product titled *Crisis Management Support Service* was originally launched in 2010. Its focus is to build connections between Barcelona's public agencies and private companies such as Abertis, Aigues de Barcelona, GasNatural, Endesa, or Caixa Bank (Institut Cerdà, 2016, p. 8). Institut Cerdà claims to have worked 'to be in line with the City Hall' of Barcelona, regularly attending resilience events and participating in the process of creating the Barcelona's resilience knowledge (Pineda, interview 10.10.2016).

Considering the breadth and depth of Barcelona resilience assemblage in its institutional and functional context, it can hardly be understood as a one-way, top-down, or linear phenomenon. What we see instead is a set of associations among a wide variety of stakeholders at the City Council, its related departments and agencies, non-governmental organizations and private companies. The momentum created around the idea of a 'smart and resilient city' has enabled the previous City Administration to promote the Barcelona brand globally, attracting international investment and prestige on the levels of the United Nations and 100 Resilient Cities. The current Administration has sought less public visibility in this context, but it continues with the programs based on previous agreements and protocols. Private companies in Spain and particularly across Catalonia have tapped

into and benefited from this resilience turn in public policy. This process is enabled and encouraged by the City Administration and the network of resilience experts.

The technocratic and infrastructure-focused standard of resilience has therefore coexisted along with a standard that adopts resilient communities as point of reference. The Administration of Barcelona prides itself in its high degree of participatory processes, claiming that only resilient communities make resilient cities. Currently, there are over 800 citizens associations which participate in defining resilience in collaboration with the City Council in Barcelona, including ones for host families, social workers, LGBTQ, cultural issues, migration, care for the elderly, women's rights, and dozens of associations defined by a specific ethnicity or place of origin. In this regard, citizen participation is considered to be 'a part of [Barcelona's] genetic code' (Lahosa, interview 11.10.2016). Enabling residents to articulate their priorities goes hand in hand with a legitimization of thereby-created knowledge which in turn informs policies. In the process, the active citizens are constituted as adaptable, independent and resilient subjects. A deeper look into how Barcelona's resilience assemblage is financed offers some clues about how this is carried out in practice.

## Funding: Developing resilient subjects

Barcelona's resilience policies, programs and projects are incredibly broad in terms of sectors, industries and the participating entities. Aiming to discuss their funding mechanisms in a systematic manner, this section follows the most relevant actors from international level to the one of the European Union, before turning to programs coordinated and financed by the Barcelona City Council. Many private companies which appear throughout this section have acquired a double role of sponsors on one side and beneficiaries on the other. That said, the flows of funding explored in this section are hardly ever unidirectional; the funding assemblage of resilience in Barcelona is rather complex, with different actors releasing or receiving resources and financial support in different times for different

purposes. Moreover, it will become evident that many funding entities and beneficiaries also appear in the other sections of this chapter either as producers of knowledge or as engineers of 'resilient' technologies. These interconnections attest to the argument made earlier that the three strategies of governance discussed here can hardly be considered as entirely separable.

Starting on the level of the United Nations, one of the most relevant key institutional steps that placed Barcelona on the global 'urban resilience map' was the establishment of the City Resilience Profiling Program (CRPP) headquartered in Sant Pau Art Nouveau Site complex in the centre of Barcelona (see UN-Habitat, 2016). The founding agreement was signed in 2013 by then-mayor of Barcelona Xavier Trias and the ex-mayor of Barcelona who is currently the Executive Director of the UN-Habitat, Joan Clos. In the same year, the Government of Catalonia made a donation of over 1.4 million USD to UN-Habitat, followed by 800 thousand USD donation in 2015 from Barcelona City Council (UN-Habitat, undated d). Financed by the UN-Habitat, the aim of the CRPP is to network and mobilize support of other international organizations concerned with urban resilience. The Head of the CRPP in Barcelona, who previously led the City Council's Resilience Department, claims that the CRPP provides an international dimension and external outreach to what the City Council carries out in Barcelona (Fernández, interview 10.10.2016). Using the label of resilience appears to be a successful strategy for cities to open doors to such strategic programs. The CRPP is unique not only in benefiting from the global prominence and funding of UN-Habitat, but also in mobilizing powerful program partners on a global level. Attempting to build 'partnerships founded on integrated approaches to urban resilience [the CRPP collaborates with] UNISDR, Red Cross / Red Crescent, universities, private sector partners from insurance and IT to energy and natural resources, as well as city networks such as ICLEI, UCLG, Metropolis, C40 Cities or 100 Resilient Cities' (UN-Habitat, 2016 b, p. 2).

The CRPP is also one of the principal organizers of the Barcelona Resilience Week, which it hosts annually in its Sant Pau Art Nouveau Site. The conference typically lasts for several days, composed of open plenary panel sessions and closed focus groups with a stronger participation of the City Council officials. The event is regularly attended by Dan Lewis, the Chief of Disaster and post-conflict program of the UN-Habitat based in Nairobi, as well as by heads of international associations of cities, 100 RC Chief Resilience Officers from across the world, in addition to Mayors, city administration officials, researchers, consultants and private sector representatives. In addition to the CRPP, the event is hosted by the City Council of Barcelona and UNISDR. Additional funding is secured from the European Commission and private sector partners who in turn gain a great deal of exposure for their programs and products, from exposition stands to direct outreach to the audience during panel sessions. In 2016, the companies included Agbar Suez, Endesa, FCC Environmental, Ferrovial, Soriqué, Urbaser, Tyspa, Anteverti, Hazur, and Institut Cerdà (Ayuntamiento, 2016, p. 11). In 2018, the list of sponsors also included a global consultancy, insurance and banking services company Axa (Urban Resilience Hub, 2018). A close collaboration of Barcelona with these companies continues well beyond the high-profile events in forms of projects participation incentives on one side and corporate sponsorship on the other (Endesa official, interview 13.4.2016).

The international associations of cities that Barcelona is a member of typically have a mix of public funders on one hand and private on the other. For instance, the funding of Metropolis comes from a mixture of entities and in various forms from rent and staff expenses to grants for specific projects. The funders include the City Council of Barcelona, the Metropolis General Secretariat in Montreal, and private companies based on projects and conferences which provides sponsors such as the IT giant Cisco with corporate visibility in return (Borrel, interview 11.10.2016). Other international platforms that Barcelona is a member of such as EFUS and ICLEI have employed a similar model of mixed income sources, enhanced by partnerships and support other than merely financial. These

typically include the United Nations agencies such as UN-Habitat and UNISDR, the European Commission, as well as the Government of Catalonia, Barcelona City Council, and private companies seeking to integrate themselves into the resilience network. The mutual interconnections created and enhanced at international resilience conferences provide a ground for subsequent fundraising, albeit limited to short-term projects.<sup>14</sup>

The European Commission has also provided funding for specific projects aiming to build resilience in Barcelona and beyond, such as the Barcelona Resilience Week. Much resilience funding has also been released through the Horizon 2020 Research and Innovation Programme. One of the projects directly involving Barcelona is titled RESCCUE, or *Resilience to cope with climate change in urban areas - a multisectorial approach focusing on water*. Launched in Barcelona in May 2016, the project's duration is until April 2020, with a budget of over 8 million EUR split between 18 consortium partners (RESCCUE, 2018). The basis for RESCCUE's assessment of resilience is HAZUR, the above mentioned diagnostic instrument developed by Opticits in Barcelona. In line with the trending rhetoric, the mission of RESCCUE is to 'help urban areas around the world to become more resilient to climate change' and validate urban resilience models on cases of Barcelona, Lisbon and Bristol. To achieve this end, the three City Councils collaborate with the UN-Habitat, critical utility companies such as Endesa, six research centres and universities, and smaller consultancy companies such as Opticits (ibid.).

Other cross-sectoral programs focused on resilience and sustainability have been financed by the European Commission. Barcelona has actively participated in over a dozen of them, for instance in *EUNOIA* focused on interurban accessibility, *City Service Development Kit*, *Commons for Europe*,

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<sup>14</sup> In any case, the international associations of cities tend to complain about the insufficient funding they receive to carry out their resilience agendas. In doing so, they express a certain level of frustration regarding the difficulty to access the funds of the European Union due to its lack of a 'city focus' or bureaucratic obstacles (Lahosa, interview 11.10.2016; Borrel, interview 11.10.2016).

*Environmentally Sustainable Data Centre for Smart Cities*, *INSIGHT* focused on policy modelling and governance tools, *iCity* platform for public interest services, *Open Data Architectures and Infrastructures*, *CloudOpting* platform for digital governments, *GrowSmarter* project for building a 'smart and sustainable Europe', *Urban Biodiversity and Ecosystem Services*, *EU Cities Adapt*, or *Procura* focused on sustainable public procurement (Ayuntamiento, 2018a).

The European Commission has also co-sponsored one of the most prominent annual events focused on cities worldwide - the *Smart City Expo* hosted by the Barcelona City Council and organized by Fira Barcelona. This event is one of the prime examples of a double role played by private companies in the assemblage of urban resilience. By choosing one of the sponsorship packages, companies gain different degrees of visibility and access to policy makers, consultants and audiences to advertise and sell their services. The *Smart City Expo* annually attracts thousands of participants, including the exhibitors, speakers and guests from across the world. Among the supporting institutions whose representatives participated in the 2018 Expo were the Provincial Government of Catalonia, 100 Resilient Cities, C40 Group, ICLEI, Metropolis, UCLG, UN-Habitat, World Bank Group or the Inter-American Development Bank. Dozens of private sponsors included SEAT, Microsoft, Mastercard and Cisco. In addition, many members of the Barcelona Urban Resilience Partnership sponsored the event, such as FCC Environment, Agbar Suez and Urbaser (see Smart City Expo, 2018).<sup>15</sup>

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<sup>15</sup> The continuous support of this event by the Barcelona City Council is in line with its effort to brand Barcelona as a smart, innovative and resilient city open for investment. At the same time, the City Council is connected to the event by a set of long-term personal ties. The Director of the Smart City World Expo Congress, Mrs Pilar Conesa, previously served as a Chief Information Officer of Barcelona City Council, and was a founder and CEO of a smart-city company Anteverti, which is also a member of Barcelona Resilience Partnership (Endesa official, interview 13.4.2016). Along with the previously described personal connections between the City Administration and the UN-HABITAT, this reflects the association-based assemblage of knowledge, expertise, ideas, technologies and finance. A deeper look at the collaborating entities reveals the level of interconnection between public and private organizations which gave rise to what is now the urban resilience assemblage in Barcelona. It is important to note that this assemblage goes way beyond the formally established and largely infrastructure-focused Urban Resilience Board hosted by the City Council.

Regardless of the change of Barcelona's political direction following the elections of 2015, the local Administration continues to play a powerful role in funding of urban resilience. This is done by means of programs and projects which, due to the 'progressive' philosophy of the leftist coalition, have a strong focus on 'enabling' local communities. The effort to brand Barcelona as a resilient and smart city open for investment continues, although it is now carried out in the background, rather than publically. The City still serves as a global marketplace of resilience and is a fertile marketplace for companies in this industry. The level of collaboration between the City Council and private companies has hardly decreased. However, there has been a powerful public policy push towards 'sustainability' and 'empowerment', as will become evident below.

The Department of Resilience continues to work with private companies in the Barcelona Resilience Partnership. The Mayor Ada Colau regularly appears at public events such as the Barcelona Resilience Week. Her Deputy Mayor for Ecology, Urban Planning and Mobility, as well as the City Council officials responsible for policy areas of Infrastructures and Mobility, have widely used the language of resilient and sustainable city. However they are less vocal about the 'smartness' of Barcelona in a technological sense and prefer to focus on 'social resilience'. This is translated to the types of policy areas that they choose to fund. Along the policy priorities of ecological sustainability, social participation, engagement and empowerment, the City Council has funded programs focused on energy poverty, social marginalization, education or care for the elderly, 'based on the recognition and promotion of personal resilience' (Ayuntamiento, 2017a, p. 34). In the policy area of Security and Prevention, social reintegration projects have been developed, focusing on individuals radicalized in prison and providing support once they are released (Lahosa, interview 11.10.2016). Gender has also become one of the key issues, with the City Council pushing the agendas of gender equality, financing public awareness campaigns, and providing resources for victims of domestic violence in forms of psychological help, subsidies or housing. Officials of the current City Administration believe that the



local policies in Barcelona have in effect softened the impact of austerity measures on poor communities that have been palpable across Spain throughout the last decade (Pujol, interview 29.9.2016).

The current Administration is also very active in the area of climate change mitigation, and has financed multiple programs in this regard. It has continued to collaborate with international networks such as the *European Sustainable Cities & Town Campaign*, *Local Action for Biodiversity*, or the *World Water Council* (Ayuntamiento, 2018a). Attempting to mitigate the impacts of climate change in the City of Barcelona, the City Council together with the 100 Resilient Cities of the Rockefeller Foundation have financed 'plans of adaptation and resilience'. The city officials are currently preparing the Plan of Resilience and Climate Adaptation, considering issues of urban heat islands, heatwaves, flood risk, biodiversity, air quality or urban water cycle (Ayuntamiento, 2018b).

It is clear that Barcelona is not about to change its trajectory towards branding the city as 'smart and resilient', given the significant impetus from the business side of urban research and development. However it has developed the concept on its own terms, to align with the progressive logic of community empowerment and sustainability. At the same time, the City Council, its Departments and affiliated agencies continue to build on the previous Administration's perspective of 'technical resilience' focused on urban infrastructure, utilities, energy, transport, and to incentivize private companies to participate in the Barcelona Resilience Partnership.

While the local funding of these projects is fundamental, its branding is a political issue reflecting the interests or agendas of any given Administration. As the Barcelona case shows, the branding can change overtime. Different City officials express different approaches to the resilience concept. Some see it as rather elusive and vague, too detached from daily practices on the ground. Others consider it as a leverage, a way to connect and mobilize the necessary funds. Barcelona stands

out as an example of a City that has succeeded in this regard both domestically and internationally. No matter the type of organization concerned, resilience-labelled funding is seen as fundamental. Crucially, it is also multi-directional, with different organizations appearing as sponsors on one occasion and beneficiaries on the other. In this context, the Barcelona City Council seems to be the coordinator of programs and platforms that evolve and change overtime, with different types of funding which get rebranded and transformed, but does not cease. This type of flexible, fluid and transformative funding can be understood as a compelling strategy of power projection. The above described financing mechanisms enable knowledge to be created and technology to be employed under the headline of resilience.

## Technology: Building resilient urban environments

Building of resilience in Barcelona was originally informed by an infrastructure-centred perspective which, under the current Administration, is understood as complementary to the environmental and the social-centred ones. This section first explores the infrastructure perspective, focusing on the ways resilience has been built in Barcelona since 2007. The role of the private sector in this process and its close collaboration with the City authorities is discussed. Subsequently, the section turns to explore the ICT aspect, or the digital technologies labelled by resilience which have been developed, marketed and sold to Barcelona in order to enable its climate change mitigation and community empowerment initiatives.

Building of resilient urban infrastructures has been the goal of the City Council and the Mesas TISU since 2008, subsequently turning into the Urban Resilience Boards, composed of critical services and utility companies in Barcelona. Public-private collaboration, the smart and resilient city language, and the involvement of major companies providing ICT technologies was characteristic of the 2011 to 2015 Administration of Xavier Trias, as was mentioned previously. The understanding of resilience was

based on a predominantly technical perspective; resilient city was seen as a city with a robust infrastructure and advanced technologies for urban planning and management. In this vein, the local Administration proposed an establishment of the City Taskforce of Resilience as a follow-up to the earlier Security of Services Supply Diagnostics carried out by a network of companies assembled in Mesas TISU. The Taskforce was to bring together representatives from forty cities worldwide, twenty five companies such as IBM, Cisco, Agbar, Microsoft, Indra, Abertis and Siemens (Valdés, Fernández and Raventós, 2013, p. 11). The plan materialized when Barcelona became a member of 100 Resilient Cities network, which opened the avenues of public-private cooperation even further, as the 100 RC Platform partners represent the most dominant companies in the arena of ICT worldwide.

The current Administration has continued to build on this perspective by redefining the strategic goals with respect to the necessary build-up and upgrades of the existing infrastructure to make Barcelona more resilient (Ayuntamiento, 2017a, p. 14). This includes the ageing and insufficient energy and transport lines, with a particular focus on safety of urban tunnels which had been put on the agenda following the Carmel tunnel collapse in 2005 (ibid., p. 31). Strategic sites, resources and networks in the City identified in 2013 were reassessed in 2017, focusing on hospitals, places of high concentration of people and strategic infrastructure sites (Ayuntamiento, 2017b). This assessment was then reflected in the priorities of intervention and maintenance, particularly under the Departments of Ecology, Urbanism and Mobility, and the Department of Security and Prevention. Protocols of collaboration with private infrastructure services providers were established for this purpose (Ayuntamiento, undated a).<sup>16</sup>

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<sup>16</sup> The collaboration between public and private sector in Barcelona by no means constitutes a new phenomenon. Beyond the Barcelona Urban Resilience Boards, public-private partnerships have also been on the agenda of the United Nations. It is no coincidence that the headquarters of the Specialist Centre on Public-Private Partnerships in Smart and Sustainable Cities was established in Barcelona in early 2015, working under the United Nations International Centre of Excellence. Abbreviated as PPP for Cities, the Centre provides research, innovation and advisory in 'best practices' of bridging local administration agencies with private businesses. The declared

In addition to a largely sectoral Urban Resilience Boards, the Barcelona Resilience Partnership (pictured in Diagram 2 previously) continues to work with a cross-sectoral group of companies directly involved in ‘resilience building’ in Barcelona. Four of these partners, Opticits, Hazur, Insitut Cerdà and Anveverti, were described previously as major producers of resilient knowledge. Providing their consultancy services, models and risk assessments, they have shaped the standard of resilience for Barcelona and collaborated closely with the City officials in the process. The rest of the companies are focused explicitly on supplying, maintaining and operating critical urban services and infrastructure. Thus, they find themselves closely collaborating with the City Council, and are incentivized to do so. These companies and their involvement in building ‘resilient infrastructures’ in Barcelona are explored in turn.

Pictured at the top of the Diagram 2, seven companies are focused on construction, operation and maintenance of critical urban services and networks in Barcelona. The portfolio of some of these firms includes big data collection and analysis, which brings them closer to the knowledge-producing companies pictured at the bottom. In any case, the nature of their core activities predominantly ties them to the domain of infrastructure.

Grupo TYPESA, with its Catalan regional office headquartered in Barcelona since 1992, provides services in urban transport, hydraulic works, water treatment, and environment, and has created its ‘Urban Resilience Unit’. Throughout the city of Barcelona, TYPESA has engaged in various construction projects, including some of the most emblematic transportation lines and hubs such as Passeig de Gràcia and Arc de Triomf metro stations. It has also worked on Barcelona railway systems and water treatment networks, as well as the Port of Barcelona and the new airport terminal (Typsa, 2016).

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mission of the Centre is in line with Millennium Development Goal number 11, to ‘make cities inclusive, safe, resilient and sustainable’. Led by IESE Business School, the Centre is supported by the Barcelona City Council, The Provincial Government of Catalonia and the Government of Spain (Bufí, interview 11.10.2016).

Tapping into the resilience momentum, Tyspa has developed an Urban Resilience segment of its Smart City product. It aims to integrate information technologies with geographic data and thus provide a basis of its resilient cities solutions to 'diagnose a city's resilience level and define actions to improve city's resilience' (ibid., p. 21). The Project Manager of the Urban Resilience Unit of TYPESA in Barcelona, Miguel Angel Gago Lara, also represents the company in the City Council's Urban Resilience Partnership.

Endesa is the largest electric utility company in Spain, serving 10 million customers in the country and about the same number abroad. Endesa's specialized City-wide contingency plans have been created to be used in case of a sudden power outage. 'Crisis centres' have been established to control the entire electric power network in coordination with the City officials. Headquartered in Barcelona, the company cooperates with the City Council on the day to day basis, in particular with the Department of Infrastructures and Mobility, and is also a member of Barcelona's Urban Resilience Partnership. Similarly to other companies, Endesa is incentivized by the City Council to participate in the Partnership. At the same time, the City Council has sought funding and sponsorship of certain activities from companies such as Endesa (Endesa official, interview 13.4.2016). Additionally, the City Administration has also worked very closely with Endesa in the context of the RESCCUE project financed by the European Commission to build a resilience model for Barcelona.

Another company based in Barcelona, FCC Environmental Services, is an urban operation-focused enterprise whose services include integrated water management, recycling, maintenance of streets, green spaces, sewers, industrial waste, or beach maintenance. Its business model is based on a technological innovation and smart environmental services, including its 'smart service management platform' that uses geographical information systems to collect data in real time in order to optimize the operations on the ground (FCC Environment, 2016, pp. 7-21). FCC Environment has become a part of the inner circle of private companies collaborating with the City Council. In addition to sponsorship,

it has increased its corporate visibility at Barcelona resilience events, including the Barcelona Resilience Week and the Smart City Expo.

Ferrovial Services, for its part, is a global company operating in 15 countries across the world on different urban projects<sup>17</sup>. Its daughter company is the biggest commercial operator of air traffic in Spain. In 2012, Ferrovial installed Europe's first urban wind-powered charging station for electric vehicles in Barcelona. Its innovation project titled ECOSISTEMA is based on engaging public administrations, innovation centres, major companies and start-ups. The company claims that its model that has been replicated across the resilience industry (Butterfield, 2016). Yet another integrated solution of environmental services is provided by Urbaser, a company focused on maintenance of green spaces, water management and maintenance of urban beaches in Barcelona. In line with the other companies in the Barcelona Resilience Partnership, it has pursued a research and development track in resilience in recent years (Alambillaga, 2016).

The final two companies that form Barcelona Resilience Partnership operate and maintain the water cycle of Barcelona. Sorigué has run an especially long-term water management program for Barcelona General Society of Water (Agbar), with the project period spanning from 1959 to 2019. The company manages the distribution networks, as well as connections of new buildings and facilities, and renovation works in the entire Barcelona Metropolitan Area. Agbar Suez is a shorthand for a public-private company Agues de Barcelona that, together with Barcelona Metropolitan Area, manage over 85 percent of the Metropolitan Company of Integral Water Cycle for Barcelona and thus find themselves collaborating the City Council on a daily basis (Iglesias, 2016).

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<sup>17</sup> It is indeed one of the principal infrastructure operators in cities, including its operations at the Heathrow Airport, some stations of the London underground, and a set of Canadian highways.

The current Administration of Barcelona has extended the collaboration protocols with these companies under the banner of Barcelona Resilience Partnership. The Ayuntamiento prides itself in its environmental policies, aiming to lead other cities world-wide in cutting carbon emissions by using resilient and smart city technology. The Area of Ecology, Urbanism and Mobility of the Barcelona City Council has placed sustainability, biodiversity and efficient energy use among its priorities, and has pushed its partner organizations, departments, private companies and households to do the same. In this vein, it has introduced new strategies for climate change, sustainability, energy transition and water resources in the city (Ayuntamiento, undated b).

Many of the companies belonging to the 'smart city' industry have worked with the Barcelona City Council. In this respect, the Administration's priorities have been implemented in three ways of using digital technologies - to enable 'digital transformation, innovation and empowerment' (Ayuntamiento, undated c). First, the aim is to manage a digital innovation of the public sector and democratize the access to digital technology. Second, the city pledges to foster inclusion of the residents in the digital economy in order to 'face the social challenges'. Third, it aims to 'promote the participatory democracy and take advantage of the collective intelligence of the citizens [claiming that it will] increase the digital autonomy of the citizens' (ibid.). In practice, the goal is to facilitate e-government technologies and engage the residents through a digital participatory process, increasing connectivity and data collection. Technologies and tools of 'smart cities' therefore continue to be used, albeit with an 'empowerment twist' which serves as a legitimizing principle.

The wave of infrastructure upgrades in Barcelona since 2007 has gained an international significance when it became connected to the concept of urban resilience in public policy. Building robust infrastructures and collaborating with private companies is understood as a key aspect of building Barcelona as a resilient city. The circle of private companies present during the first resilience

assessments a decade ago has now broadened to encompass local and global companies focused on sustainable energy use, green infrastructures and smart city technologies. The companies regularly appear at international events and conferences to advertise their services and products, using the term resilience very broadly simply 'because it sells' (Fernández, interview 10.10.2016). Regardless of their motivations, this approach seems to have worked for the companies to build and enhance relationships with the City Council. The everyday users of 'resilient' urban technologies are turned into data producers, providing the lifeblood to digital applications designed to connect, enable and empower people. This is how power gets projected through the everyday physical and digital environments, flows and transactions, a process that is regulatory and biopolitical at the same time.

## Discussion and conclusion

The objective of this case study was to draw attention to the assemblage of public and private actors that have designed, shaped and benefited from the 'urban resilience' momentum in Barcelona since 2007. Tracing the relevant actors and their mutual associations illustrates how the resilience language emerged in Barcelona in the late 2000s, and since then penetrated policy frameworks and business strategies of numerous stakeholders from local to international level. Particular attention was paid to the human expertise component of the resilience assemblage which, far from being static, has been distributed and highly mobile across the studied terrain. This refers to officials and experts from international organizations on the level of the UN, city networks, private industry and the City Council itself. A number of major companies and their representatives within the resilience assemblage are in personal and professional contact with the City Council. They appear at public events as sponsors, and build connections with private consultants, researchers, academicians, Mayors and international policy makers.



There are a number of specificities which characterize Barcelona's experience in urban resilience. Due to the institutional and political structure that characterizes the governance in Catalonia and the level of its autonomy, the City has established denser functional, economic and cultural ties within Catalonia and with the rest of Europe than with the central Government of Spain. This is evident in the everyday realities of policy implementation, including security and urban development across sectors. Second, the degree of entrepreneurship, innovation and public-private partnerships has created a sharp contrast between Barcelona and Catalonia on one side, and the rest of Spain on the other. In this context, the brand of Barcelona as a smart and resilient city has evolved and created a fertile ground for strategic innovation and investment, actively facilitated and supported by the Government of Catalonia and the Barcelona City Council. Third, the expected radical change of direction of Barcelona's public policy did not materialize with the accession of Barcelona en Comú into power in 2015. The background work in urban resilience has continued in the area of urban infrastructures and technology, and the degree of public-private interconnection has remained almost intact. At the same time, the current Administration has applied a considerable effort to redirect Barcelona's public policy rhetoric towards the notions of community empowerment and participation. However, the means to achieve this end fundamentally rely on private producers of resilient digital technologies that facilitate digital connectivity and data collection. The first term of Ada Colau's government has therefore not disrupted the smart city momentum which emerged during the previous Administration. Not particularly interested in the international visibility in this arena, Colau's City Council nevertheless continues to build on 'urban resilience' in many respects. That said, gaining access to the city officials is connected with a relative difficulty, particularly in comparison with the two cases explored further in this chapter.

Over the last decade, resilient knowledge, funding and technology have been mobilized to 'make Barcelona resilient', with a two-fold effect of producing *actors* and *subjects* of urban resilience. The actors in question are the organizations that have formed the knowledge network with the *regulatory*

function. Following the linkage between knowledge and power, it is not difficult to understand the motivations of these organizations to position themselves within this network in a close proximity to the City Administration. In addition to the Barcelona City Council and many agencies and departments of the Administration, the key stakeholders include the UN-Habitat, UNISDR, 100 Resilient Cities, Universidad de Ramon Llull, international associations focused on city advocacy, and the private sector members of the Barcelona Resilience Partnership. Having explored their agendas in the case study, it becomes clear that the standards they produce inform policies and practices across the city under the banner of resilience.

The network's regulatory mechanism has been mobilized through the actors themselves, but particularly through their institutionalized associations and platforms. The year 2014 brought an important impetus with the entry of Barcelona into the 100 Resilient Cities project which "provided the funding for two years to create the Office [of Resilience at the City Hall] and the intangible or indirect resources in the form of networking", referring to other cities and organizations (Gabàs, interview 11.10.2016). Across the Administration, officials highlight the importance of the "inter-city knowledge exchange" through international city associations, with useful "personal connections with organizations [such as] UN-Habitat" (Lahosa, interview 11.10.2016). Constitutive links between the local organizations and the agencies of the United Nations have also been established. For instance, the Centre of Excellence for Public-Private Partnership of the UN made "Barcelona the headquarters of the Centre for Public-Private Partnerships for Cities, with the institutional support of the City Council, the Regional Government and the Central Government of Spain" (Bufí, interview 11.10.2016). Also headquartered in Barcelona, the City Resilience Profiling Programme funded by the UN-Habitat "serves as an international linkage and a vehicle [for Barcelona] to communicate its best practices [to other cities and organizations]" (Fernández, interview 10.10.2016).

This type of trans-national and trans-governmental linkages, designed to be effective and efficient problem solvers to a lack of resilience, embody a new type of governance. The latter is carried out through these stakeholders in connection with the objects of governance, which are urban sites and populations in their everyday operations and conduct. That said, the current Administration has had a comparatively lower interest in public exposure of its participation in the 'neoliberal' public-private networks. However, the need of external funding has led many of its agencies and departments to seek stronger ties and cooperation with the global and private resilience funders. In this regard, there is a certain ambivalence in the philosophical and pragmatic considerations present in Barcelona's governance.

Along with the regulatory function of resilience, there is a *constitutive* one employed simultaneously, although its effects are manifested on a different level. The intersubjective process that works through society to constitute resilient subjects is largely based on a performative discourse. In the policy language, the act of implying empowerment of individuals and communities made possible by resilience is the key. This performative function is carried out by the very network of actors described above, although its effects here are non-material.

The most important actor in this process is the one functionally in the greatest proximity to the citizen in the everyday administration of life. The City Council, its departments and agencies design policies with daily impacts on the residents' health, education, environment, and social issues. Resilience of individuals is evaluated by the Administration based on "a platform on a cartographic basis, to see the city in all its complexity with its infrastructures, services, population [in order to] model and measure inputs and impacts" (Gabàs, interview 11.10.2016). This way, the citizen subject is constituted as resilient or not, standards are prescribed to evaluate their capacities to cope with stress,

and measures suggested in case these capacities are insufficient. In this sense, resilience becomes a biopolitical policy tool.

In order to legitimize the process, Barcelona prides itself in its ‘traditionally participatory’ local policy making. Involving residents in defining resilience strengthens the intersubjective mechanism of constituting resilient subjects, as citizens internalize the principles and values as their own. In the Area of sustainability, governance is presented as a “participatory process” in which the City ‘creates the space for networking and ideas exchange and citizens are included in designing policy’ (Pujol, interview 29.9.2016). The language is very similar in the Area of security and prevention, referring to a “co-production of policies [through] a participatory process [in which] the quantity and quality of these interactions matters a great deal. [Thus,] resilience [of Barcelona] is constructed on the basis of the everyday issues [and directly depends on] the resilience of residents and communities” (Lahosa, interview 11.10.2016). The degree to which resilience is discursively connected to its subjects, individuals and communities suggests the prevalence of this perspective, broadly shared among the policy makers across the City Administration. This view is also echoed by other organizations; from the UN and its emphasis on individual empowerment, to private companies implying that a digitally connected citizen equals a resilient citizen.

The latter perspective had appeared in Barcelona long before Colau came into power. The push for smart urban technologies that gained momentum during the Administration of Xavier Trias has recently been transformed to include a community empowerment dimension to it. In this respect, the City Council has employed digital tools that are claimed to make its governance open and accessible, democratize technology and enable local populations to take full advantage of the smart, sustainable and green economy that the Council envisions. One could argue that enhancing the government by means of digital technology not necessarily leads to freeing and empowering communities. In this

sense, there is a paradoxical linkage between participation and freedom on one hand and control and surveillance on the other.

The policy makers in Barcelona insist that resilience as a term can be useful in many ways, although sometimes it is somewhat forced in terms of labelling initiatives and agendas that appeared in Barcelona long before 2007. This points to the major limitation of resilience in terms of its actual substance and novelty. The Director of the Department of Resilience at Barcelona City Hall notes that ‘issues such as climate change and extreme weather had been on the agenda for years’, but “now we call it resilience” (Gabàs, interview 11.10.2016). In this sense, the policy makers in charge of resilience programs openly admit that the concept does not carry much relevance. It is, however, used as a convenient label for the existing policies as it helps mobilize funding. Also, just like other trendy policy concepts, it can be more appealing to some City Administrations than others. As a result of a “change of colour of governments, continuity of these programs [can be] affected. With political cycles lasting between three and five years, every Major will have their own agenda. [For instance,] some will call for resilience against climate change, while others will question the existence of climate change to begin with” (Fernández, interview 10.10.2016).

Having explored the momentum of resilience in Barcelona, it can be argued that it has had both regulatory and constitutive effect on the city and its population. The political performativity of the term has functioned hand in hand with its widespread use in the policy language. Powered by considerable funding, legitimized by knowledge and deployed through technology, resilience reflects the transforming governance model of today. The term has indeed boosted profitability of private companies which have turned Barcelona into the European and global urban resilience hub. The assumption that a smart city equals a resilient city echoes through public organizations, city networks

and industries. This has also become evident in many other cities across the Atlantic, as the rest of this chapter will show.

## Case study II: San Francisco

This case study concerns the city of San Francisco, largely perceived as a historical hub of liberty and progressiveness, and more recently, one of technological industry and gentrification. From the institutional viewpoint, San Francisco connects multiple levels of governance - be it on the level of the Federal Government, the State Government of California, The San Francisco Bay Area, and the City and County located on the peninsula. Many industries, agencies, companies and social movements consider the City their home base, adding to its complex and sometimes ambivalent nature of the values historically perceived to define the city on one hand, and the realities of life in the city today on the other. Representing the only case located in the United States, San Francisco has evolved in the national context characterized by capitalism and neoliberalism. The country was the birthplace of global financial institutions and its political landscape has been fundamentally influenced by the interests of the private sector and their advocacy initiatives, and the historical significance of philanthropic institutions in the context of policy making and public opinion. In short, San Francisco brings together a unique blend of institutional characteristics that, in addition to the city's geographical and natural realities, have created a fertile ground for urban resilience to emerge in public policy and business.

This case study is based on an analysis of relevant policy documents from Federal, State and City and County Departments, as well as non-governmental, community, advocacy and research organizations. Also, 8 interviews were conducted with representatives of different agencies and departments of the Government of the City and County of San Francisco and academicians between 2015 and 2016. Among the interviewees were three officials from the Department of Emergency Management, including a Resilience and Recovery Manager; a representative from the City's Department of Public Health; the Chief Resilience Officer of San Francisco and the Director of the San

Francisco Office for Resilience and Recovery; as well as the Director of the Neighborhood Empowerment Network also based at the City Hall.

Similarly to the first case study, this one builds on the assemblage conception which goes beyond a flat description of the set of existing stakeholders in San Francisco. It focuses on their mutual associations, relations, and flows of ideas, technologies and finance with their regulatory and constitutive effects. As will be shown in this section, there is a number of formal institutional and practical frameworks which are mobilized around resilience in the City of San Francisco. At the same time, many external actors and platforms have emerged, which are not necessarily part of the government networks. However, their specific functions and fields of activity turn them into important resilience stakeholders, and draw them into the knowledge production process. Understanding these associations allows us to look *beyond* the formally established networks as wholes, appreciate their internal and external connections and shifts.

Considering the levels of interconnection of the City of San Francisco in the context of resilience-labelled policy making, this section addresses the existing networks of cooperation from international to local, and public to private. With respect to San Francisco's role in city diplomacy, the City has 18 so-called sister cities around the world, with different kinds of collaboration taking place in areas of government, business, arts, culture and increasingly, 'smart cities' initiatives (City and County of San Francisco, 2017). Among the most prominent initiatives on the global level, San Francisco is a member of the C40 Cities Climate Leadership Group. On the level of the United Nations, the City was the first major urban area in the United States to join the UN's Making Cities Resilient campaign in 2012. San Francisco was thereby designated by the UN as a "role model city for advancing resilience using the whole community approach" (UNISDR, 2012).



On the level of national policy and security policy in particular, resilience first appeared in the public discourse in the United States in the aftermath of the terrorist attacks of September 11<sup>th</sup> 2001. While media outlets praised personal resilience of firefighters and other first responders (CNN International, 2002), federal authorities called for resilience of the financial system in the wake of the attacks (US Securities and Exchange Commission, 2002), and researchers set out to measure psychological resilience of the World Trade Center attack survivors (see Bonanno, Rennie and Dekel, 2005). Resilience in a sense of an ability of cities and their residents to withstand severe conditions started to appear in research and policy. This trend was further boosted in fields of crisis management and urban planning after Hurricane Katrina in 2005 devastated New Orleans and the region (Homsey, interview 7.6.2016; Ottelini, interview 9.6.2016; Simbieda, interview 29.11.2016). Seven years later, the Hurricane Sandy and the floods that ensued paralyzed large swaths of the East Coast of the United States, including the City of New York. This resulted in another impetus for resilience language in public policy, against the backdrop of the common perception that the crisis management community failed to act upon ‘the lessons learnt’ from Katrina (Moris, interview 22.11.2016).

The realization of the increasing risk of extreme weather events connected to climate change, and its many urban impacts, created the conditions of emergence for a powerful urban resilience rhetoric in the country. The year 2013 saw the establishment of 100 Resilient Cities by the Rockefeller Foundation, headquartered in New York City. In 2014, the National Resilience Initiative (NRI) was launched on the federal level, reflecting the prominence of this concept nationwide, with universities from across the United States competing for the funding available (Moris, interview 22.11.2016). The declared mission of NRI, led by the American Institute of Architects, is to mobilize research and development to design ‘resilient city’ solutions to be implemented across the Nation (Clinton Foundation, undated), bringing universities and research centres together with the private sector. In the years that followed, a broad network of actors from community leaders to insurance companies

across the United States rallied behind the concept of urban resilience. In 2018, a 100 RC-sponsored advocacy project focused on resilience was launched on the federal level concerning the national flood insurance mechanism (see 100 RC, 2017), and the National Coastal Resilience Fund opened a 30 million USD grant fund to improve resilience of coastal communities across the United States (National Fish and Wildlife Foundation, 2018).

This case study is dedicated to explore the ways in which this resilience momentum evolved in the City of San Francisco, and the effects of this process on the city and its residents. Similarly to Barcelona, the traced governance mechanism manifests itself in San Francisco through three forms of power projection: producing knowledge, funding resilience, and finally, through technological interventions. However, these are operationalized in a fairly specific fashion, reflecting the unique economic, political and geographical realities of the region. The section below provides an introduction to the institutional and demographic context of San Francisco, and discusses the City's 'resilience challenge' as defined in by experts and the City officials. This creates a context for discussing the three forms of power and their implications in the sections that follow.

### The City's 'resilience challenge'

San Francisco is unique in that the City and County geographical and administrative territories overlap, located on the peninsula of San Francisco, surrounded by the San Francisco Bay to the east, and the Pacific Ocean to the west. The City's iconic architecture and the vast yet overburdened urban infrastructure has faced extreme weather, climate change and seismic risk due to the region's location on the Pacific Ring of Fire which is prone to earthquakes. According to the United States Census Bureau, the population of San Francisco was over 884 thousand in 2017, of which 40 percent was white, 36 percent Asian, 15 percent Latino, and over 5 percent African American. Almost 35 percent was foreign-born and almost 44 percent of the population spoke a language other than English at home (US Census

Bureau, 2018). This data suggests that San Francisco is highly diverse in terms of origin and ethnicity of its population.

The City Administration consists of multiple departments and agencies tasked with managing infrastructure, public health, environment or cross-sectoral emergencies. Many of these organizations have adopted resilience into their policy vocabulary throughout the last decade. When it comes down to specific risks that San Francisco and its population are facing, seismic risk is the most prominent, due to the City's location on top of San Andreas tectonic fault. The worst case scenario for San Francisco is indeed a major earthquake with its epicentre located "underneath or on the edge of the city" (Johnson, interview 23.9.2015). The city's historical memory was fundamentally shaped by a catastrophic earthquake and subsequent fire that damaged San Francisco back in 1906 (see Tainter and Taylor, 2014). While an earthquake of this magnitude has not been registered in the region since then, experts claim that this kind of event is "long overdue" (Johnson, interview 23.9.2015), given the city's proximity to San Andreas Fault and the Pacific Ring of Fire. Given the geographical setup and the soil consistency underneath the peninsula, a powerful earthquake would likely cause major disruption and damage to the city's infrastructure. Unlike events such as tsunami or extreme weather which can be predicted in advance (from hours to several days), earthquakes strike in a much more immediate fashion.

In this context, seismic risk is considered to be the starting point for all other risks that the city is facing, according to the former Director of the Office of Resilience and Recovery (Ottelini, interview 9.6.2016). It has now been more than a hundred years since San Francisco experienced a catastrophic earthquake, although the Loma Prieta Earthquake of 1989 did impact parts of the city infrastructure. If a similar magnitude earthquake occurred today with an epicentre underneath or near the City of San Francisco, the city officials claim that the "impact on the infrastructure would be catastrophic" (Johnson, interview 23.9.2015). This perspective is evident in the Resilient San Francisco Strategy

sponsored by 100 RC, which was published in 2016 (see City and County of San Francisco, 2016). In this regard, it is not surprising that policies, protocols and trainings that take place on the level of the City Administration often reflect an earthquake-centric perspective.

Another major challenge for the city is posed by complex impacts of climate change (*ibid.*, p. 10). Making ‘vulnerable communities’ resilient to climate change is one of the principles of public health policy in San Francisco (Comerford, interview 8.6.2016). The concrete forms in which climate change manifests itself in the city are extreme weather events such as storms, or periods of prolonged drought and its consequences for agriculture and groundwater levels. Effects of drought combined with fires - both accidental and intentional - can lead to disastrous consequences for the city as they have for the entire region.<sup>18</sup> Extreme heat is another major challenge for the city as identified by the Department of Public Health which aims to map its impacts on the urban population and ‘develop interventions’ based on these assessments (City and County of San Francisco, 2016, p. 77). Finally, sea level rise has become a stable part of the San Francisco’s resilience agenda when it comes down to climate change. Seminars, initiatives and adaptation plans have been launched city-wide to assess the available scientific knowledge, quantify ‘the cost of inaction’ and develop plans to mitigate the effects of rising seas on the coastal city infrastructure (*ibid.*, p. 75). The latter is considered to be another one of San Francisco’s systematic vulnerabilities. Simply put, the city’s ‘infrastructure is old’ and the repairs have not been done in a systematic fashion (Johnson, interview 23.9.2015). This leaves certain areas of this mostly affluent city severely underserved. The cost of rebuilding or retrofitting entire systems of transport, energy and housing is so extreme that it is “very difficult for the community and the society to accept” (*ibid.*). However the interventions in the city’s build environment have been significant throughout the last decade, as will be discussed further in this section.

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<sup>18</sup> The 2018 California wildfires proved to be the most destructive in the recorded history of the State.

Another one of the typically urban risks which gained more attention of the Federal Government after 9/11 is terrorism. While officials of San Francisco Government do not claim that a risk of a terrorist incident in the city is negligible, they tend to focus on other risks that have a comparatively higher probability of occurrence, such as floods or infrastructure failures (Hogan, interview 6.6.2016). There are, however, funds available from the Federal Government, specifically the Department of Homeland Security (DHS), which are dedicated to training of local officials to respond to acts of terrorism (ibid.). In this vein, the risk of terrorism is still on the agenda of the Government of San Francisco, namely the Department of Emergency Management, although no terrorist attack of a magnitude that DHS has trained the city officials for has occurred in San Francisco to date.

Finally, from the viewpoint of the city's social fabric, there is a major challenge of social inequity and unaffordability, both in terms of general consumption and housing prices. While a median household income in San Francisco is 96.265 USD per year, the city is characterized by sharp income inequalities. The level of poverty defined by a federal standard overreaches 10 percent among the total population, while 5 percent of the city residents lack any kind of health insurance. That in a city with a median monthly rent of 1.709 USD, a median monthly cost with a mortgage reaching 3.332 USD and an average housing unit market value of 927.400 USD (US Census Bureau, 2018). Throughout the last decade, San Francisco has experienced profound effects of gentrification, and the demand for housing in the city has caused real estate prices to soar, particularly since 2013 (see City and County of San Francisco, 2016, p. 17). The housing market is affected by comparatively high wages of thousands of tech industry employees seeking prime real estate in the centre. Coupled with the geographical limitations due to the peninsular form of the County territory, the urban area cannot spread in many directions and the city becomes even more dense and unaffordable.

As a result, middle-income families, workers in service industry, education, and even public service employees of the City and County Government are effectively priced out of San Francisco and seek housing in other counties north of the peninsula. The residents who cannot afford to relocate are experiencing what has been labelled as ‘an alarming housing crisis and astronomical rise in socio-economic inequality’ in San Francisco, caused by – and fuelling a public resentment towards – the tech industry (Kuo, 2016). In the meantime, thousands of the city’s homeless live on the streets and in temporary shelters, as the local government is unable to provide sufficient public housing, despite the relatively recent establishment of the Department of Homelessness at the City Hall (Comerford, interview 8.6.2016). The impacts of this situation profoundly affect the quality of life, basic human dignity and public health on the streets of the city known as the global technology hub (see Robinson, 2018).

Considering the above, it can be argued that San Francisco represents an example of a highly ambivalent city profoundly affected by socio-economic inequality. While it is home to the wealthiest community of IT industry employees, its growing unaffordability problem is coupled with everyday impacts of climate change. For these reasons the city represents a complex physical, social and political playground for resilience policies and practices which are explored in turn. Particular attention is paid to the actors that take part in the mobilization of resilience, and the regulatory and constitutive effects of this process that shape the city as a whole.

### Knowledge: Defining a resilient standard

The socio-economic context of San Francisco described above offers a plenty of ways to define and interpret what resilience means for the residents. A network of knowledge-producing actors in San Francisco has dedicated considerable efforts and funding to defining a standard of resilience and to proposing strategies to achieve it. Building on census datasets compiled by the Federal Census Bureau

and data compiled by researchers across the United States, universities and think tanks around the country have set out to explore, assess, measure and design resilience of the city and its residents. Bridging academic expertise with practice in disaster planning and community engagement has become a standard catchphrase in San Francisco's governance. The 'resilience expertise' is regularly sought by the City Government departments and agencies and used to legitimise policy decisions and interventions in urban public space.

In this regard, San Francisco is a member of the SPUR Initiative – the Bay Area Planning and Urban Research Association focused on research, education and advocacy. This organization defines resilience from a seismic viewpoint as “the ability of the city to remain safe and usable after a major earthquake [and] able to contain the effects of earthquakes when they occur” (Poland, 2009, p. 4). SPUR has a long history of collaborating with the City Government. It has gained an important role in urban policy advocacy and its recommendations are usually accepted by the City Government without hesitation (Simbieda, interview 29.11.2016). The City Government has also collaborated with The Climate Readiness Institute based at University of California Berkeley which has developed the Resilient Infrastructure research project and the Resilient Community Initiative (Climate Readiness Institute UC Berkeley, undated). Its College of Environmental Design has launched A Pacific Rim Urban Resilience by Design project (College of Environmental Design UC Berkeley, undated). San Francisco has also worked with the Urban Land Institute which has been running its own Urban Resilience Program focused on real estate development (Urban Land Institute, undated). In a similar fashion, the Urban Risk Lab based at the Massachusetts Institute of Technology has collaborated with San Francisco to 'develop' its socially vulnerable urban areas prone to flooding and transform them into resilient residential units and commercial space (Urban Risk Lab, 2013). Major consultancy companies have also participated in designing a resilience standard for San Francisco. The creator of City Resilience Index adopted by 100 RC, the company ARUP, has taken part in identifying and quantifying the existing risks in the City. It is

important to note that the most of the ARUP representatives involved in San Francisco have a background of structural engineering which again shapes their definition of resilience (Simbieda, interview 29.11.2016). The latter is largely focused on the technical aspects of 'running cities' which has left an imprint on much of San Francisco's public policy.

Beyond the expertise relative to the city's planning and built environment, resilience has also been one of the most salient terms used to strengthen the citizen and community engagement in the face of potential contingencies. In addition to attempting to enhance citizens' capacity to deal with sudden crises, the focus in recent years has turned to a more proactive (and in some ways invasive) approach. Risk mapping and risk assessment has been at the core of the effort to collect and process data harvested from residents and companies in order to plan, mitigate and manage contingencies before, when and after they happen. The Department of Emergency Management has established collaborations and protocols with companies such as Facebook and Google in order to plan for data sharing collaboration in an event of crisis (Johnson, interview 23.9.2015). The capacity of these entities to harvest and process real time data is unrivalled by any agency of the City Government. By enabling citizens to be connected at all times, the companies help the Government to place a growing degree of responsibility on the citizens to become their own risk managers, regardless of the type of contingency they face. In cities like San Francisco, proliferating digital connections are one of the backbones of the economy and are ingrained in the way of life. This way the data harvested becomes one of the tools of governmentality, powered by citizens themselves, their movements, behaviours and digital interactions.

One of the key components of resilient knowledge building is its acceptance and internalization by the public, particularly the city residents. While the declared goal of educating the communities is to support bottom-up or grassroots activism, the form in which communities 'get empowered' reflects



the transforming type of governance logic to a significant degree. Public, private and mixed organizations become part of the regulatory mechanism, while the residents are left to bear the responsibility to manage environmental risk. This is largely in line with the Government designing and developing the so called 'community empowerment' initiatives and projects. These are supposed to educate vulnerable communities about the value of resilience and teach them how to achieve it, that is, how to be constantly prepared for the inevitable. Such projects are often funded by a mixture of public and private donors, in which case their resilience denomination tends to help a great deal in order to secure funding. One of the examples is SF 72, an initiative originally developed by the Department of Emergency Management. The main idea of the project is the preparation of residents for an *effective unavailability* of government services and assistance for a period of 72 hours after a disaster strikes the city.<sup>19</sup> Residents are to be educated about the resources that they own which can help them survive and thrive over this time period before receiving external help. The motto of the project is 'You are more prepared than you think', and the aim is to "help integrate preparedness into [residents'] daily activity" (Johnson, interview 23.9.2015). This project is argued to be a prime example of "building community readiness through education and technology", celebrated in San Francisco Resilience Strategy of 2016 (City and County of San Francisco, 2016, p. 31).

Moving beyond the short-term readiness-building tools, there is a series of long-term initiatives focused on empowering communities by educating them about risks in their environment and the ways to mitigate them on an individual and community level. In this context, a key umbrella organization titled Neighborhood Empowerment Network (NEN) stands out. NEN has used a community preparedness and education language since its establishment in 2007 at the City Hall. Two years prior

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<sup>19</sup> The temporary unavailability of assistance is due to a limited capacity of SF rescue services and other first responders to immediately respond to all of the SF neighbourhoods after a major disaster, especially in case major transport routes are compromised (Johnson, interview 23.9.2015).

to the founding of NEN, then-Administrator of the City of San Francisco Edwin Lee and his collaborator Daniel Homsey, who would later become Director of NEN, visited the post-disaster zone impacted by the Hurricane Katrina in New Orleans. This was where the idea of community resilience for San Francisco was born, focused on 'educating and connecting vulnerable residents to the key stakeholders and resources in their respective communities' (Homsey, interview 7.6.2016).

NEN claims to be bringing together community leaders of various backgrounds who demonstrate knowledge and legitimacy to serve as resilience connectors in their communities, such as local activists, faith leaders, as well as volunteer coordinators. The Network develops and delivers community outreach programs and workshops, such as the one titled Resilientville dedicated to educate residents about earthquake risks. NEN's collaboration with the Fire Department has been broader in its scope, with a community-based program focused on training and educating individuals to be able to better cope with contingencies, titled the Neighborhood Emergency Response Team (see NERT, undated). NEN partners also include many organizations within the City Government such as Department of Human Services, Department of Public Health, Department of Emergency Management, Department of Environment and Department of Technology. Further, NEN has collaborated with San Francisco Public Utilities Commission, Community Agencies Responding to Disaster, Interfaith Council, San Francisco Recreation and Parks, Safety Awareness for Everyone, The Salvation Army, and the American Red Cross (Empowered Communities Program, 2016, p. 1). As a part of an incredibly broad epistemic and policy network, these organizations appear on the list of partners and regularly send their representatives to roundtables and events at the City Hall where the definition of 'Resilient San Francisco' is designed, debated and reshaped. The standard defined is subsequently used and implemented in policies and practices across the city and its neighbourhoods, and places ranging from community churches to temporary shelters and private homes. This way, knowledge is blurred with

power and the universally accepted standards of resilience become an unchallenged basis for subtle policy interventions.

Connecting sources of knowledge and expertise from global to local, and public to private, it is difficult to identify a program that embodies ‘resilience by knowledge’ better than 100 Resilient Cities as implemented in the City of San Francisco. The project has brought the City in the network of a 100 city members across the world, sharing their expertise and good practices. It has been one of the most prominent programs explicitly labelled by resilience which has left an important institutional trace in San Francisco’s City Hall (Hogan, interview 6.6.2016). The city became a member of the 100 RC network in 2014. By 2016, it developed and published its City Resilience Strategy with an overwhelming focus on seismic risk after consulting “more than 30 government agencies and over 50 community-based organizations and private sector partners” (City and County of San Francisco, 2016, p. 23). The engineering perspective adopted in the document bears a significant imprint of San Francisco’s Chief Resilience Officer at the time of the Strategy’s release, Patrick Otellini. With his professional background in construction and engineering, he had worked his way from private sector to the City’s Director of Earthquake Safety, leading the Earthquake Safety Implementation Program. He is frequently referred to as the “earthquake tsar” of San Francisco in the local policy community (Dudgeon, interview 23.9.2015). While leading 100 Resilient Cities in San Francisco, he took the City’s resilience initiative to an international level, claiming that the plan was to ‘institutionalize resilience to make it part of what [the Government] does in a long term’. In doing so, he brought together hundreds of individuals from across the City Government and the private sector (see Rappaport, 2016). This clearly illustrates how public and private, internal and external expertise come together to shape the City’s resilience definition. In late 2016, Patrick Ottelini resigned from his post of the Chief Resilience Officer to return to work in private sector in the field of engineering. He was replaced by Brian Strong, who is also the Director of the City’s 32 billion USD ten year Capital Plan (One San Francisco, 2016). The key seismic-

focused policy priorities developed by Ottelini have therefore been complemented by a perspective more concerned with the local economy and investment.

The knowledge and expertise assembled around the notion of resilience in San Francisco has become a powerful political force. Shaping standards and influencing perceptions of what resilient city means for the scientific and policy community has important implications for policy making and practice. It is evident that the dominant definition of resilience in the city is fundamentally influenced by a physical or engineering perspective, mostly powered by the expertise in the fields of architecture and urban planning. That said, assembling resilience knowledge has by no means been a strictly top-down and fully institutionalized effort. As was discussed above, residents of San Francisco have themselves served as vehicles for mobilizing resilience thinking, either as agents of change in pursuing 'grassroots' initiatives, or as producers of data which is harvested to track everything from traffic conditions to physical impacts of disasters in real time. Digitally connected citizens are not only sources of metadata, but also active users of digital platforms which have revolutionized governance on scales previously unknown. The intersubjective knowledge and acceptance of resilience as a security and development standard for the city and its residents, and the degree to which it has penetrated lives, thoughts and behaviours of people, are indicative of the governance shift.

One of the key ways to mobilize resilience to create substantial outputs, be it in an institutional, material or environmental sense, is the funding available for this purpose. The following section is dedicated to discussing the types of actors which have financed San Francisco's resilience momentum throughout the last decade, and the ways in which these funding mechanisms have turned into tools of political power from international to individual scale.

## Funding: Developing resilient subjects

Throughout the last decade, the Government of the City and County of San Francisco, along with its departments, agencies and affiliated organizations, have witnessed a significant proliferation of resilience policy. The funding that has made it possible has grown particularly in the years after the watershed events of the Hurricane Katrina that devastated New Orleans in 2005, and the Hurricane Sandy hit the North-East in 2012. While these events exposed what became understood as a vulnerability of cities to extreme effects of climate change, policy makers also started pointing to the fact that there had not been a sufficient degree of funding for agencies dealing with disasters and emergency management. In the case of Katrina, the disaster response was overwhelmingly slow - a set of failures and inefficiencies following the hurricane left almost 2.000 people to die, as federal aid was delivered too late (Homsey, interview 7.6.2016). Much of this has been blamed on the insufficient funding and a lack of established connections with external organizations and individuals who can be mobilized in an event of disaster in case the conventional first response system proves to be overwhelmed.

In this context, resilience came to be a buzzword used to name a range of initiatives aimed at boosting capacities of government, research and community organizations to build resilience by networking with other actors. Just like in the case of constructing knowledge that is to an extent self-serving in a sense of reflecting a given organization's own agenda, funding of resilience is based on a similar principle. Departments from federal to local level and research organizations have redesigned and stretched their agendas in order to accommodate the concept of resilience which opens avenues of funding (Moris, interview 22.11.2016). Public-private partnerships and community engagement have emerged as basic tenets of the resilience approach of governments seeking to harness capacities of the

public for the purposes of self-governance (see Department of Emergency Management, 2013, p. 4; City and County of San Francisco, 2016, p. 24).

As noted earlier, the spectrum of risks that the City of San Francisco is facing or preparing for has ranged from earthquakes and climate change to terrorism. The government network which provides funding for their mitigation is composed of different departments, agencies and organizations on multiple (sometimes overlapping) levels. These include the Federal Emergency Management Agency (FEMA), which has awarded numerous grants to improve San Francisco's resiliency in recent years. San Francisco's Hazard Mitigation Plan of 2014, for instance, opens a channel of "federal hazard and flood mitigation funding [from FEMA, aimed at] making San Francisco safer and more resilient" (Department of Emergency Management, 2014). Federal dollars are also spent on 'safety and security' for the system of Bay Area Rapid Transit (BART), with the most recent grant covering over 3 million USD for surveillance cameras, 2 million USD for radio interoperability, and over 1 million USD for boosting BART security patrols (Kerman, 2018).

The Federal Government's Department of Homeland Security (DHS), for its part, has sponsored the nationwide Urban Area Security Initiative (UASI), considered as an important funding scheme for training local government officials and first responders to manage the aftermath of terrorist attacks. San Francisco has been receiving DHS financial support for this purpose since 2013, with multiple local government departments taking part in planning and simulations (Hogan, interview 6.6.2016). As was mentioned earlier, the threat of terrorism is not considered one of the top priorities for the City of San Francisco. Yet in 2012, a 38 per cent reduction of UASI funding for the San Francisco Bay Area led to a public outcry of senior city officials, and prompted senior democratic leaders to directly appeal to DHS to reverse its decision (see Pelosi, 2012). This echoes the general assumption prevalent in San Francisco's Government and policy community that the Federal Government should be providing more

funding to projects aimed at building resilience of the Bay Area. In any case, there is a degree of ambivalence between not considering terrorism a policy priority on one hand and seeking funding to protect the City against it on the other.

Other agencies operating on the first response level have competed for federal, state and city resilience funding in order to enhance of their technical capabilities and staff. These include the San Francisco Fire Department which manages fires, natural disasters and incidents involving hazardous materials, and also provides emergency medical services. Its division of Homeland Security carries out disaster planning for the city and manages government-sponsored programs, including those focused on weapons of mass destruction and terrorism (San Francisco Fire Department, undated). The realm of law enforcement is also multi-layered and composed of different actors operating across the city and receiving funding from different federal agencies. San Francisco Police Department is responsible for general public security in the Bay Area, conducting special operations with SWAT teams and interventions to deal with dangerous explosives, and securing public events with its Homeland Security Unit (San Francisco Police Department, undated).

Federal funding has also been used for Urban Shield, a self-declared 'regional preparedness exercise' co-funded by the Department of Homeland Security and the County of Alameda located across the Bay of San Francisco, to the east of the city. The Emergency Services Unit of the San Francisco Sheriff's Department has taken part in this event for years, aiming to "hone and improve [the Unit's] tactical, communication and physical strength" (San Francisco Sheriff's Department, undated). The leaders of Urban Shield claim to be training the region for "any type of critical event [and] testing regional integrated systems for prevention, protection, response and recovery in our high-threat, high-density urban area" (Urban Shield, 2018). However, communities in the Bay Area have rallied against Urban Shield, claiming that it is merely a militarization exercise and 'weapons expo' which has been

wasting federal aid under the pretext of public safety (Stop Urban Shield, 2018). This public criticism notwithstanding, the city officials and law enforcement continue to participate in this initiative and to emphasize the need of federal funding to fulfil their missions.

In addition to funding schemes aiming to tackle terrorism and criminal activity, San Francisco has been using federal aid dedicated to reduce the impacts of climate change in the City. The primary coordinator of these initiatives has been the City's Department of Public Health. Under its supervision, city-wide research and assessments have been carried out to map public health risks such as heatwaves and drought affecting a growing number of areas in San Francisco. The program is divided into three broad areas of Community planning and Adaptation, Report and Emergency Plans, and Climate Health Vulnerability assessments, producing 'community resiliency assessments' of various neighbourhoods of San Francisco (Department of Public Health, undated). An important part of the funding for this initiative is received directly from the Center for Disease Control and Prevention of the Federal Government (Comerford, interview 8.6.2016).

Policy makers across the City Government emphasized the vital importance of the federal funding in some of their Departments and projects. For example, the Deputy Director of Department of Emergency Management (DEM) noted that various grants from the Department of Homeland Security are key - not only for running 'resilience' projects, but for "running the Department in terms of staff and general expenses" (Dudgeon, interview 23.9.2015). This Department is responsible for coordinating emergency planning and response, and running the Emergency Operation Center in its headquarters in downtown San Francisco. Building on the funding available, it has developed various resilience-labelled projects to enhance relationships with other City Government departments and external actors, including private companies, which is considered to be a part of its basic mission (Johnson, interview 23.9.2015). The DEM has collaborated on programs focused on different aspects



of urban vulnerability, often co-financed in particular by the City's Department of Public Health, Municipal Transportation Agency, Department of the Environment, San Francisco Public Utilities Commission, or Department of Building Inspection.

Building the brand of 'community resilience', the Neighborhood Empowerment Network discussed in the previous section has benefited from an external funding mechanism of a different kind. Despite a long-standing relationship of NEN's Director Daniel Homsey with the City Administration, especially the former Mayor Edwin Lee, the funding for NEN comes primarily from external private actors. Its flagship 'Empowered Communities Program', for instance, is sponsored by Walter and Elise Haas Fund, the Rockefeller Foundation and the company Microsoft (NEN, 2016, p. 1). The Network aims to work with "vulnerable populations to increase their resilience and to provide technical and financial resources [in order to] advance their resilience goals" (NEN, 2018).

The Rockefeller Foundation was also behind the initial funding for what became the Office of Resilience and Recovery at the City Hall. Between 2014 and 2016, the key San Francisco's resilience-building initiative was directly funded by the Rockefeller Foundation as a part of its 100 Resilient Cities Programme. In addition to coordinating the pool of local expertise described in the previous section, the program's very existence was made possible by the two year grant that, among other things, paid for the salary of San Francisco's then-Chief Resilience Officer Patrick Ottelini. In 2016, Mr. Ottelini claimed that the Chief Resilience Officers who are 'internally appointed' from within City Halls have a 'good chance' of securing additional resilience funding from their Mayors (Ottelini, interview 9.6.2016). Sure enough, by the time the two-year Rockefeller funding period concluded in early 2016, a new Office of Resilience and Recovery had been established by Executive Order at the City Hall, with its funding for staff and operations now secured directly from the City and County Government. Its role is to coordinate the resilience efforts across the City Departments, private sector and local communities –

thus, to an extent it mirrors or overlaps with similar initiatives run by the Department of Emergency Management and other agencies.

The drafting of San Francisco's 100 RC Resilience Strategy, which was eventually released in 2016, proved to be problematic from the perspective of the City's ownership of the process. 100 Resilient Cities claims that its program is unique in that 'it explicitly targets fundamental change in city institutions [and] creates a city-level marketplace for resilience services, supplied by specialized private and not-for-profit organizations with cities as the main clients' (100 Resilient Cities, undated c). The program seems to have achieved just that in San Francisco; establishing a new Office of Resilience and Recovery at the City Hall, and connecting local authorities with the private sector, often represented by the corporate sponsors of the project. As was discussed in the previous chapter, the City Resilience Index developed by ARUP must be purchased from this company by the member cities in case they want to use it (Simbieda, interview 29.11.2016). The former Chief Resilience Officer noted that 100 Resilient Cities 'treats the City as a client, appointing a third party consultant to do the preliminary risk assessment. The City has very little control over this contractor [which resulted in] spending 50.000 USD for a very basic assessment, essentially stating that San Francisco is facing a risk of earthquakes, sea level rise and housing affordability' (Ottelini, interview 9.6.2016). The CRO's frustration over the expensive contractor stating the obvious suggests the lack of substance and efficiency in spending some of the 100 RC funding.

Despite these difficulties, funding of resilience in San Francisco has been growing. Financial support and resources have been leveraged from a network of Federal Government Agencies, different Departments of the City and County of San Francisco Government, as well as philanthropic organizations and private companies. Throughout this process, catalysed in 2014 by the arrival of 100 Resilient Cities to San Francisco, the number of informal and institutionalized interconnections between

city officials, consultants, experts, law enforcement officers, neighbourhood activists and residents has proliferated. It is important to point out that as much as resilience can appear to some as an empty signifier, it has served as a powerful term to label new and ongoing initiatives coordinated by multiple officials of the City Government. The policy makers insist that external resilience sponsorship is vital for their departments and agencies due to insufficient public funding.

This leads to the conclusion that despite the overuse of resilience in San Francisco's public policy, the term itself is not as important as the political shift that it has enabled. While the establishment of resilience-labelled governance in San Francisco has gained a firm ground, the impact it has brought in terms of its effects is much more significant. On one hand, decentralizing the funding mechanisms to include a range of federal, local, private, public and philanthropic organizations unleashes a set of interests and conditions under which these actors provide funding. On the other hand, the vulnerable urban sites are to be protected and the residents are to be empowered under these mechanisms. A failure to properly adapt and benefit from these initiatives is perceived as the individuals' and communities' own fault. In addition to knowledge and funding that have brought the existing form of resilience to life, physical manifestations of resilience building represent the third channel of power projection to which we now turn.

### Technology: Building resilient urban environments

As was discussed previously, earthquakes top the list of major risks faced by the City of San Francisco. Seismologists estimate that there is a 72 percent chance of a major earthquake impacting the city within the next 27 years (City and County of San Francisco, 2016, p. 28). In this context, it is perhaps not surprising that the City's Resilience strategy adopts the seismic risk as its principal focus. The 137-page document mentions resilience 248 times – a count that is closely followed by 'buildings', 'housing' and 'earthquake' (City and County of San Francisco, 2016). While some City officials note that

risks other than earthquakes have every-day - and thereby more relevant - impacts on San Francisco (Homsey, interview 7.6.2016), the emphasis on seismic risk dominated the Office of Resilience and Recovery between 2014 and 2016, given the engineering background of then-Chief Resilience Officer Patrick Ottelini.

One of the most visible material interventions of the city-wide earthquake adaptation initiatives have been carried out through the program of seismic retrofitting. While current building codes only allow earthquake-prone buildings to be constructed, much of San Francisco's housing stock was built long before these standards were put in place. Making older housing structures resilient to seismic activity was the key goal of a ten year long initiative titled Community Action Plan for Seismic Safety, which concluded in 2012 by establishing the Earthquake Safety Implementation Program (ESIP), which now operates under the Office of Resilience and Recovery. ESIP is a long-term project with fifty policy goals to be implemented within the next few decades (City and County of San Francisco, 2018). The aim is to mobilize different actors, from local Government Departments and infrastructure operators to construction companies that provide services of physical retrofit. For this purpose, ESIP organized a Retrofit Fair in 2016 which attracted 36 architecture and design studios, 29 construction companies, 7 banks such as Wells Fargo or California Bank and Trust, 29 other companies involved in disaster mitigation such as Appalicious, Neighborland or Pacific Gas & Electric Company, in addition to 8 agencies from across the City Government like Neighborhood Empowerment Network, Department of Emergency Management or Department of Building Inspection (*ibid.*).

The recount of the vendors reflects the range of stakeholders that have become involved and benefited from the retrofit initiative which has gained a powerful political support at the City Hall over the years. The City Government on one hand and private companies on the other therefore seem to have developed a mutual relationship of necessity. The Government officials maintain that the City of

San Francisco – in times of normalcy as well as in emergency – is “innately connected to private sector” in operations and procurement (Johnson, interview 23.9.2015). With an exception of water, which is managed by San Francisco’s Public Utilities Commission, most of the infrastructure networks crucial for the city’s functioning are at least partially owned or operated by private companies. Thus, the City Departments are collaborating on a daily basis with many private entities to prepare for potential disasters which could paralyze some vital components of the urban infrastructure, such as transport and utilities.

One of the core cooperation efforts of this kind has materialized in the Lifelines Council initiative, which is now managed by the Office of Resilience and Recovery. Lifelines brings together all the government and private organizations to “understand inter-system dependencies to enhance planning, restoration and reconstruction [and] establish a coordination process for lifeline restoration and recovery following a major disaster event [while the systems concerned include] communication, electric power, liquid fuel, natural gas, transportation, water and wastewater” (City and County of San Francisco, undated). In 2014, Lifelines published a landmark San Francisco Interdependency Study which developed a scenario of a 7.9 earthquake in the San Andreas Fault and its impact on San Francisco. Among its principal recommendations are more detailed assessments of earthquake impact in certain areas, and an enhanced coordination of the stakeholders involved in Lifelines (The Lifelines Council, 2014, p. vi-vii). The current members of the Lifelines Council are Pacific Gas & Electric Company which supplies some 95 percent of electric power to the city, fuel company Kinder Morgan, communication companies such as AT&T, Caltrans and Verizon, transportation companies like Amtrak and Union Pacific Railroad, as well as waste management company Recology. The University of California Berkeley is an academic partner (City and County of San Francisco, undated). Lifelines is now chaired by the Chief Resilience Officer of San Francisco Brian Strong (One San Francisco, 2016), placing the City Government in the coordinator role.

While building resilience of San Francisco is largely dominated by the retrofitting program, other initiatives have been focused on developing new - and affordable - housing, both temporary and permanent. Following the premise that improving resilience equals a reduction of the city's homeless population, the current Resilience Strategy pledges to improve the city's housing systems "to accommodate 8.000 homeless persons by 2020 and produce 30.000 housing units that are either permanently affordable or middle-income" within the same timeframe (City and County of San Francisco, 2016, p. 84). It is hardly surprising to see the housing stock build-up on the list of policy priorities of the City Administration, given the level of public criticism over the extreme housing prices in the Bay Area. While the top one percent of households in San Francisco are making 3.6 million USD annually (La Ganga, 2016), property prices and rents are driving out the lower and middle classes, and the homelessness problem is constantly growing. The housing situation has become alarming, as the city has turned into a place where many middle-income San Franciscans can no longer afford to live (Comerford, interview 8.6.2016). The insufficient pace of new housing build-up goes hand in hand with the downtown land unaffordability, which in turn relates to the presence of the headquarters of major US and global tech companies, as was mentioned previously. The influx of tech workers with high wages, and the growth of short-term rental platforms such as Airbnb have fundamentally affected San Francisco's housing affordability. This illustrates the paradoxical relationship between the private sector as an innate part of the city in its functioning and growth on one hand, and the adverse effects of the very presence of these companies in San Francisco contributing to the extreme income inequality on the other.

Despite the degree of public resentment, San Francisco's tech companies and their services and applications are considered to be important assets for disaster mitigation. The City Government and its many Departments have actively engaged with key technology companies. According to San Francisco's former Resilience and Recovery Manager based at the DEM, the city works with companies

like Airbnb that could potentially house crisis responders in case of a disaster that compromises transportation networks in San Francisco. Real time information crowdsourced from residents is also considered a priceless asset for city officials and first responders. To this end, the city collaborates with platforms like Google, Facebook and Twitter that operate applications that allow residents to share information in real time, which can be used by emergency managers to assess the areas worst affected and employ their resources accordingly (Johnson, interview 23.9.2015).

The City Administration also encourages citizens to use similar applications for individual disaster preparedness, no matter the type of emergency event. For instance, the SF 72 initiative based at the Department of Emergency Management which was mentioned previously suggests to the residents to rely on tools powered by Facebook, Twitter, Google Drive, NextDoor and Airbnb in case of emergency. The SF 72 website also lists 'essential, useful and personal' items that should not be absent in any household which can help individuals withstand disruptions of power and food supplies in an event of a major disaster (SF 72, undated). This way, the city continues to develop the individual preparedness agenda by training the residents for self-reliance with the help of digital applications and household items. Declaring the goal of making residents resilient to all kinds of disasters, these types of initiatives foster the intersubjective acceptance of constant ambient threats and the role of citizens as risk managers in their respective environments, families and households.

The collaboration of the Department of Emergency Management and private companies in the Bay Area can also materialize in a rather ad-hoc fashion. Businesses based in San Francisco have obvious vested interests in putting the City back on track following a disruption – or preventing disruptions altogether. Unique technical capacities of private sector partners can often be used for the purposes of the City Government. In one of such instances in the midst of the 2014 H1N1 flu season in San Francisco, a locally headquartered trading firm Charles Schwab hosted a 12.000 participants'

conference call to allow the Department of Emergency Management to communicate the public health situation to private employers across the region (Dudgeon, interview 23.9.2015). Capabilities and resources owned and operated by private sector are therefore mobilized for preparedness or recovery operations, coordinated by the City Government. This way, public-private partnerships strengthen the assumption of a natural interconnectedness of government on one side and industry on the other. In any case, seen through a private business lens, resilience is equated with minimizing disruptions to conducting business, and thus with minimizing the revenue loss.

The City Government agencies across sectors have identified ways in which private companies and local organizations can contribute to the infrastructure build-up to mitigate impacts of climate change. In this respect, San Francisco has been facing rising sea levels, increased erosion and saltwater intrusion, as well as flooding and more frequent and intense storm events (Natural Resources Defence Council, 2011). The overwhelming answer to these challenges has been the build-up and enhancement of San Francisco's Northern Waterfront Seawall. Improving the city's waterfront resiliency has been one of the priorities for the successive City Administrations for over a decade. It explicitly appeared in San Francisco's Climate Adaptation plan of former Mayor Gavin Newsom, who is now the Governor of the State of California. Newsom's plan counted with physical upgrading of San Francisco's Port piers and the crumbling sections of the existing seawall. He sought to engage City Departments, non-governmental organizations, private consultants and a "scientific advisory panel" in the process (Crowfoot, 2009). Waterfront adaptation to climate change was also high on the agenda of the following Mayor Edwin Lee, who oversaw the establishment of the Office of Resilience and Recovery led by another seawall advocate Patrick Ottelini. San Francisco's Resilience Strategy produced under his leadership proposed an Earthquake Vulnerability Study of the seawall which is supposed to inform the Strategic Plan of San Francisco Port in the coming years (City and County of San Francisco, 2016, p. 68). Private industry has been an inherent part of this process, providing assessments and developing



simulations to predict flood risks. One of the examples is an initiative by a global urban planning and infrastructure consultancy AECOM titled “San Francisco - Investing in Resilience”, focused on assessing flood risk in the Bay Area (Nolan, undated). It is noteworthy that the former AECOM’s Global Technical Leader who promoted this initiative internationally is now Director of the UN Global Compact Cities Programme (see Global Compact Cities Programme, undated).

It is evident that the assemblage of resilience infrastructures and technologies in San Francisco has grown across many industry sectors. From agencies of the Federal Government to Departments of the City and County Government, and in broad partnerships with private sector, resilience projects are powered by different funding mechanisms. These range from housing retrofit grants and the seawall build-up to public education campaigns aimed at boosting digital connections that are to empower local populations to become resilient against any conceivable threat. At the same time, it becomes clear that technologies and infrastructures of resilience can be hardly understood without considering the expertise and funding that makes them possible in the first place. This attests to the interconnectedness of the three channels of power operating in San Francisco, fundamentally shaping the city’s governance landscape in terms of its material and intersubjective effects.

## Discussion and conclusion

While deploying resilience in forms of government-coordinated programs and initiatives has not been without complications, the local policy makers emphasize the value of this term, both in terms of risk management philosophy and its practice. The perceived benefits of the transformative governance assembled among international, private and civil society actors in ‘enabling’ resilience of vulnerable populations seem to be the starting point. The human agency is – in addition to plans and resources – considered to be the most important element of urban resilience as understood by the City Administration (Johnson, interview 23.9.2015). This attests to the argument that one of the key vehicles

of deploying governmentality are the very communities and citizens on behalf of which the 'empowerment initiatives' are designed.

There are several distinctive features of San Francisco's 'resilience challenge' in comparison to other cities. First, the prevalence of the seismic risk, and the engineering perspective that has dominated the city's response. Faced with physically vulnerable infrastructure and unaffordable housing stock, the city has launched a major retrofitting program to make houses, public buildings and infrastructure networks earthquake-proof. Also, much of the infrastructure that keeps the city running is extremely old and costly to maintain and repair. Seismic movements affecting the soil stability to chronic effects of climate change are coupled by delays and difficulties caused by the "Not In My Backyard" effect. In addition, some of the infrastructure features have become a major liability for the city, such as the state of the Northern Waterfront Seawall. Second, the extreme income inequality and the related housing unaffordability have become another distinctive feature of San Francisco. It appears that the information technology success of the Silicon Valley has all but defeated the way of life which once characterized the city. The 'empowerment' community projects designed by the City Government can ease inequality only to a limited degree in the context of the macro-effects of economic and industry development and its impacts on the local residents. Finally, the presence of the key global digital technology companies in San Francisco has turned the city into an IT hub in all senses of the term. Digital connectedness is understood as a part of the city's DNA, and has served as a tool of adaptation available to the general public, used for every-day communication but also easily mobilized in case of emergency.

Resilience has been deployed along two parallel lines in San Francisco, characterized respectively by their material and non-material effects. The regulatory network of neoliberal stakeholders assembled around resilience is made up of organizations on different levels. These include

the United States Army, Navy and Airforce, federal level actors such as the Department of State and Defense and FEMA, the State agencies in California, international and non-governmental organizations and associations, Red Cross, Salvation Army, local NGOs and community organizations, as well as private companies operating the city infrastructure and digital companies such as Google, Facebook, and Airbnb (Johnson, interview 23.9.2015). Similarly to Barcelona, it is not the actors themselves, but rather their platforms and associations that are productive of 'resilience' standards and regulations. These are in turn applied to regulate the natural and built environment as well as the residents' behaviour.

On the city level, one of the most significant 'products' of the resilience momentum was the establishment of the Office of Resilience and Recovery at the City Hall. Funded by the Rockefeller Foundation for the first two years, it has built connections between San Francisco and other 99 city members of the 100 RC world-wide. On the local level, it has 'coordinated' the network of the City Government organizations, acting "as a conduit [among] thirty Department Heads over the years [to counterbalance the existing] compartments present in their agendas" (Ottelini, interview 9.6.2016). Consultants, researchers and policy makers who assume a regulatory role are highly mobile within the local public-private network, and thus their knowledge and expertise becomes mobile as well. The professional trajectory of the former San Francisco's Chief Resilience Officer is a relevant example.

Much of the public-private association-building is directly related to fundraising efforts, typically driven by the City's Departments and Agencies. External grants from public and private organizations are seen as vital in order to fulfil the existing Government's agendas. The professional and personal connections built in the process in turn strengthen the network and the impact of the regulations produced. Resilience appears to be the most frequently used term to name the funding initiatives across the spectrum simply because it is "such a malleable term" that started to be used because "we simply wanted to have a narrative" (Ottelini, interview 9.6.2016). It has been used to

create standards and measure impacts from flood and heatwaves mitigation to the city's preparedness for terrorist attacks. In any case, regardless of their areas of expertise, the Government officials seem to place less emphasis on the exact *meaning* of resilience and focus more on the term's *utility* to mobilize funding.

The regulatory function of resilience is complemented by an intersubjective one relative to the population of San Francisco. On the micro-level, everyday processes constitutive of subjects unfold, often praised by the resilience proponents in the City Government. From surviving earthquakes to mitigating poverty, the objective is "to educate the residents [in order to] integrate preparedness into daily activity [and to realize that they] are more prepared than [they] think" (Johnson, interview 23.9.2015). The mentality of residents is shaped through government programs targeting individuals, such as the SF 72. This way, the government comes into the closest contact with the risk-aware citizens, noting that resilience "reaches certain demographic really well" (Ottelini, interview 9.6.2016).

The emphasis on community engagement and local ownership of these initiatives seems to be an underlying principle, with the aim to educate and thereby empower local communities to adjust their individual and household adaptation strategies in line with the resilience logic. This is to make them realize that they have "an innate capability of human resilience that in itself helps [the city Government to] create more resilient communities" (Johnson, interview 23.9.2015). Echoing this view, initiatives like the Neighborhood Empowerment Network help the City Government facilitate connections on the local level, maintaining that "well connected neighbourhoods are [also] resilient" (Homsey, interview 7.6.2016).

In the process, the lines between the conception of normalcy and that of emergency are blurred. Governance is deployed on the intersubjective level by influencing thought processes about one's environment and behaviour. Getting residents to think about everyday situations and objects in

the context of contingencies and disasters aims to strengthen the preparedness mentality. Thus, “when something large happens [the reaction] is our second nature. [The objective is] not to create anything, you are basically enabling that DNA capability, helping to awaken it – inside culture, inside an individual” (Johnson, interview 23.9.2015). Internalizing the resilience value also has an impact on one’s lifestyle and spending strategies. In this regard, the rationality behind participating in San Francisco’s seismic retrofit programme indicates that residents “understand the economic value of resilience” and behave accordingly (Ottelini, interview 9.6.2016). From disaster response to housing retrofit, resilience represents “an evolution of all of our collective thinking” (ibid.). On the local level, it is about “creating a new [and people-centred] governance model” (Homsey, interview 7.6.2016).

The described constitutive mechanism can be successful to a certain degree, but it has certain limitations. Community outreach and education campaigns labelled by resilience have proliferated in San Francisco in recent years. The goal of these initiatives is typically to enhance the sense of local ownership of resilience and to integrate it as a principle of everyday conduct. However, the frequency with which vulnerable communities are being approached by city planners, policy makers, activists and researchers can lower the former’s ‘threshold of acceptance’ of the training and education programs. The declared objective of the experts is typically to collect and analyse first-hand perceptions about environmental risks from local residents, and train communities to adapt to these risks. The relative success of the empowerment initiatives, however, tends to vary widely, which in turn leads to “mixed reactions of local communities to new projects constantly being created on their behalf” (Ottelini, interview 9.6.2016). Educating vulnerable communities about their own environmental risks without addressing their underlying causes is inherently problematic. The actors who set the agenda of empowerment tend to make broad declarations about long-term positive local impacts. However, many local residents might struggle to see resilience as relevant and meaningful to them. In this context,

community resilience can be considered a discursive vehicle for some organizations to “legitimize their very existence, and gain or prolong the existent funding in the process” (Moris, interview 22.11.2016).

The case study has explored the ongoing transformation of San Francisco’s local governance network into a fluid assemblage of old and new actors. Government agencies traditionally responsible for the city’s development and security are complemented by other stakeholders, each of them using resilience on their own terms. These organizations have mobilized resilience through knowledge, funding and technology. In this context, it seems appropriate to regard resilience as a flexible concept, while keeping in mind that its mobilization reflects particular political and business purposes and agendas. Moreover, its effects are deeply regulatory as well as intersubjective, affecting the city and its residents, as was discussed above. In any case, resilience remains an ambitious policy framework for transforming the city, although the elusive nature of the concept points to its limitations.

## Case study III: Santiago

The capital of Chile Santiago represents the only case study in Latin America and one that offers an insight into another unique way of mobilizing resilience in public administrations, industry and civil society. Just like the first two studied cities, Santiago has also developed in its specific historical, political, geographic and social context. This context reflects many specificities inherent to the 'developing world' in general and Latin America in particular. First, the long-term impacts of its colonial legacy continue to shape Santiago's political and administrative structures, the relationship between the public and private spheres, the social and demographic fabric, the socio-economic dynamics, the access to education and healthcare, urban planning, and many other aspects of public and private lives. Second, the country's modern history is characterized by a political struggle between Right and Left. The most emblematic event of the 20<sup>th</sup> century in Chile was the 1973 coup d'état masterminded by General Augusto Pinochet, connected to the death of then-president Salvador Allende of the Socialist Party of Chile. The Pinochet-imposed military dictatorship was characterized by violence against his political opponents and activists, as well as a profoundly conservative rule and a strengthening of the position of the country's industry elites. Since the dissolution of the dictatorship in 1990, results of democratic elections have swayed country back and forth from Left to Right.

Third, despite the deep social and political divisions among Chile's population, the country has become a stable Latin American symbol of neoliberalism, affected by structural adjustment reforms of the 1970s which opened up the country to foreign trade. Today's Chile maintains multiple economic and cultural ties to the United States, and in many ways it has attempted to copy its economic model. Chile is currently considered the most developed country in Latin America in terms of GDP per capita (The World Bank, 2018). The cosmopolitan capital Santiago is the place where the majority of wealth and investment is concentrated, accounting for 44.6 percent of Chile's GDP (SMR, 2017b, p. 84). Fourth,

and related to the previous point, the Chilean society is profoundly unequal in terms of income and the level of access to public goods and services. This applies to both the national territory, but also to the capital Santiago where extreme socio-economic inequality has significantly impacted the quality of life, the use of public spaces and urban planning, as well as the public perceptions regarding security and justice. Much of the Chilean academia has been particularly critical of this phenomenon, as will be explored below. Fifth, the institutional structures of Chile and Santiago have evolved to create a profoundly centralized political system, manifested in all spheres of political and social life.

This case study traces the ways in which urban resilience was brought to Santiago on the basis of international agreements and programs, and how the concept has evolved in the unique context described above. The related regulatory and constitutive processes of governance in Santiago are explored. The material analysed and interpreted for this case study included policy reports and strategies issued by local authorities of the Santiago Metropolitan Region and its Communes (i.e., urban districts), non-governmental organizations and private companies. In addition, 15 interviews were conducted between 2015 and 2016 in Santiago and elsewhere. The respondents included officials representing the Resilient Santiago Program of the Government of Santiago Metropolitan Region, the President of the National Commission of Resilience against Natural Disasters, a senior official of the Santiago Commune, as well as several researchers and academicians from the University of Chile and the Pontificia Universidad Católica. In addition, members of the Chilean CIGIDEN Research Centre for Study of Natural Risk, and the National Emergency Management Office ONEMI, were also interviewed. Similarly to the previous case studies, some respondents are referred to by using their approximate professional positions, instead of their real names.<sup>20</sup>

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<sup>20</sup> For instance, this is the case of a representative of the National Office of Emergency Management and a Santiago Commune official who spoke about organizational deficiencies on the level of regional and local governance.



Located in the central valley of Chile, the City of Santiago lies between the Pacific Ocean to the west, and the cordillera of the Andes to the east. The ice caps of the mountain range provide water for two major rivers used for irrigation and industry throughout the Metropolitan Region. The climate is moderate, with dry and generally hot summers and cool winters. As for the population, 6.1 million people lived in Santiago Metropolitan Area in 2017, a figure projected to reach 7.5 million in 2020, in any case accounting for more than 40 percent of Chile's population (SMR, 2017a, p. 22). Immigration to Chile has spiked in recent years; between 2005 and 2016, more than 320 thousand residence permits were issued to foreigners of predominantly Peruvian, Bolivian and Colombian origin (Ministerio del Interior y Seguridad Pública, 2017, p. 5-7).<sup>21</sup> In addition, more than 10 percent of Santiago's population consider themselves indigenous (Instituto Nacional de Estadísticas, 2017). The city is economically well developed in the context of Latin America, but also extremely unequal. In some neighbourhoods of Santiago, 40 percent of the inhabitants live below the poverty line (SMR, 2017b, p. 92), while the Region's overall poverty rate is 18 percent (SMR, 2017a, p. 24).<sup>22</sup>

Santiago is the capital city and the centre of the Metropolitan Region, the seat of the Government of Chile headed by the President, and of the Government of Santiago Metropolitan Region (SMR) headed by the Governor (known as Intendente). The SMR is further divided into 6 Provinces and 52 Communes headed by Mayors, while the SMR Government maintains the executive power. With regards to law enforcement in Santiago, two types of police forces are present, both of which are governed by the Ministry of Interior and Public Security. These are Carabineros of Chile and Police of

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<sup>21</sup> The available statistic data does not include the informal segment of the current migration flows into Santiago. The issue of undocumented migrant workers is explored further in the case study.

<sup>22</sup> The poverty rates have a powerful impact on many of Santiago neighbourhoods. 16 percent of young people between 15 and 29 years of age are neither attending school nor working, which makes it 36 thousand adolescents in the City of Santiago alone (SMR, 2017b, p. 57).

Investigations of Chile, recently complemented by a community policing element.<sup>23</sup> Additionally, services of private security companies have been widely used, especially in relation to personal security and business-related activities.

As for disaster response and crisis management, the implementation falls under a set of the government Ministries depending on a type of disruption produced.<sup>24</sup> These include Ministry of Interior and Public Security, Ministry of Public Works, Ministry of Housing and Urban Planning, Ministry of Health and Ministry of Transport and Communications. In case of major disasters impacting parts of the national territory, the Armed Forces of Chile are also deployed in different ways, such as the Marine Forces operating the alert system for seismic activity at sea, or the Army units dispatched to transport critical resources to disaster zones (Castillo, interview 14.11.2016). While minor incidents can be managed on the level of the Communes, more serious ones tend to be escalated to involve any of the state and military organizations. The Office of National Emergencies (ONEMI), under the authority of the Ministry of Interior and Public Security, fulfils the coordination role.<sup>25</sup>

As this section will discuss, Santiago's 'urban resilience' experience is largely defined by formal declarations and is largely top-down. International organizations and the Chilean national government have had an important role in preparing the institutional and rhetorical background for the resilience

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<sup>23</sup> Community police has been formed under the initiative named Modelo de Integración Carabinero Comunidad (SMR, 2017b, p. 53).

<sup>24</sup> One of the challenges on the institutional level is that Chile has been missing a law regarding disaster management. The bill has been lying in the Congress for years, much to the frustration of researchers and government officials across sectors (ONEMI official, interview 28.11.2016; Castillo, interview 14.11.2016; Moris, interview 22.11.2016).

<sup>25</sup> The implementation of disaster management is heavily centralized, with Committees for Civil Protection, Committees for Operations and Emergencies on four different levels - national, regional, provincial, and communal (Santiago Commune official, interview 16.11.2016). In terms of sectors affected by a given disasters, agencies of the respective Ministries can be involved. ONEMI acts as a coordinator in case of major disasters and disruptions, gathering information and deploying resources. These are, however, not its own, and ONEMI has protocols of procurement in place, renting resources and equipment from private companies, which makes disaster response in Chile very expensive and inefficient.

enterprise to grow and thrive. The resilience term first appeared in Chile in the context of disaster risk reduction initiatives led by United Nations Office for Disaster Risk Reduction. Its 2005 Hyogo Framework that a 10-year global plan for action focused on risk reduction mentioned resilience 19 times (UNISDR, 2005). While Chile was signatory to this document, the country still lacked a structure for strategic planning in this regard – thus, not many practical steps were taken towards implementing the Hyogo objectives (Castillo, interview 14.11.2016). Mid-way through the Hyogo implementation period in 2010, an 8.8 earthquake struck central Chile, impacting an extensive territory including the capital, reportedly prompting the government officials to focus on disaster risk reduction (ibid.). In March 2015, Chile signed the UNISDR Sendai Framework that sets the objectives in this area for 2015-2030. As was mentioned previously, this document includes ample explicit references to resilience and emphasizes the role of the private sector in ‘building’ it.

This was the moment when resilience truly took off in the Chilean discourse – trickling down from international organizations to the Central Government and relevant Ministries that started using the concept to refer to many ongoing initiatives from social inclusion campaigns to emergency response. Resilience also became a buzzword in research and development programs on the national level. The Commission for Resilience against Natural Disasters was established by the President of Chile in January 2016 to develop a strategy of ‘building resilience and development’ (CIGIDEN, 2016). As a result, a landmark document titled *Resilient Chile in Face of Natural Disasters* was published in December 2016 (see CNID, 2016).

Along with these developments, the involvement of private sector in the ‘resilience surge’ started to be more apparent. This was done in two ways; first, many global companies that had already been developing ‘resilient’ products and services identified Chile as another location for their market expansion. Second, the Government-led initiatives labelled by resilience openly reached out to private

sector in order to include it in Chile's resilience programs. One of the most prominent examples was the establishment of SeCRO – Empresas por la Resiliencia (Companies for Resilience) in 2015, whose mission was to define the role of private businesses in building resilience. SeCRO includes major Chilean companies from industries such as electric power, water management, infrastructure, mining and communications (SMR, 2017a, p. 193).<sup>26</sup>

In this context, it was rather a question of time for global 'urban resilience' philanthropies to start operating in Chile. Santiago's connection to the Rockefeller Foundation's 100 Resilient Cities began with an establishment of a research group named 'Resiliencia Sur' (Resilience South) at the Harvard Graduate School of Design (Uribe, 2014). The group made contact with key Chilean Universities in order to seek support to present the initiative to then-Governor of SMR Claudio Orrego (SMR, 2017b, p. 21). Based on a proposal that was subsequently submitted, Santiago Metropolitan Region was announced as a new 100 Resilient Cities member in June 2015. This was followed by a mix of pride and anticipation in the local press (see Pérez, 2015). At the same time, public officials were questioning the appropriateness for choosing the entire *Region* as the resilient *city* member (National emergency official, interview 28.11.2016). This is due to the administrative complexity of the Region composed of 52 communes that are largely independent in terms of day-to-day implementation of policies proposed on the SMR level (see Gobierno de Chile, 2011). This creates a rather fragmented governance model with a lack of coordination and comprehensive planning.<sup>27</sup>

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<sup>26</sup> The Barcelona-based consultancy Institut Cerdà was behind the SeCRO project, bringing together a set of key Chilean industry entities under its 'crisis and resilience' framework, including Aguas Andinas, Telefónica, Falabella, TBK, Abertis, Copec, GNL Quintero, Metrogas and CGE Distribution (Institut Cerdà, leaflet 2016, p. 9). This way, the Chilean private sector discovered the potential of resilience as a language tool to enhance their corporate visibility and access to policy making.

<sup>27</sup> For instance, the National Civil Protection plan states that Santiago's municipalities are not obliged, but should act in cases of civil protection (see Gobierno de Chile, 2002). Communes' actions are rather *ad hoc*, based on any given emergency – often citing a lack of funds to carry out effective strategic planning (Santiago Commune official, interview 16.11.2016). This approach is reflected in the staffing of the central Santiago commune's Emergency

In other words, critics argue that the 100 RC project was placed with an executive authority that is too detached from the daily struggles of the 52 communes of the Metropolitan Region (National emergency official, interview 28.11.2016). Others have argued that there are many remote areas in Chile that are much more exposed to natural risks (such as tsunami) than the capital, and that these vulnerable communities deserve more attention (Parra, A., public lecture 18.11.2016). However, the decision was made by the Rockefeller Foundation to make SMR a member, predominantly because it has the desired organizational and economic attributes that the program seeks. That is, the Metropolitan Region includes and provides access to a network of powerful stakeholders, be it in the public administration or the key industries. This network of actors is simply lacking in smaller cities, although the latter might be more exposed and vulnerable to disasters.

In addition, placing the Santiago Resilience program directly under the Regional Government was a matter of personal prestige for the then-Governor of SMR Claudio Orrego. A member of the Christian Democratic Party, former Minister and Mayor of the Peñalolén Commune, Mr Orrego unsuccessfully ran for the Presidential office in 2013 and lost to Michelle Bachelet.<sup>28</sup> He was then nominated for the position of the Governor of SMR in 2014 which he held until 2018. The 100 Resilient Cities was the most prestigious global program focused on cities under his leadership, it helped Santiago's 'global projection' and was a matter of personal pride (National emergency official, interview 28.11.2016). While the 100 RC program was adjusted to fit Santiago's specific administrative structure, it retained its basic principles such as the broad city risk diagnostics. Many of the key identified challenges are explored in turn.

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and Civil Protection Department, which has 50 staff working on ad hoc emergencies, with only 3 staff dedicated to a longer term, strategic planning (ibid.).

<sup>28</sup> Mr Orrego has not explicitly stated he would run for the presidential office again in 2021, however political commentators have argued that it is possible (see LA Network, 2018).

## The City's 'resilience challenge'

The Metropolitan Region of Santiago has been affected by a mixture of natural and human-induced hazards. Throughout the last century, it has been impacted by six earthquakes, 18 volcanic eruptions, and two dozen occasions of extreme weather resulting in serious flooding in the urban area (SMR, 2017b, p. 17). Among the most prominent hazards, seismic activity is the most pronounced one, occurring around 200 times a day on the Chilean territory, from not noticeable to severe. In this respect, Chile is the most seismically active country in the world (Saragoni, 2011, p. 37). The level of seismic risk exposure is due to Chile's location on the contact line of two tectonic plates - the Nazca Plate and the South American Plate. The active San Ramon Fault lies directly under the eastern part of Santiago Metropolitan Region, exposing it to a significant seismic hazard which could cause disastrous effects in case of a powerful earthquake (Castillo, interview 14.11.2016).<sup>29</sup>

The earthquake of Maule produced 200 miles southwest of Santiago on the 27th February 2010 reached a magnitude of 8.8 on the Richter scale, leaving 525 people dead, mostly due to collapsed structures and the following tsunami. Overall it affected over 10 million inhabitants of Chile, or almost two thirds of the population, and as such is considered a 'mega-earthquake' and a 'point of inflection' by the Chilean research and policy community. Santiago was hit by multiple aftershocks and infrastructure failures, including prolonged power cuts and collapsed buildings. The relatively low number of casualties in the capital was largely attributed to the fact that the earthquake occurred at 3.34 am on Saturday morning, and thus it had very little impact in terms of people present in public spaces, commuter networks and workplaces (Santiago Commune official, interview 16.11.2016). Santiago's earthquake risk lies predominantly in the construction materials used for old buildings and

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<sup>29</sup> In coastal areas, a significant risk of tsunami triggered by earthquakes is present. Santiago is situated inland, thus the structural damage and its cascade effects are the main risk factors.

structures. These are often made of adobe, a mixture of straw and clay, which easily crumbles due to seismic shocks. In the Maule earthquake, the majority of the structural damage affected houses made of adobe (Saragoni, 2011, p. 50). In addition, several buildings in Santiago, including high rises, made of non-seismic proof materials were severely damaged and declared uninhabitable (*ibid.*, p. 47).<sup>30</sup>

Similarly to the other studied cities, Santiago has also been impacted by climate change. On one hand, the Metropolitan Region produces greenhouse gas emissions and liquid waste due to its heavy industrial activity. Currently, 16 percent of all industries produce 90 percent of all emissions and liquid waste in the Region, polluting the rivers Maipo and Mapocho. In addition, 98 percent of energy consumed by industrial activities comes from fossil fuels. Water consumption also poses a challenge, while wealthy households tend consume three times more water than poor ones, usually due to using swimming pools and watering lawns. The second most important purpose of water consumption after individual households is agriculture, mostly focused on exportable fruit, consuming significant water resources, widely employing synthetic fertilizers and emitting a non-negligible amount of greenhouse gasses (SMR, 2017b, p. 42-43). On the other hand, impacts of climate change on Santiago include extreme weather events such as heavy rainfall, heatwaves and drought that severely impact the Region's agriculture. One of the main preoccupations for the future are possible problems with water supply, currently coming from icecaps of the Andes which are 'in a risk zone' due to the warming climate (Sarmiento, interview 18.11.2016).

Infrastructure-related accidents and failures such as fires affect the city on a daily basis. Many undocumented migrant workers from countries such as Haiti or Peru are seeking livelihoods in Chile

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<sup>30</sup> Moreover, experts claim that the owners of buildings that withstood the 2010 earthquake live in a false sense of security, assuming that their homes are sufficiently robust. However, the relevant legislation and building codes were not in place until the 1930s, which means that any structure older than 80 years is technically not seismic-proof (Simbieda, interview 29.11.2016).

due to climate change, drought or disasters in their home countries. Many of these people work illegally, living in precarious and overcrowded conditions as they cannot afford to commute longer distances (Bastias, interview 28.11.2016; SMR, 2017b, p. 93). In cases of overcrowded housing, electric power networks often fail due insufficient capacity. This in turn causes fires that can spread from a single household to impact an entire block of buildings (Santiago Commune official, interview 16.11.2016). Fires in Chile typically have anthropogenic causes and they can have disastrous consequences due to a mix of urban density and vegetation in the Metropolitan Region (Castillo, interview 14.11.2016).

With respect to socio-economic risks, Chile continues to be a profoundly unequal country in terms of income, exhibiting the highest inequality and poverty rates compared to other OECD countries (OECD, 2015, p. 3). When exploring these variables on the level of the Metropolitan Region, sharp income inequality comes to light. Areas with household income below 300.000 Chilean pesos (an equivalent of 392 Euros) per month are scattered across the Metropolitan Region, mostly clustered in its eastern part (El Desconcierto, 2017). Referred to as *bolsones de pobreza* (poverty pockets), these sites often lack efficient transport lines and utility infrastructure, adversely affecting the public health situation and perpetuating the conditions of poverty. In other words, the macroeconomic success of Chile has not been equally manifested in all neighbourhoods of Santiago, and the capital city continues to be extremely exclusionary (Bastias, interview 28.11.2016). Public officials on all levels of government have recognized the powerful social-spatial segregation across the city as a major challenge (Robertson, interview 23.11.2016) and repeatedly employed measures ranging from education campaigns to police interventions, reflecting a biopolitical approach to managing poverty.<sup>31</sup>

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<sup>31</sup> For instance, the Government has attempted to address a situation at an illegal garbage dump located only 15 minutes drive from downtown Santiago, where poor residents live in precarious environmental conditions. The area is controlled by the mafia and none of the local Administrations has been able to effectively deal with the



Based on public perception surveys, much policy attention is focused on the challenge of street crime and safety (Santiago Commune official, interview 16.11.2016). The types of crimes that Santiago residents are most concerned about are home burglaries, violent street robberies, assaults in public spaces and domestic violence taking place in households (SMR, 2017b, p. 52-53). The socio-economic inequality goes hand in hand with the social-spatial segregation. Santiago is a city “full of gated communities”, where neighbourhoods are profoundly segregated based on the level of income (Lahosa, interview 11.10.2016). This phenomenon has been widely criticised, especially among the academic community in Santiago, as will be shown below. The persistent socio-economic inequality that has characterized the city appears to be a common denominator that permeates through all the other ‘resilience’ challenges. As all-encompassing as it may be, the concept seems to have been planted into the public discourse in a top down manner, much more so than was the case of Barcelona and San Francisco. With the National Government’s adoption of resilience language discussed above, the following section turns to exploring the ways in which resilience knowledge was mobilized and adapted to fit the context of the Santiago Metropolitan Region.

### Knowledge: Defining a resilient standard

The above section makes it evident that the concept of resilience appears to have been planted in Chile through the UN disaster reduction language (especially through the 2015 UNISDR Framework of Sendai), the Central Government, and the impetus created by Santiago’s inclusion in 100 Resilient Cities. This section explores the urban resilience playground of Santiago, with a unique assemblage of actors and their respective motives behind the participation in the resilience momentum. Throughout the years, the scientific expertise and knowledge related to resilience was developed on basis of two

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situation since the 1970s, despite repeated training, education and police interventions (CIGIDEN researcher, interview 28.11.2016). This is one among many examples of how disciplinary approaches fail in ‘empowering’ vulnerable communities in what is one of the wealthiest cities of Latin America.

prominent academic institutions in Santiago. The Universidad de Chile (UC) typically adopts a social and political-oriented perspective, often focused on social equity, inclusion and housing. The Pontificia Universidad Católica (PUC), for its part, predominantly uses a technical, engineering and physical perspective, focusing on areas of urban mobility, environment and climate change (SMR, 2017b, p. 12). The Centre for Research of Integrated Management of Disaster Risk (CIGIDEN), created during the post-2010 earthquake momentum, is also committed to carry out research focused on “increasing levels of resilience”, mostly focusing on seismic and hydric hazards (CIGIDEN, undated).

Since 2010, the National Office for Emergency Management ONEMI has been involved in defining the resilience standards, collaborating with the above mentioned universities and non-governmental organizations such as Caritas, Chilean Red Cross, the Foundation for Overcoming Poverty, the Global Network of Civil Society for Disaster Reduction and local initiatives such as Levantemos Chile (Let's rise Chile) or Techo para Chile (Roof for Chile) (Silva, interview 23.11.2016). The knowledge exchange has also evolved on the international level; under the authority of the Ministry of Interior and Public Security, ONEMI has also taken part in international exchanges and training focused on resilience against disasters, particularly with Japan, Mexico, and the United States' FEMA (Aldea, interview 24.11.2016). In turn, it has also trained public officials across Santiago in emergency management (Santiago Commune official, interview 16.11.2016).<sup>32</sup> Santiago's Communes, for their part, host their own resilience seminars for first responders, firefighters, police forces, or utility companies in order to 'help them get to know each other' (ibid.). This illustrates the ways and directions in which resilience has permeated through Santiago's epistemic community.

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<sup>32</sup> ONEMI has evolved much since the earthquake of 2010 in terms of organization and capacity. However, due to the absence of a legal framework described above, ONEMI does not have executive powers which limits its functional reach and resources (Silva, interview 23.11.2016).

The accession of Santiago to 100 Resilient Cities was a major impulse for this process, as its City Diagnostic brought together representatives of different levels of government, private businesses, the academia and local communities that were trained in facing risks such as floods. The series of meetings and risk assessments was followed by the publication of a Strategy in 2017, titled *Santiago Humano y Resiliente*. By harnessing the expertise of the academia in order to “achieve resilience in a short, medium and long term”, the aim was to serve as a “grand umbrella” of resilience for Santiago (Robertson, interview 23.11.2016). The Strategy lists the main pillars of resilience: urban mobility, environment, security, risk management, economic development and social equity (ibid., p. 59). The question of social vulnerability is addressed in several instances throughout the Strategy – however, the principal threats are still seen as those of natural origin – earthquakes, volcanic eruptions, extreme hydro-meteorological events, floods, or forest fires (ibid., p. 29). Less attention is paid to chronic stresses such as urban poverty and inequality, despite the fact that more than 20 percent of SMR inhabitants found themselves in conditions of ‘multidimensional poverty’ in 2015 (Gobierno de Chile, 2016, p. 20).

The 100 RC project claims to have engaged all the major stakeholders – public and private – that are involved in defining the city’s resilience in one way or the other (SMR, 2017a, p. 48). However, the quality and nature of this involvement has been questioned by some of these very stakeholders. According to their accounts, meetings that involved all 52 Communes of Santiago did not go beyond a mere presentation of the 100 RC projects and its goals. At the same time, there was no substantial review of issues and risks that the communes themselves perceive as crucial (Santiago commune representative, interview 16.11.2016).<sup>33</sup> The above suggests a prevailing top-down approach that, as I

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<sup>33</sup> For example, the interviewed official recalled that one of the ‘exercises’ was focused on effects of heavy rains, while she sustained that ‘rain is not really a problem in Santiago – we have much more important risks to deal with’ (Santiago Commune representative, interview 16.11.2016). Before publishing Santiago Resilience Strategy,

argue, defines the 100 RC urban resilience experience of Santiago. Its claimed ‘participatory process’ was based on involving ‘vulnerable neighbourhoods and communities’ in workshops aimed at capacity building and ‘teaching’ the public about risk management on the individual level (see SMR, 2017a, p. 160-77). The Resilience Strategy emphasizes the human-centred approach to the point of including it in its title. It also cites the ‘right to the city’ concept (ibid., p. 100), originally proposed by a *Marxist* geographer David Harvey as ‘individual liberty to access urban resources’ (Harvey, 2008, p. 23). References to this concept are at odds with what critics see as a clearly neoliberal project (Bastias, interview, 28.11.2016) in the context of Santiago.

As for the private companies involved in the 100 RC ‘resilience assessment’, Institut Cerdà’s Service of Crisis and Resilience Management of Organizations (SeCRO) was brought from Barcelona to Santiago. The Chilean SeCRO has built a network of key companies such as Aguas Andinas, Telefónica, Fallavela, Transbank, Abertis, Copec, Generiquintero, Metrogas and TGE. Focusing on ‘a smooth interconnection between urban services’, it has fomented the role of the infrastructure-based resilience in the local business culture. Reconnecting the private to the public, the Santiago-based SeCRO has also worked with UNISDR and the Regional Government’s Resilience program (Bellera, interview 25.11.2016). An important part of the Chilean academia has been profoundly critical of the influence of the private sector over policy making in Santiago. They have claimed that business interests are often contradictory to the public interest. “What [we witness] in urban planning is accommodating private developers’ interests within the election cycle of local administrations [...]. This planning is in many cases in a sharp contrast with any reasonable considerations of actual topography of risk [in Santiago]” (Sarmiento, interview 18.11.2016). The above is indicative of the fact that the Chilean

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several workshops were organized – however, the concrete risks that these addressed were seen as rather irrelevant for some communes (ibid.).

academia is hardly homogenous when it comes down to its political perspective and the degree of involvement in what many academicians see as neoliberal resilience.

An inherent part of constructing resilience knowledge is its legitimation among the local population. The emphasis on individual and community preparedness is a part of Chilean culture and education, starting on a kindergarten level. The trainings and public awareness campaigns have long focused on earthquake and tsunami risk. One of the surveys conducted in this field by the Universidad de Chile found an ‘impressive transmission of seismic culture among people [which seems to be] a part of their DNA’ (Castro, interview 18.11.2016). The Santiago Commune officials also refer to resilience when educating residents about first response for public buildings, schools and houses made of adobe (Santiago Commune official, interview 16.11.2016). The aim is to “repeatedly place in their conscience that they have to remain prepared [for emergencies] to maintain and protect their environments” (ibid.). This view echoes across Santiago’s public policy community, convinced that ‘resilience is a learning process’ of constant preparedness and mitigation (ONEMI official, interview 28.11.2016; de la Llera, interview 22.11.2016). To facilitate resilience-building across Santiago and the entire country, many funding mechanisms have been established, as is discussed in turn.

### Funding: Developing resilient subjects

As was noted previously, Chile is considered to be a very centralized state, which is also reflected in financing public policies of risk management and urban development. The emergence of resilience as a policy concept coincided with the term’s proliferation in the United Nations disaster reduction language, but did not end there. On the contrary, the concept permeated through structures and agencies of the national Government, trickling down to Ministries, Regional Governments, Communes, universities and private sector. This process has been in many ways tied to public funding for which resilience became a convenient mobilizer.

One of the key Government platforms focused on industry development, originally established in 1939 to counter the effects of the Great Depression on the national economy, has turned resilience into a central concept of its funding strategy. The Corporation of Fomenting Production (CORFO) has been associated with dozens of the largest private companies across industries in Chile. Its goal is to boost entrepreneurship and innovation across the Chilean economy. For this purpose, it awarded over 69 million USD worth of grants between 2012 and 2015 (SMR, 2017b, p. 85). The following funding framework opened for applications until 2018 is to release the same amount within the framework of ‘Strengthening and Creation of Technological Capacities - National Logistics and Resilience’ (CORFO, 2018).

Under the Ministry of Education, the National Committee of Scientific and Technological Innovation (CONICYT) has also has financed multiple resilience projects, such as the Science Centre for Climate and Resilience Research established in 2013. This initiative was one of the first ones in the nation explicitly labelled by resilience, bringing together three major Chilean universities including the Universidad de Chile. The mission of the Centre is to develop research to “construct a society that is more resilient to climate change” (Centre for Climate and Resilience Research, undated). In doing so, the financed research has been predominantly focused on risks and disasters of natural origin. Concerned explicitly with cities and urban planning, the Centre for Sustainable Urban Development of the Pontificia Universidad Católica has also been funded by CONICYT (CONICYT, undated).

Further aligning Chile’s resilience with that of its economy, both functionally and philosophically, the Government established the Commission for Resilience in Facing Natural Disasters (CREDEN) in 2016. The goal was to create a strategy of research, development and innovation to manage Chile’s natural risks. The Commission was presided by Juan Carlos de la Llera of the Pontificia Universidad Católica, and included representatives from across sectors and levels of government,

ONEMI, and research institutions such as CIGIDEN. The final outcome was thereby heavily influenced by an engineering perspective of resilience (CIGIDEN researcher, interview 28.11.2016). Although some of the social scientists participating in the elaboration of the Strategy tried to problematize the concept, the technocratic perspective prevailed as it was better aligned with the conventional research and development perspective (ibid.). The national policy approach has changed little in this regard; in 2018, the beginning of the second term of President Sebastián Piñera, himself an alumnus of the PUC and Harvard University in fields of engineering and economy, coincided with the establishment of a new Ministry of Science, Technology, Knowledge and Innovation (CONICYT, 2018).

Other Ministries of Chile have also financed different urban resilience projects, such as Programa Chile Barrio (Chile Neighbourhood Program) and Quiero Mi Barrio (I Love My Neighbourhood) of the Ministry of Housing and Urban Development. The Ministry of Public Works has funded initiatives focused on upgrades to urban infrastructures to withstand impacts of disasters. The Ministry of Interior and Public Security, for its part, has financed local safety and security initiatives across Santiago (Lahosa, interview 11.10.2016). These Ministries were have also been involved in financing training programs and community risk management campaigns as a part of 100 Resilient Cities program across the Metropolitan Region (SMR, 2017a, p. 135).

The role of the principal Chilean universities in constructing resilience and their interconnection to the government funding were discussed above. In addition to the Research & Development line of resilience funding secured domestically, international funding mechanisms have also been established. For instance, the Universidad de Chile has been supported by the Office of the United States Foreign Disaster Assistance within the Federal Government's program USAID. The funding was used to design education and empowerment campaigns for vulnerable communities in Santiago (Santiago Commune official, interview 16.11.2016). Local public officials and independent consultants have also served as

connectors of Santiago to the United Nation's Resilient Cities Program, although a permanent collaboration on the level of government agencies has not been established thus far (ibid.).

Perhaps the most emblematic resilience-focused program in Santiago has been the 'Resilient and Human Santiago', originally enabled by the 100 RC grant from the Rockefeller Foundation. Based under the authority of the Regional Government of Santiago, the position of Santiago's Chief Resilience Officer was assigned to Gabriela Elgueta in January 2016. Formerly a Director of Urban Planning at the Santiago Commune, Mrs Elgueta is 'a person of trust' of the former Governor Claudio Orrego (CIGIDEN researcher, interview 28.11.2016). Although the term of Mr Orrego ended in early 2018, she has continued to lead the program along with Cristian Robertson, the Deputy Executive Director of Resilience. The 1 million USD budget of 100 Resilient Cities in Santiago between 2015 and 2017 was spent on the salaries of the Directors, and the elaboration of the Resilient Santiago Strategy (Robertson, interview 23.11.2016). This process included workshops, roundtables and surveys, bringing together representatives from public sector and industries, including the Chilean Chamber of Construction. Also, the program used consultation services of ARUP, a 100 RC Platform Partner and the creator of City Resilience Index, Ernst and Young that provided an urban mobility assessment, Veolia which focused on environmental management, and Risk Management Solutions that designed an economic model of an earthquake impact on the city (SMR, 2017a, p. 49).

According to the Directors of the Resilient Santiago program, the need to ensure a post-100 RC continuation of the project was paramount; this is why they began applying for additional international grant programs as early as in 2016. The resilience momentum arguably played a role as there appeared to be "many funds focusing on cities at [that] moment" and the resilience concept helped to secure the funding (Robertson, interview 23.11.2016). The process of creating the Resilience Strategy was also enthusiastically supported by then-Governor Claudio Orrego (ibid.). The project has now been



transformed into a stable program on the SMR level, titled Santiago Humano y Resiliente. Although the initial 100 RC funding lasted for two years only, it appears to have created an impulse for an international projection of Santiago, greatly enhanced by the program's global visibility.

It becomes evident that resilience has gained prominence in the scientific, academic, technology, engineering and business sectors in Chile. This is due to the concept's usefulness for opening doors to the Central Government's as well as international funding. In this respect, it has not mattered as much what resilience means for people, communities and public spaces that it aims to develop and secure. The concept has been adopted unproblematically; once research and business organizations noticed that it was the new buzzword, some of them even changed their name only to be able to tap into the available funds, putting a new label on the existing projects (Moris, interview 22.11.2016). This indicates the degree of permeation of the concept, despite the latter being largely nominal and inorganic. This constitutes one of the most important differences with respect to the two cases studied previously.

Much of the funding is concentrated on the level of the national Government, its Ministries and the key research and development platforms. It is also predominantly focused on natural disasters such as earthquakes, tsunamis and extreme weather. This technocratic perspective arguably fits the business logic, from small companies to large corporations. The role of the private actors included in Santiago's resilience network is further explored in the following section. In the meantime, the social impacts of disasters and climate change have received considerably less political and financial attention. The programs that have been funded in this area are typically public awareness and education campaigns with limited long-term impacts.

## Technology: Building resilient urban environments

Just like in the previously studied cases, resilience has been mobilized in Santiago to label all kinds of technological interventions and practices aiming to secure and develop the city. Starting with the most prominent risk, the city located on top of the San Ramon Fault is constantly endangered by seismic activity. In this respect, the goal has been to build up and strengthen 'lifeline' infrastructures, such as critical networks of transport, energy and utilities. Despite a higher degree of seismic risk, physical retrofitting of buildings in Santiago to make them earthquake-proof has not found as much political support and resources as it has in San Francisco. Limited initiatives have been carried out in this respect by the Ministry of Housing and Urban Planning, such as the program Quiero Mi Barrio focused on vulnerable and poor neighbourhoods, or a construction of new housing units under the SERVIU project (SMR, 2017b, p. 94). However, the limited scope of these initiatives has not allowed for systematically addressing seismic risk city-wide. The 'lifeline', or critical urban networks have received much more attention, with experts calling for designing integrated risk maps to inform the future urban planning and territorial intervention (*ibid.*, p. 78-79). In this respect, private companies have become the enablers and suppliers of what is perceived as seismic-resilient infrastructures.

The Santiago Resilience Strategy consistently ties the City's resilience capacity to the private sector. It lists several public-private platforms and specific companies that participated in the Strategy's elaboration. The latter include the Rockefeller project partners – ARUP, Ernst & Young, Veolia and RMS, in addition to Chilean private sector represented by Aguas Andinas, CGE, Telefónica, Transbank, Abertis, COPEC, GNL and Metrogas (SMR, 2017a, p. 49). Many critical networks in Santiago which are likely to be affected by a major earthquake are completely privatized – such as Aguas Andinas that operates the water system and Chilectra that manages the electric power supply. The language of 'business

continuity' has served public officials to implant the concept of resilience in the minds of business leaders and operators (Rivera, interview 25.11.2016).

Reflecting on the degree of centralism, private companies in Santiago seem to participate in the resilience initiatives simply because they are told so by the government (CIGIDEN researcher, interview 28.11.2016). In line with the existing legal framework in the country which obliges public and private entities to collaborate on issues of 'civil protection', the Central Santiago Commune has developed protocols with companies like Chilectra to manage power cuts, or with Aguas Andinas to respond to of water-related emergencies (Santiago Commune official, 16.11.2016). Major companies in areas of mining and forestry have also collaborated with the Central Government under the pretext of continuity of their operations in case of a disaster (Gil, interview 28.11.2016). Resilience has become a rather empty signifier in this context, adopted by private companies without much thought. In the meantime, the Metropolitan Government of Santiago continues to claim that private sector is 'the key part in the process of constructing resilience' (SMR, 2017a, p. 150). Reflecting the 'Western' corporate language in the field of urban planning and development, the Strategy uses concepts such as building a *Santiago brand* or *smart city* (ibid., p. 156) as a part of its resilience initiative.

In addition to earthquakes, urban transport has been identified as another major challenge for Santiago. The current urban mobility challenges have to do with a lack of efficient urban infrastructure of public transport, which particularly concerns the poorer residents who do not commute to work in cars, currently corresponding to 52 percent of the journeys made daily across Santiago. Overlaying with this problem is the above mentioned spatial segregation, which is a physical manifestation of socio-economic inequality emblematic for Santiago's population. With the demographic figures projected to reach 7.3 million in 2025, the City aims to modernise the existing public transportation networks, based predominantly on its underground metro system and urban bus service (SMR, 2017b, p. 32). It also

counts with a build-up of new transport lines across the Metropolitan Region, including regional train networks, urban-rural interconnections and transport infrastructure for cargo. Most of the new projects will be commissioned by the Ministry of Transport and Telecommunications (SMR, 2017a, p. 69-72). In addition to infrastructure upgrades, the employment of digital technologies in urban transport management is also to be enhanced. A mix of ICT tools such as CCTV, Google Maps or Waze is to be employed, in addition to traffic lights automation to make the urban transport system Transantiago more efficient and smart (SMR, 2017b, p. 31).

Climate change is another issue which the government claims to be building resilience against, once again tied to the process of technological innovation. This approach has permeated public administration agencies across the Santiago Metropolitan Government, and found its way to its Resilience Strategy which claims that “developing renewable energy sources and networks will enhance the [metropolitan] economy” (ibid., p. 87). In other words, efficient energy use and technological innovation will make the city more resilient. In this regard, Santiago attempts to further align its economic model with the one of major developed cities, although its economic and industry base is nowhere near as solid. The Resilience Strategy echoes the Regional Plan for Energy which is aimed at promoting the use of renewable and unconventional energy sources. Moreover, this process is claimed to be essentially participatory, carried out in collaboration with the local communities. However, just like public policy in all other areas, the energy policy is designed by the National Government and the Ministry of Environment in a rather top-down manner, summarized under the strategy of *Energía 2050: Política Energética en Chile* (see Ministerio de Energía, 2015). As one of the Government priorities, innately tied to national economic development, the ‘community engagement’ appears to be a common box to check in order to reflect the trend in public policy.

Resilience building is also portrayed as a tool for enhancing and building physical tools for disaster response. Coordinated by the National Office of Emergency Management under the Ministry of Interior and Public Security, private companies such as Chilectra, MetroGas or Aguas Andinas continue to build and enhance 'critical urban networks', collaborating with the central Government and the Ministry of Public Works. On one hand, responding to disasters in Santiago has much to do with the quality of City's physical infrastructure. On the other hand, the digital infrastructure has appeared relatively recently on the Government's agenda. Although Santiago's emphasis on making the city 'smart' is not nearly as powerful as in the cases of Barcelona and San Francisco, some elements of it have indeed appeared. This is particularly the case of Santiago's emergency response infrastructure. In this vein, the policy makers have called for enhancing digital technologies used by first responders such as the Firefighting Service of Santiago for the management of communications, including the system of emergency calls and automated safety alerts (SMR, 2017b, p. 32).

The use of digital technologies for purposes of citizen-to-government interactions in Santiago has been fairly limited compared to the other studied cities. That said, the middle class and the wealthy parts of Santiago, largely concentrated in its central and eastern Communes, have seen a proliferation of digital connectivity comparable to any major developed city worldwide. While a full development of e-Government tools remains a long way ahead, the use of digital technology for disaster alerts and response has increased. Digital tools and applications have been employed for awareness campaigns in social media, aimed at community and individual preparedness, predominantly using Twitter (Aldea, interview 24.11.2016). In post-disaster situations, other applications are used for text messaging alerts, to assess the damage caused, to communicate with citizens and to coordinate disaster response. In this respect, the ways of employing digital technologies in Santiago do not greatly differ from those of the other studied cities.

Finally, public security is one of the priorities of the Metropolitan Government, given the importance this topic has gained in public perception (see SMR, 2017a, p. 104). While mentioning different projects focused on community participation and public spaces (ibid., p. 111), the tools suggested to counter urban crime in Santiago's Resilience Strategy are predominantly technocratic. This includes advocating for installing vast CCTV systems to monitor activity and movement city-wide, integrating imagery from both publicly and privately operated cameras (ibid., p. 115). Bridging public security with private industry does not end there – the Strategy calls for a broader cooperation with private security providers on all levels (ibid., p. 118). This is perhaps not surprising given the extent of private security operations in a city characterized by such sharp inequalities. Technological capacities of the private sector are indeed appealing to the Government calling for integrated information systems, sophisticated risk mapping and social media monitoring (ibid., p. 128-9). This is where companies come into the picture with their unique resources and, at the same time, their corporate interests. In the meantime, much of the surveillance push is legitimized by the Government as a way to counter street crime and robberies, in an obvious effort to appease Santiago's constituents (Lahosa, interview 11.10.2016).

Tracing the use of resilience in security and development policy of Santiago, three channels of power projection were explored. While knowledge is produced to legitimize the policy interventions, technology serves as a tool of its implementation, with the whole process powered by funds from state, regional, private and international sources. The logic is therefore similar to the other studied cities, while the local assemblage of actors is made up of the international resilience-focused organizations, all the way to highly specific, Santiago-bound organizations and companies. The following section explores the material and non-material effects of this assemblage, indicative of a wider transformation of governance taking place, as was argued previously.

## Discussion and conclusion

The capital of Chile is yet another unique case in the context of this study, characterized by the most profound socio-economic inequality and spatial segregation. Yet at the same time, it is the metropolis of one of the most developed countries of Latin America. The cosmopolitan neighbourhoods of central and eastern Santiago are indistinguishable from major developed and globalized cities of the West. The specific geographical and urban characteristics make Santiago vulnerable to seismic activity, climate change and infrastructure failures and fires. While the potential impact of a powerful earthquake in Santiago area would be catastrophic, the degree of existing retrofitting efforts is comparatively lower, due to a relative lack of public and private funds. Given the significant income disparities and relative poverty among a large portion of the residents, long-term structural preparedness initiatives are less prevalent. That said, much attention is paid to training the residents and local organizations for individual behavioural preparedness in case of emergency.

Among the studied cases, Santiago is the only capital city, and also located in a country with the most centralized system of political institutions and executive authority. These characteristics have shaped the ways in which urban resilience has been mobilized and the types of actors involved in this process. The Government of Chile adopted the resilience term from the United Nations Office for Disaster Risk Reduction in the aftermath of the most disruptive earthquake impacting the country in the last 50 years. The international frameworks of UNISDR provided the conceptual basis which the Government deployed on its own terms. Trickle down to relevant ministries, Provinces, Communes, research institutions and industry sectors, the permeation of resilience language in policy has been largely inorganic. Enhanced by an impetus of Santiago Metropolitan Region becoming one of the 100 Resilient Cities in 2015, resilience gradually took centre stage in Chile's public discourse in areas from disaster mitigation to research and development.

Against the backdrop of three channels of power projection described above, two types of effects in terms of governance can be identified. The first one is characterized by its regulatory function and is productive of a network of stakeholders using resilience to legitimize their agendas on the local level. The Central Government of Chile, along with several Ministries and the Santiago Metropolitan Region have financed the emergence of programs and research organizations assembled around resilience. The beneficiaries have included major Chilean universities and research centres. The Rockefeller's 100 RC grant which financed the Human and Resilient Santiago Program for two years was impactful in terms of its international visibility and the breath of the stakeholders it brought together. However, its budget pales in comparison to the National Government's funding frameworks which have made resilience one of their central concepts, producing new actors of resilience on the basis of their funding. In the broad arena of research and development, predominantly adopting an engineering perspective of risk, major grants have been awarded to local organizations under the frameworks such as CORFO or CREDEN. The latter achieved a particularly important position as an initiative powered by the Presidency. Crucially, the leadership of this initiative has called for a fundamental rethink of – traditionally state-centred – disaster management. On the basis of resilience thinking, governance is to be transformed through “the coordination of capacities and resources [by additional actors such as] non-governmental organizations and individuals. [That is, one of the objectives of CREDEN] was to explore to how to reorganize the country in this sense” (de la Llera, interview 22.11.2016).

In addition, the key industries and critical infrastructure operators have been incentivized by the government to become part of the assemblage. Although the degree of permeation of the resilience language in the Chilean business community has been comparatively lower, private companies have gradually started to participate in government-run resilience programs. Contributing to the transformation of the governance model by shifting more power and authority to the private sector, the objective was to “bring the [critical infrastructure] companies together [to make sure] they become



part of resilience. The way to integrate the companies was to disguise [resilience] under the name of business continuity” (Rivera, interview 25.11.2016). Regardless of the initial motivation of private companies to take part, they become integrated into a partially institutionalized, regulatory network which has produced definitions and standards for resilience, informing policy interventions and practices across the city of Santiago.

The second type of governance effect identified is non-material in its nature, and constitutive in its function. Departing from the assumption that the resilience discourse is performative, I argue that Santiago’s residents are systematically constituted as resilient or not, based on the regulatory standards produced as discussed above. Much of this constitution is then based on education and training campaigns designed for vulnerable (i.e., non-resilient) residents, starting on the level of kindergarten. The campaigns are often partially financed by the government and various international organizations, although the majority are facilitated by the specific communes in Santiago. Building resilience is equated with a “capacity building [for children] in schools [and] prevention at home [with the objective of] getting into their conscience that they need to be constantly prepared” (Santiago Commune official, interview 16.11.2016). Considering the scope of possible contingencies and the aspects of life covered by these campaigns, the constitution of individual resilient subjects can be understood as a governmentality strategy based on biopower.

In addition to that, resilience also seems to have served the Chilean government in order to replace the previously used language of sustainability. In this context, resilience is seen as a matter of will when facing hardship and contingency, on both individual and community scale. This shift in thinking had a set of political implications. As a result of “the current development model, [Chile has] tremendous environmental problems that are displacing entire communities” (Bastias, interview, 28.11.2016). It appears that the government representatives see that their “development model is not

sustainable, and therefore they use resilience politically, in order to place the responsibility for failure on communities and individuals, implying that anyone who has enough willpower can be resilient” (Gil, interview 28.11.2016).

This points to the limitations of resilience as currently employed, both on the level of philosophy and practice. For many in the academia, resilience is seen as a nominal question and as yet another trendy concept, following the ones of “green, sustainable, ecological, healthy and smart [...] and the latest one is resilient [...]. [Resilience] works with formal institutions and actors, but brings it into a context where many parts of the city, economy and life are informal – this is all disregarded and ignored” (Sarmiento, interview 18.11.2016).

A rather cynical perspective of organizations aligning and twisting their agendas and names “in order to secure funding” (Rivera, interview 25.11.2016) reinforces the view that the use of resilience has been highly purposeful (CIGIDEN researcher, 28.11.2016). Despite its grassroots and emancipatory language, resilience was initially planted in a rather top-down manner and subsequently mobilized through knowledge, funding and technology. While resilience is nominally not as powerful for residents and communities of Santiago, the constant risk awareness seems to be a part of their DNA. The concept has, however, partially permeated through structures of public agencies seeking external funding (Silva, interview 23.11.2016), informing new public education and empowerment campaigns.

While resilience and the international initiatives that bear its name can work as tools of local political leverage and international visibility, Santiago continues to be characterized by sharp income inequalities and social and spatial segregation (Fuentes et al., 2017, p. 95). Paradoxically, this fits the governmentality logic in which personal resilience and preparedness are seen as key functional and philosophical principles of governmentality. The long-term impact of this shift in philosophy, as well as the usefulness of resilience as a key concept behind it, remain to be seen.

## Urban resilience: a summary of stakeholders

The case studies make it evident that each of the cities is unique in its geographical, social and political context and thus the terrain upon which resilience has been mobilized differs in many ways. Table 6 below summarizes the three strategies of power and the respective initiatives and actors which have enabled them in each city. In addition, the top row highlighted in darker blue summarizes the key events that marked the beginning of urban resilience mobilization in each city. The first strategy based on the legitimizing power of 'Knowledge' is headed by 100 Resilient Cities as a key coordinator of assembling resilience knowledge to shape policy strategies of the studied cities. The table further lists the university and research centres directly involved in defining and shaping the resilience standard. Also, the involved community organizations of a more local character, seen as the civil society element by problem solvers and as vehicles of governmentality by critics, are included. The strategy of 'Funding' is dominated by local governments and relevant ministries or departments of state governments. Several leading international policy and development organizations in global governance of urban resilience are also included, with a number of organizations active in all three cases. In addition, there are multiple local organizations active in one of the cases only, listed separately. Finally, summarizing the strategy of 'Technology', 100 Resilient Cities again stands out as a key coordinator of the stakeholder networks of all the studied cases. This privately-funded but globally stretched initiative which has planted Resilience Offices within the three cities' administrations has had a lasting effect on local public policies. Additionally, by building physical and digital resilience, private companies become part of the local assemblages providing resilience services, technologies and infrastructures. These are often rather localized in their purpose and scope, but nevertheless have important material effects across the studied cities.

	Barcelona	San Francisco	Santiago
<b>Key event(s)</b>	<i>2007 series of blackouts and infrastructure failures</i>	<i>2005 Hurricane Katrina, 2012 Hurricane Sandy</i>	<i>2010 Maule earthquake and tsunami</i>
<b>knowledge</b>	100 Resilient Cities (Rockefeller Foundation)		
	Universidad Ramon Llull, Instituto Químico de Sarria, BCN Urban Resilience Partnership	University of California Berkeley, Urban Land Institute, Urban Risk Lab (MIT)	Universidad de Chile, Pontificia Universidad Católica, CIGIDEN, ONEMI, SeCRO
	City Resilience Profiling Programme / UN-Habitat, ARUP, EFUS, UCLG, C40 Group, ICLEI, Anteverti, Institut Cerdà, Opticits, Hazur	Neighborhood Empowerment Network, ARUP, American Red Cross, NERT, Resilientville, Salvation Army, SAFE, Interfaith Council of SF	Caritas, Chilean Red Cross, Global Network of Civil Society for Disaster Reduction, Levantemos Chile, Techo Chile, ARUP, Institut Cerdà
<b>funding</b>	Federal / State / Local Governments / Departments 100 Resilient Cities (Rockefeller Foundation)		
	UN-Habitat / CRPP, The European Commission, Provincial Government of Catalonia, BCN City Council	FEMA, Center of Disease Control, D. of Homeland Security, City and County of SF: D. of Emergency Management / Public Health / Transport	National Government (CORFO, CREDEN), Ministry of Education (CONICYT) / Housing / Public Works, SMR, Santiago Communes, OFDA / USAID
<b>technology</b>	City Resilience Offices (100 Resilient Cities) Platforms of private companies: consultancy / utilities / technology:		
	BCN Urban Resilience Boards, Urban Resilience Partnership, TYPSA, FCC, Ferrovial, Endesa, Agbar Suez, Urbaser, Sorigué, Cisco	PGEC, AT&T, Caltrans, Verizon, Amtrak, UPR, Recology, Microsoft, Appalicious, Neighborland, Google, Facebook, AirBnB	SeCRO - Atisba Chile, Chilectra, Aguas Andinas, CGE, Telefónica, Transbank, Abertis, COPEC, GNL, Metrogas, Twitter

Table 6: Strategies and actors of urban resilience in the respective case studies

As assemblages are by their very nature never amenable to strict categorization or delimitation, the Table offers some roughly simplified depictions of urban resilience as re-assembled in the three cities. That said, neither one of the strategies of power can be understood without relating it to the remaining two, and to the ‘institutional’ network of stakeholders identified in the Table. The list of actors identified in the Table includes the key nodes of the local networks, but does not claim to be exhaustive in the respective contexts of the three cities. In addition, the activities of many corporate, non-governmental and civil society actors reach far beyond their ‘assigned’ cities, and each of the actors is in itself characterized by multiple elements, processes and projects that emerge, overlap and end in different times. In the meantime, the ideational elements of the assemblage become blurred with and cannot exist without the material elements that sustain them.

The following final chapter allows us to return to examine the third research question in the context of the case studies conducted. What do the processes discussed above suggest about the ontology of the world in a sense of a governmental transformation on the material and intersubjective level? How is the relationship between states, organizations, companies and citizens reconstituted along these lines? Is resilience the key to this transformation, or merely a concept overused to label its local effects? If so, what are the limits of resilience in terms of its relevance and usefulness?

It appears that the local government networks are increasingly operating alongside other, formerly external actors whose relevance has increased in the context of austerity, as local spending budgets have become limited following the global economic downturn from 2008 onwards. This has led to an increasing internationalization, privatization and the engagement with the civil society - not due to normative reasons, but rather due to a practical necessity. The analysis above points to the increasing role of governments in *coordination*, *enabling* or *facilitation*, instead of *direction* or *authority* over the other actors. Even the most centralized case of all, Santiago, has witnessed an emergence of

multidirectional flows of knowledge and practices that defy the long-established hierarchical institutional structures. Both the formalized and the ad-hoc *interactions* between public, private, internal and external actors get mobilized in order to plan for and manage contingencies. The top-down local government has maintained its main functions as a *part* of this assemblage, but it has seen its *modus operandi* substantially transformed. The legitimization of governments' role and existence is therefore achieved through the subjects, on the basis of practices that enable the administration of life. The range of new ideas, actors, funding mechanisms and technologies that are increasingly using 'resilience' to label their missions is one of the indicators of this transformation. At the same time, the residents of these cities have assumed the roles of managers of complex environmental contingencies on a daily basis.

## CHAPTER IV: Conclusion

Having discussed the challenges and problems to which resilience has been proposed as a solution, and explored the strategies to address a *lack of* resilience, this section attempts to finalize the argument by focusing on the so-what question. What do the processes discussed above suggest about the governmental transformation on the material and non-material level? How are the regulatory and constitutive functions of governance manifested through networks made up of states, organizations, companies and citizens? What is the role of resilience in the node-based governance, and what are its conceptual, political and practical limitations?

The previous chapters argued that resilience has been employed as a technology of government, permanently blurring the distinctions between an external, institution-based power on one hand and an internal, subjective and self-disciplinary power on the other. This politically coercive quality of resilience has gone largely unproblematized outside of the academic circles. Resilience is widely perceived as an objective and measurable quality of people, communities, companies, infrastructure networks or entire cities. The difficulty of its actual measurement and quantification notwithstanding, resilience is seen as a means and a goal of adapting cities to the impacts of climate change, natural disasters and the social and demographic challenges emblematic for urban areas.

In the arena of disaster risk, the concept of resilience has been discursively mobilized through organizations of global governance, particularly the United Nations Office for Disaster Risk Reduction between the Hyogo framework of 2005 and the Sendai framework of 2015. In the meantime, UN-Habitat brought resilience into its agenda by adding an urban label to it, from the 2007 Global Report on Human Settlements to the Habitat III Conference in 2016. The timeframe of this process coincided with some of the most serious disasters in recent history, such as the Indian Ocean Tsunami of 2004,

the Hurricane Katrina of 2005, and the Haiti earthquake of 2010. This created fruitful conditions for resilience to be rediscovered in science and research, informing national security and development strategies, all the way to local emergency management protocols. The business sector has actively participated in this momentum, using resilience rather nominally in order to align with the dominant policy language and broaden the available market across different locations and industries.

Three strategies of power, with both regulatory and constitutive effects, have been identified throughout the case studies. First, the scientific *knowledge* and expertise prove to be key in designing and implementing standards of resilience, upon which policies and practices are based. As mentioned above, ideas and knowledge in this respect are far from static – resilience scientists, consultants, and public officials tend to be fairly mobile in terms of their employment, bringing their knowledge and expertise from one organisation to another. Professional connections as well as personal relationships within the respective epistemic communities are the key enablers in circulating the internationalized resilience policies which have significant local impacts.

The second form of power traced in the three case studies was the one employed by means of *funding*. Various financing mechanisms, be it in forms of loans, grants, project contributions or different kinds of sponsorship have powered the process of knowledge creation, as well as the technological interventions in building resilient urban environments. While the funding flows serve as necessary enablers of knowledge and technology, the existence of the latter make resilience an attractive concept. The growing public and private interest in turn leads to placing explicit labels of resilience on major grant schemes. In other words, resilience funding cannot exist in isolation from the related knowledge and technology; rather, all these elements coexist in a mutually interdependent manner. By tracing the funding mechanism of urban resilience in each of the cases, much of its underlying logic became exposed.



The third and final element of the resilience assemblage corresponding to the third channel of power projection is *technology*. For the purposes of the analysis, technology included all types of anthropogenic interventions in the urban public space by means of infrastructure. In addition, the employment of digital technologies has proved just as important as the one used for built environment. The material component of the resilience assemblage is made up of urban networks of critical utilities, energy, transport and communications. In cities at risk of earthquakes and extreme weather, construction and retrofit of buildings is used, albeit to varying degrees. Monitoring and surveillance systems are commonly used in the studied cities, while digital technologies and applications proliferate among their populations. Social media and digital communication platforms have been used for e-government purposes. However, from the perspective of individual resilience, this type of technology can be understood as an enabler of governmentality, rather than emancipation.

The mobilization of resilience is therefore far from being politically or socially neutral – different kinds of actors employ resilience in line with their particular objectives. From defining subjects and standards for resilience, to choosing tools and methods to make those subjects resilient are all political acts. In this context, the objective was to problematize and open up the meanings of resilience, and scrutinize the practices legitimized on their behalf.

Based on the interpretation throughout the previous chapters, a set of broad statements about the dominant approach to urban resilience in policy and practice can be made as follows:

- Problems to which resilience is proposed as a solution include socio-economic ones such as poverty and informality, technical ones concerning insufficient or lacking urban infrastructure and environmental ones that manifest themselves in forms of chronic stresses or disasters.
- Life in cities is understood to be full of risks and adversity originating in natural and man-induced phenomena.

- Resilience is an optimal response to face adversity, as it is general enough to fit all possible problems and local contexts, regardless of specificities on the level of cities, communities or individuals.
- Resilience is an innate quality and its achievement depends on each individual's will. In case it is lacking, it can be trained and facilitated to empower the non-resilient subject. A failure to internalize the resilience value indicates the individual's lack of adaptability.
- By means of empowerment through knowledge, funding and technology, resilience gives power and agency to the vulnerable, poor and informal residents and thereby contributes to social and environmental justice.

The purpose of the previous chapters was to critically engage and challenge the above understanding. It has been argued that resilience has served as a vehicle of governmentality. Although it operates through the language of empowerment, it does next to nothing to truly address poverty and inequality that characterize urban areas. It legitimizes itself through a body of knowledge certified by scientists and experts. It is deployed in a form of funding leveraged from public and private stakeholders across the spectrum, in order to turn vulnerable subjects into adaptable and responsible individuals. And finally, it fundamentally shapes the living environment of billions of urban dwellers across the globe by building so-called resilient infrastructures and technologies.

The previous chapters suggest that in pushing the urban resilience agenda, problems of non-resiliency are defined and solutions presented to build resilience. That said, the concept itself is less important than the governance transformation that it has enabled. Tracing the processes of regulatory and constitutive function of resilience across the three studied cities, the degree of similarity is striking, considering the specificity of local risks, organizations and administrative structures in each case.

The first component of the double function of the transformed governance is *regulatory* in its nature and purpose. It enables the production of organizations, associations and platforms which in turn produce the rules, standards and regulations for resilient lives and living environments. The interactions between these actors are just as important as the actors themselves. The case studies have explored the networks made up of local government actors, international organizations, NGOs, research centres and private companies, and their local regulatory effects. Thus, the deployment of resilience policy simultaneously uses and defies the traditional governance structures. While local governments retain a certain executive function, they enable the association-based resilience building process that ultimately gets out of their hands.

One of the most emblematic examples of this governance transformation is the creation and evolution of the 100 Resilient Cities program. Funded by a private philanthropic organization based in the United States, it has grown to integrate 100 major cities worldwide under the banner of resilience building. Since 2014, the program has managed to build powerful connections between corporate donors, non-governmental organizations and city administrations across the world. It therefore serves as a connector between public and private organizations, designing standards for urban transport, energy use, retrofit and housing interventions, as well as the use of digital technology. As a result of this program, a vast hybrid network has been produced, with its nodes being the Resilience departments and offices functionally close to the mayors and policy makers in the member cities. This way, it has amended the policy and administrative structures of 100 cities worldwide. The funds provided to the participating cities come from major technology companies, while a proportion of these funds goes back to these very donors as payments for ‘resilient’ technologies and services.

The nature of the described network is indicative of the governance transformation affecting states, regions, cities and citizens. New organizations are produced and their agendas legitimized in the

process. In Barcelona, the 100 Resilient Cities program has served to power the resilience diagnostic and its participants, mostly the corporate members of the urban resilience boards. While the results remain behind the closed doors for the time being, the program has strengthened the city's international exposure, the brand of a smart and resilient city, and reconnected the city administration to international organizations such as UN-Habitat. In San Francisco, the 100 RC has empowered the formerly existing seismic retrofit program, boosting the position of the Chief Resilience Officer. The creation of the Resilience Department led to more risk evaluations and studies, connecting with other City departments and universities, as well as the Silicon Valley companies. In Santiago, the 100 RC was integrated into the governance structure of the Metropolitan Region. Its rather inorganic adoption notwithstanding, the resilience narrative has served as a convenient mobilizer for international and state funds. Consequently, many new research and policy platforms appeared, committed to build resilience of Santiago's infrastructure and its vulnerable communities.

The second component of the transformed governance lies in its *constitutive* function. Non-material in its essence, a constitution of subjects takes place on an intersubjective level. The most important mobilizer, along with the subject, is the city administration, operating in a close proximity and imposing the frameworks for everyday practices of emergency management, urban planning, education, healthcare or social support. Using resilience as a performative tool, risk awareness of individuals and communities is legitimized as a necessary, desirable and emancipatory. From the ability to cope with everyday public transport delays to withstanding severe floods, the scope of self-imposed resilience has become so broad it makes it difficult to identify what it *is not*.

Constructing resilient subjects and communities increasingly relies on digital technologies employed by local governments with the assistance of private companies. Digital applications used for everyday risk management as well as crisis response have become part of everyday life in cities.

Barcelona has continued to build its smart city brand, aiming to digitally connect vulnerable citizens, such as low-income residents or the elderly. San Francisco's SF 72 program, based on an online platform, encourages citizens to constantly prepare their families and households for potential emergencies. Different communes in Santiago have used their Twitter accounts to spread their disaster preparedness campaigns among the local population. All of the cities have used different social media platforms for communication and response post-disaster, relying especially on their digital imagery and location tools. Both in times of normalcy and emergency, surveillance systems based on CCTV and biometric tools have been employed, from managing transport flows to conducting police operations.

The purpose is not to argue that digital connectivity is always necessarily harmful. Rather, it is to expose the governmentality function which it attains, coordinated by local governments and facilitated by private companies. The campaigns and programs powered by digital technology constitute subjects as resilient or not. The performativity of resilience in shaping the thinking and behaviour of people is therefore exposed.

The intersubjective mobilization of resilience, which can be more organic in some cities than in others, makes it possible to conceal the inadequacies and inefficiencies of local governments under the banner of community empowerment. At the end of the day, each person and community is thereby considered as a manager of their own risk. This means that they use their own knowledge about risks against the state of ignorance, their own resources against the state of vulnerability, as well as their own material and digital connectivity against the state of isolation.

What does this mean for the responsabilized, adaptable and resilient urban subject? The common understanding of resilience and its attributes is constructed through the scientific knowledge and expertise. Once the resilient standard is set and accepted, people and communities are expected to adapt to and fulfil its requirements. Those who fail to do so are in need of external help, ranging from

empowerment and education campaigns to police interventions. The nature and depth of these initiatives is conditioned by the political will, as well as the funding available.

Policy makers tend to welcome the resources and capabilities that public administrations can draw from external (i.e. private and community) sources. At the same time, resilience can be seen as a convenient tool to gain funding and legitimacy to maintain and extend the existing development and security practices. In this understanding, the term is less important than what it represents on the level of public policy - the self-legitimation strategy of the conventional governance structures in a context where actual delivery of development and security becomes as elusive as ever. The role of top-down governmental institutional networks therefore does not diminish, nor becomes marginalized. Rather, we are witnessing their transformation *vis-à-vis* other actors which are engaged in designing and implementing new solutions for city management.

Critics argue that the neoliberal treatment of resilience is fundamentally reductionist, as it aims to quantify, categorize, measure, set milestones and indicators. It thus reduces a complex and highly political question of resilience to a technocratic matter. The urban resilience professionals, such as bureaucrats, policy makers, emergency managers or private consultants set the standards and define the regime of truth, within which resilience is assessed and measured. The wider political considerations of resilience thereby become completely side-lined. The question of vulnerability tends to be raised, but only within the boundaries of the disciplinary understanding - using a set of resilience indicators help to categorize the population and separate the resilient from non-resilient. The latter then require some form of outside assistance or intervention. This technocratic perspective is reflected in the agenda setting and resource allocation of global development organizations, as was discussed in Chapter II.

## Purposes and limitations of resilience

One of the goals of this study was to *problematize the concept of resilience as a universal tool used by the stakeholders to secure cities and their inhabitants*. Resilience is in fact political, and its proliferation is indicative of a wider transformation of power and the ways of its projection upon and by its subjects. The resilience language is performative in a sense of making people responsible for their everyday actions and their consequences, which is the only way to justify the existing power structures in an environment which is increasingly difficult (or impossible) to govern at all. Although the resilience concept is extremely elusive, it is at the core of a powerful discourse which influences development and security practices on all levels. Resilience has also become increasingly standardized (see Rogers, 2013), which is at odds with the obvious site-specificity of its target locations.

In this context, one of the important questions is how resilience is used politically, to what ends, and by what kind of actors. In this vein, four distinct ways in which resilience has been employed can be identified based on the previous chapters. The term is commonly portrayed as:

- *Resilience as a socio-technical preparedness in a physical or technical sense*; a view shared by ecological resilience theorists. This perspective has been adopted by policy makers on the level of cities, regions and states and international organizations. Their regulatory policies tend to focus on social, economic and physical preparedness and tend to be based on quantifiable frameworks, models and assessments.
- *Resilience as a policy buzzword and gateway to funding, which reflects a cynical perspective*. This view has been adopted by many scholars who claim that resilience in itself is a hollow concept. This is also argued by certain public, corporate, non-governmental and community

stakeholders on all levels who openly admit that resilience simply opens doors to funding of projects and campaigns within their existing agendas.

- *Resilience as an empowering tool for the vulnerable.* This perspective is partially embraced by scholars of Critical political economy and similar approaches which advocate for a fundamental political change that could empower the poor, marginalized and vulnerable. It has been embraced by some policy makers and community actors who truly consider resilience as a way to enable, facilitate and mobilize residents for a positive bottom-up action.
- *Resilience as a technology of government.* This perspective informed the above analysis, echoing the approaches of scholars inspired by Foucault. The emphasis is on the intersubjective level of deploying resilience by governing through subjects. In this respect, this study has explored the power projection through funding, knowledge and technology under the banner of resilience, and exposed its regulatory and constitutive effects.

The above described dominant perspectives of resilience and its performativity are far from mutually exclusionary. It becomes evident throughout the case studies that the rhetoric and practices of resilience have ‘travelled’ globally, always reflecting a particular set of institutional characteristics and political purposes inherent to specific sites in any given time. The behaviour of stakeholders who circulate policy is a product of certain interests and settings, and the policy’s deployment tends to differ widely depending on local contexts.

This leads to a major limitation of resilience, which lies in its conceptual vagueness. As argued by many policy makers, echoed by the private sector, resilience is understood by many as an empty signifier. However, it is accepted as a policy concept as long as it opens avenues for collaboration and business. Another type of criticism tends to come from local non-governmental organizations, questioning the practical impact of the term for everyday lives of people and communities. They often



claim that the responsibility for a lack of resilience lies with the very actors who claim to build it: the public administration and private sector whose neglect and ignorance contributes to growing inequality. In this context, resilience as a policy concept does not mean much, and does not speak to citizens and communities overwhelmed by daily struggles for livelihood. These are the instances in which the contested concept of resilience can provoke resistance against it.

Another major limitation of resilience can therefore be found on the intersubjective level. The internalization of resilience has been successful to a certain degree, as was argued above. However, due to the elusive logic of this process, it cannot be evidenced or measured to what extent resilience is adopted by citizens and communities that it claims to empower. Although no hard data exists to support such claim, it is reasonable to suggest that the reach of resilience as a policy concept, and the empowerment initiatives that bear its label, will not affect the totality of lives of marginalized urban communities. A concept whose power lies in its attractiveness, acceptance and relevance, will always be limited in its reach by ignorance, rejection, or a perception of irrelevance on the side of its potential subjects.

That said, the nominal appeal of resilience is less important than the underlying governance logic which the term helps to uncover. In the context of vulnerability of cities and the omnipresent uncertainty and unpredictability, resilience stands for everyday self-governance, reassurance and risk-awareness. It has become a dominant discursive and policy framework to help people, communities and cities adapt to any possible contingency. The resilience label is widely used in an effort to secure funding of specific projects, reassert authority and legitimacy for employing specific security measures, and allocating resources in a certain way. Thus, in many cities, resilience has been much more than an empty signifier. Rather, it has developed into a state-of-the-art technology of government, praised by many without much understanding or problematization of its many political facets. Disguised by the

language of climate change adaptation and local empowerment, resilience has in fact become the most sophisticated means of enhancement for the administrators of life.

### Avenues for future research

It is necessary to point out that much academic literature and scholarship on resilience in governing cities has been produced in the Western, or Anglo Saxon context (see Kaufmann et al., 2015). Resilience has been widely debated and applied here, to assess and enhance the adaptability of socio-ecological systems on all scales and levels. On the conceptual and empirical level, this study did not constitute an attempt to extend the focus beyond the Western sphere, as much of the analysis was based on primary sources in their original language. That said, valuable contributions could be made by engaging resilience concept and practices as enacted in cities of Asia or Africa. Theoretically and empirically, governmental rationalities, practices and their impacts could be examined, and their similarities and differences across regions could be discussed in future research.

Other concepts emblematic for, and indicative of the transformation of governance through networks could also be identified and explored. Preceding the buzzword of resilience by decades, sustainability was an object of profound scholarly research and popular debate. It is reasonable to expect that new concepts will appear, and older ones will be reinvented (as was the case with resilience, after all), which will help theorize and understand the questions of governance and subjectivity in the post-liberal context. Hybrid networks, such as philanthropic programs financed by private donors and connecting city administrations to international organizations on one side and technology companies on the other, have reshaped the traditional governance model. Many similar networks are likely to emerge in the future, which will open new avenues for theoretical and empirical research.



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